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Multidisciplinary vocational rehabilitation for patients with chronic arthritis

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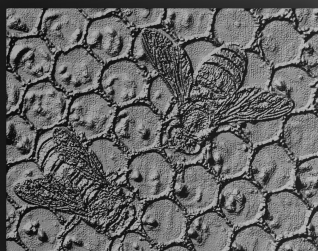
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Multidisciplinary Vocational Rehabilitation for Patients With Chronic Arthritis

Marieke de Buck

Multidisciplinary Vocational Rehabilitation for Patients with Chronic Arthritis

proefschrift

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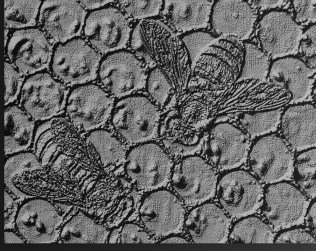
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1

Introduction

Introduction

Chronic rheumatic conditions affect about one in seven people in the United States and Europe (1;2). In the Netherlands, an estimated 200.000 people of working age are affected by chronic inflammatory rheumatic diseases. They include 79.000 persons with rheumatoid arthritis (RA), 8000 persons with ankylosing spondylitis (AS), 4000 with other spondylarthropathies, 99.000 with other forms of (poly) arthritis and 10.000 with systemic diseases like systemic lupus erythematosus (SLE) (3). In addition, there are 200.000 persons of working age with peripheral osteoarthritis (3). In total, this is 4% of the entire population of working age in the Netherlands (3).

Over the last 25 years, work disability has been increasingly recognized as a major consequence of many chronic rheumatic conditions and has become a generally accepted outcome measure in clinical studies (4). Work disability is usually defined as complete work cessation due to a chronic rheumatic disease prior to the normal age of retirement (5), however in some studies any restriction in the work status such as working less hours or being on sick leave is denoted as work disability.

From the societal perspective, sickness absence and loss of work account for a large segment of indirect costs in rheumatic diseases. People with arthritis can expect to have higher rates of sick leave and to be employed fewer years than the general population (6;7). In the Netherlands, rheumatic diseases account for about 15% of the costs of all work disability payments (8;9).

Participation in paid employment is a major life role for most adults. For the individual patient the inability to work may adversely affect self-esteem and quality of life (10-15). Moreover, the financial consequences of the disease can be substantial for the patient and his or her family (16;17).

Regarding the consequences of chronic arthritis, including work disability, the International Classification of Functioning and Disability (ICF) published by the World Health Organization (WHO) (18) can be applied. The ICF organizes information on health status according to a. (impaired) body functions and structures, b. activity (limitations) and c. participation (restrictions), such as work disability. In addition, contextual variables (environmental and personal factors) are included (figure 1). The use of the ICF to describe environmental and personal factors that may influence participation in work is now recommended (19).

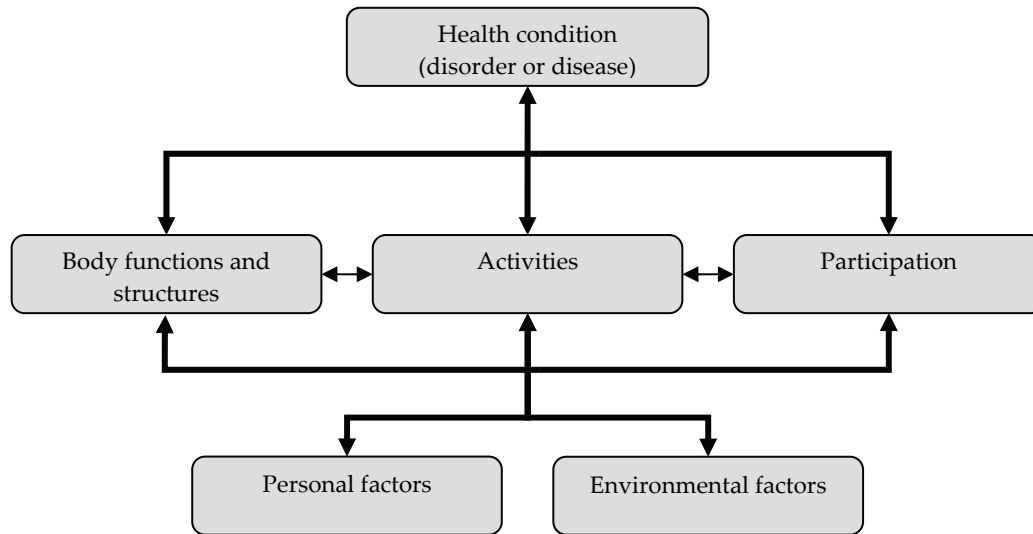


Figure 1. The International Classification of Functioning, Disability and Health (ICF) of the World Health Organization (WHO)

Epidemiology of work disability and sick leave in chronic arthritis. Over the past decades, a number of studies have been published regarding the epidemiology of work disability in chronic arthritis.

With respect to RA, a recent systematic review on work disability (20) showed that in 21 cross-sectional studies, published between the years 1980 and 2002, the rates of work disability ranged from 13% after a mean disease duration of 6 months up to 67% after a mean disease duration of 15 years. In five longitudinal studies included in that review, published between the years 1987 and 2000, work disability rates ranged between 10% after one year to 90% after 30 years of RA. Discrepancies in the observed work disability rates due to RA across all studies might be attributed to methodological problems and differences.

The rates of work disability associated with AS and SLE appear to be lower than for RA, however their economic effect may be enhanced by the relatively earlier age of onset of these diseases (21-23). A review on working status and its determinants among patients with AS reported that in 16 studies and 2 abstracts published between 1980 and 2000, employment ranged from 34 to 96% after 45 and 5 years disease duration, and work disability rates from 3 to 50% after 18 and 45 years disease duration (21). Only few studies have addressed work disability in SLE. Partridge et al (22) described that 40% of the patients quit work completely after an average of

3.4 years disease duration. Stein et al (13) found that 37% of SLE patients with a previous work history were not working after mean disease duration of 5.5 years. Another study described that after median disease duration of 10 years 25% of the SLE patients had a disability pension (24).

Until now little is known about the prevalence of sick leave in patients with chronic arthritis. In cross-sectional studies or follow-up studies presenting baseline data on RA patients, the proportion of patients who were in paid employment but currently on sick leave varies from 13-55% (25-29). In patients with AS the prevalence of sick leave appears to be substantial also. Findings vary from 12 to 46 days per patient per year (30).

With respect to SLE, in a cross-sectional study in 114 patients with a median disease duration of 10 years (24), 61% of the subjects had been absent from work for at least 6 consecutive weeks after diagnosis, 81% of these patients did not resume work after 6 consecutive months.

Factors associated with work disability in chronic arthritis. With respect to RA, various sociodemographic factors (ICF: personal factors), clinical factors (ICF: body functions and structures and activity) and work-related factors (ICF: environmental factors) have been found to be associated with work disability or not working (ICF: participation) in a substantial number of cross-sectional and longitudinal studies. The results of these studies have been summarized in three recent reviews (20;31;32). The review by Sokka et al. (31) included 15 reports, and concluded that joint involvement, pain score, functional status, age, formal education level and occupation were associated with work disability. The review by Verstappen et al. (20) included 27 articles (period 1980-2002) and concluded that in univariate analyses long disease duration, positive rheumatoid factor, high erythrocyte sedimentation rate, high joint count, high pain scores, more radiographic damage, more disease severity, low general well being, more functional disability, high age, less education, marital status, sex, blue collar job, and physically demanding job were associated with work disability. In multivariate analyses, the associations of marital status, general well-being and self-employment with work disability were not confirmed. De Croon et al (32) included 19 publications on 17 study populations (period 1988-2004). In that review, a rating system to assess the level of evidence for the various predictive factors was used. Results provided strong evidence that physical job demands, low functional capacity old age and low education predict work disability. Owing to a lack of high quality studies, no evidence was

found for personal factors such as coping style, and work environmental factors such as work autonomy, support and work adjustments. A recent study identified modifiable work related factors that influence the risk of work disability in RA (33). The results suggest that self-employment, adapting the workstation to accommodate for RA, support for continued employment from the family and greater importance of work to the individual reduced the risk of work disability whereas difficulty commuting increased the risk.

In a systematic review regarding the literature on AS; age, education and physical function are shown to be associated with work disability, while peripheral joint disease was associated with sick leave (21).

Determinants of work disability in patients with SLE were found to be a low education level, a physically demanding job and a high level of disease activity (22).

Problems encountered at work by employees with chronic arthritis. Preceding the occurrence of sick leave or permanent work disability, individuals with chronic arthritis may have considerable difficulties in maintaining employment. With respect to the problems encountered, few studies are available (34-39).

Challenges may be related to: General symptoms associated with the rheumatic condition, such as fatigue, pain and morning stiffness, work organization (e.g. total work hours, shift work, time pressure and rest periods), specific physical requirements of the job including work environment and work station (sitting, walking, standing, overhead work, manual precision work/writing, carrying heavy loads, cold/heat exposure, climbing stairs), social environment like support of co-workers and management. Also commuting difficulties and travelling for business are significant challenges (unable to walk to or use the bus or drive a car).

Interventions aimed at the prevention or reduction of work disability in chronic arthritis. Given the large impact of work disability, work retention issues have been identified as one of the aims of the management of patients with rheumatic conditions (40). In the United States and European countries, vocational rehabilitation programs are being offered to patients with the aim of preventing the loss of paid employment or improving return to work. In contrast with the many studies on factors associated with work disability (20;32), the number of publications reporting on the results of

vocational rehabilitation programs is limited (41-47). The results of the few available studies, of which the majority had an uncontrolled design, indicate an overall positive effect on vocational status. A recent randomised controlled trial on the effectiveness of a job retention vocational rehabilitation program (two 1.5-hour sessions) in patients with rheumatic diseases showed that such an intervention delayed and reduced job loss (41). That study did not include outcome measures reflecting the impact of the vocational rehabilitation program on quality of life.

In the Dutch health care system occupational physicians play an important role in the process of vocational rehabilitation. Occupational physicians are linked to occupational health services, with which all companies are legally obliged to have a contract since January 1998. In 2002 new legislation in the Netherlands was introduced to stimulate participation in work. People on sick leave remain on the payroll of employers for two years instead of one, and both employer and employee are obliged to work together to facilitate return to work. The co-operation between occupational physicians and other health professionals is an important but often troublesome element in the vocational guidance of patients with a health related problem at work (35;40;48;49;50;).

Aim of this thesis

Work disability has been increasingly recognized as a major consequence of chronic arthritis. Longitudinal studies consistently show that the toll of work disability starts early after disease onset. Moreover, work disability profoundly affects the quality of life of patients and their families, and has major financial consequences for the individual and society at large.

The purpose of the present thesis was to study:

1. The available evidence regarding the effectiveness of vocational rehabilitation programmes in chronic arthritis.
2. The effectiveness and costs of a multidisciplinary job retention vocational rehabilitation programme for patients with chronic arthritis at risk for job loss, and patients' and occupational physicians' satisfaction with this intervention.
3. The co-operation between rheumatologists and occupational physicians in the process of vocational rehabilitation.

The following points are dealt with in the respective chapters:

Chapter two reports the results of a systematic literature review concerning the effectiveness of vocational rehabilitation programmes in patients with chronic arthritis.

Chapter three describes the predictive value of sick leave as a risk factor for job loss in patients with chronic arthritis participating in a trial on the effectiveness of multidisciplinary job retention vocational rehabilitation programme.

Chapter four reports the results of a randomised comparison of the effectiveness of a multidisciplinary job retention vocational rehabilitation programme in comparison with usual care in patients with chronic arthritis who were at risk for job loss.

Chapter five reports the result of the economic analysis in conjunction with the randomised controlled trial.

Chapter six describes the satisfaction of patients and occupational physicians with the multidisciplinary job retention vocational rehabilitation programme employed in the randomised controlled trial.

Chapter seven describes the communication between Dutch rheumatologists and occupational physicians in the process of occupational rehabilitation of patients with chronic arthritis.

Finally, a summary of the results and the conclusions and a general discussion are given in **chapters eight and nine**, respectively.

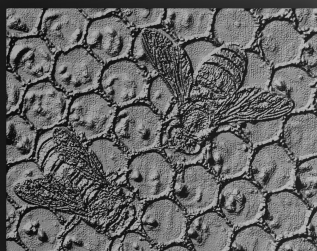
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2

Vocational rehabilitation in patients with chronic rheumatic diseases A systematic literature review

P.D.M. de Buck
J.W. Schoones
S.H. Allaire
T.P.M. Vliet Vlieland

Abstract

Objective: To describe the effectiveness of vocational rehabilitation programs for patients with chronic rheumatic diseases by means of a systematic review of the literature.

Methods: Data were obtained by a computer-aided and manual search of the literature from 1980 until May 2001. Vocational rehabilitation programs had to be clearly defined interventions specifically aimed at re-entering or remaining in the work force of patients with rheumatic diseases. The vocational rehabilitation programs had to be executed by one or more (health) professionals. Outcome of the intervention had to be described in terms of vocational status (work disability, sick leave, job modification, paid occupation, retraining).

Results: Six articles were selected. All 6 were uncontrolled. Follow-up periods ranged between 2-84 months. Five out of 6 vocational rehabilitation programs consisted of a multidisciplinary intervention. In five out of six studies 15%-69% of the patients successfully returned to work, in one study this percentage could not be determined.

Conclusions: Six publications were identified that reported on the effectiveness of vocational rehabilitation programs for patients with rheumatic diseases. Although five of six studies showed a marked positive effect on vocational status, the proof of the benefit of these interventions is scanty, mainly due to methodological differences and shortcomings in most of the studies.

Introduction

Rheumatic diseases are a major cause of work disability and place a huge financial burden on the individual as well as on society (1-3). In addition, the non-economic impact of work disability on the individual and his or her family is substantial (4;5). A considerable amount of rheumatic disease associated work disability occurs early in the course of the disease. With respect to rheumatoid arthritis (RA), 20%-40% of the patients have quit their jobs completely as a result of RA within the first three years of the disease (2;6;7). Work disability is also substantial in patients with other rheumatic diseases such as ankylosing spondylitis and systemic lupus erythematosus (8,9).

Risk factors for work disability in patients with rheumatic diseases are both job and disease related (10;11). Job related risk factors are the physical demand level of the job, job autonomy and control over work pace and activities (8;12-14). Disease factors vary by disease but in each case more severe disease predicts work disability (6;12;15;16). Apart from job and disease related risk factors other factors such as sociodemographic characteristics play a role. It appeared e.g. that higher age and lower education level are related to work disability (14;16;17).

Now that the large impact of work disability in patients with rheumatic diseases is generally acknowledged, more and more attention is being paid to the question how work disability can be prevented or return to work can be promoted. In some countries the basic treatment of patients with rheumatic diseases by rheumatologists and allied health professionals now often includes strategies aimed at the reduction of work disability (18;19). Moreover, specific vocational rehabilitation programs are beginning to be introduced. However, little is known about the effectiveness of vocational rehabilitation programs for patients with rheumatic diseases. The aim of the study is to describe the effectiveness of vocational rehabilitation programs for patients with chronic rheumatic diseases by means of a systematic review of the literature.

Materials and Methods

Search strategy. The search strategy was aimed at the selection of studies describing the outcome of vocational rehabilitation programs for patients with a chronic rheumatic disease. In cooperation with a trained librarian (JS) a search strategy was composed. Due to limited resources for

translation only articles in English, Dutch and German were considered for inclusion. The search was restricted to the last 20 years.

The initial search strategy comprised a search of electronic databases: PubMed and PsycINFO were searched from 1980 up to May 2001, Current Contents from 1995 upto May 2001 and the Science Citation Index from 1988 upto May 2001. The following combination of terms as headings or subheadings was used: [arthritis, rheumatoid or lupus erythematosus, systemic or bechterew or rheumatoid arthritis or RA or SLE or systemic lupus erythematosus or ankylosing spondylitis or AS or SA or spondylitis ankylopoëtica or JCA or spondylarthropathy or spondylarthropathies] and [Rehabilitation, vocational or employment or sheltered workshops or sick leave or disability evaluation or occupational health services or rehabilitation or vocation or occupation or employment or disability evaluation or sick leave or occupational health]. The PubMed search strategy was translated to make it applicable for Current Contents, PsycINFO and the Science Citation Index.

Selection of articles. All abstracts or titles were screened using the following inclusion criteria: a description of a vocational rehabilitation program and the involvement of patients with chronic rheumatic diseases. Moreover, review articles were excluded. Of abstracts or titles meeting these criteria, the corresponding articles were collected from the library or the Internet. All full text articles were then assessed using the following additional criteria:

1. The article had to describe an intervention concerning vocational rehabilitation for patients with chronic rheumatic diseases. The vocational rehabilitation had to be a defined program that was specifically aimed at (re) entering or remaining in the work force and was executed by one or more (health) professionals like physical and occupational therapists and a vocational rehabilitation counselor.
2. The outcome of the intervention had to be described in terms of vocational status and/or work disability and/or sick leave and/or job modification and/or change of occupation and/or retraining.
3. The results concerning patients with chronic rheumatic diseases could be distinguished from those of patients with other disorders.

Titles of references from selected articles were checked for additional studies, which were screened as described above.

Data extraction. Of all selected articles information on the following items was obtained: source and year of publication, country of origin, research design, characteristics of the study population (number, age, sex, diagnosis, disease duration), characteristics of the intervention (description, duration of intervention, (health) professionals involved, setting), duration of follow-up, end-point measures used and the results of the studies. The various outcome measures used and the data presentation, which usually consisted of vocational status after the intervention, but not of change scores with a measure of variability, did not allow for a pooling of data nor for a formal meta-analysis. Two persons (TVV, PdB) performed the selection of articles after the initial search and the data extracting from the selected papers. Any discrepancies between the reviewers were settled by consensus. Finally the results of the literature search and data extraction were presented to an expert in the field of vocational rehabilitation (SHA).

Results

Search and selection of trials. The initial electronic database search provided 127 eligible citations. Eight articles were found more than once and were counted as one. Review articles were excluded. Twenty-five titles or abstracts met the initial selection criteria: description of a vocational rehabilitation program which involved patients with chronic rheumatic diseases. All 25 fulltext (17;19-32;32-41) articles were assessed according to the more extended criteria described earlier. Five articles were selected following the elective database search (25;26;28;35;41). The search of the references yielded one additional article (42).

Description of the studies. Study and patient characteristics are described in table 1. Four studies were done in the United States of America (US), one in the United Kingdom (UK) and one in the Netherlands. The study done by Sheppard was published in 1981, while the other studies have been published between 1992 and 1997. Five studies had a retrospective and one a prospective follow-up design (41). None of the studies included a control group. The follow-up period varied between 2-84 months (25;26;28;35;41;42).

Characteristics of study population. Table 1 describes the characteristics of the patients with rheumatic diseases. In two of the three studies from the US

evaluating the government funded (state and federal) vocational rehabilitation program, the population consisted of persons coded as having 'arthritis or rheumatism' affecting varying limbs and/ or the back (28;42). In the third study persons coded as having orthopedic impairments stemming from accidents or injuries or who had amputations were also included along with persons with arthritis or rheumatism (25). In the other three studies patients had RA, juvenile arthritis, osteoarthritis or systemic lupus erythematosus, however classification criteria were not described. Disease duration was only mentioned in the study of Sheppard (35). The age of the patients included in the studies ranged between 16-59 years (26;35;41;42), whereas the percentage of male patients ranged between 18-79% (26;35;41;42) or was not described (25;28).

Characteristics of the intervention. Characteristics of the vocational rehabilitation programs are described in table 2. The disablement resettlement officers (DRO's) as described in the study from the UK were attached to jobcenters and occasionally hospitals, and they assisted in placement in suitable employment or gave advice on early retirement. Their intervention, of unknown duration, was specifically aimed at patients with rheumatoid or juvenile arthritis.

The state federal vocational rehabilitation (SF-VR) program in the US provided counseling, guidance and vocational testing to all eligible clients at no cost in a community setting. Funding for other services such as job training was provided as needed and according to financial eligibility guidelines (25;28;42). Health professionals involved were the vocational rehabilitation counselor, physical and occupational therapists and other consultants or people involved in work adjustments or support services. The duration of the intervention was not described and the vocational rehabilitation program was not especially designed for rheumatic patients. The Dutch study described an intervention consisting of vocational rehabilitation and working on trial basis. The intervention was carried out by a multidisciplinary team, of which the various tasks and professions of the team members were not described in detail. The average duration of the rehabilitation program was not described and the intervention was not especially designed for patients with chronic rheumatic diseases (35). The Job Raising program used a self-improvement model of vocational rehabilitation developed for patients with arthritis. A Job Raising program

for patients with multiple sclerosis was adapted by substituting specific multiple sclerosis content for rheumatic diseases symptom content. Information about pain and the interaction of pain with stress and depression was added (41).

Effectiveness of vocational rehabilitation programs. The results of the interventions, expressed as vocational status at baseline and after the intervention, are described in table 2. Vocational status at baseline was described in terms of being employed, at work or unemployed (35;41;42), work-disability or threatened work-ability (28) or not described (25;26). Five studies described a positive result of vocational rehabilitation on vocational status. In four of these studies the rate of successful return to work varied between 52%-69% (25;28;35;42). Return to work was defined as working a minimum of 60 days prior to case closure in all three of these studies (25;28;42). In the Job Raising program 26% of the patients was employed before and 41% after the intervention (41). The study done in the Netherlands described a less positive result of the intervention for patients with rheumatoid arthritis, as after the intervention only 4 of 26 RA patients were at work. The baseline percentage of people at work remains unclear. In five studies the results concerned endpoint measures determined shortly after the intervention, i.e. 2 to 6 months. In the UK study, one-year post intervention follow-up data were available. The number of persons in employment increased from 18 to 32 persons (44% increase), and then fell back by 5 (16%) at one year.

Table 1. Characteristics of studies and patients participating in vocational (see also next page for the another part of table 1)				
Study	Study type	Follow-up (months)	Total no. of pts in study	No. of pts with rheumatic diseases
Sheppeard (35) Pub: 1981, UK	Retro-spective follow-up	12	52	52
Straaton(42) Pub: 1992, US	Retro-spective follow-up	2	456	456
Allaire (28) Pub: 1993, US	Retro-spective follow-up	2	4.2 million	79.080
Straaton (25) Pub: 1995, US	Retro-spective follow-up	2	4093	364
Schmidt (26) Pub. 1995, Netherlands	Retro-spective follow-up	48-84	395	26
Allaire (41) Pub: 1997, US	Prospect-ive, uncontrolled	6	141	141

rehabilitation programs (Table 1, see also previous page)			
Sex (%Ⓜ)	Age (yrs)	Diagnosis (no. of pts)	Disease duration (range: yrs)
79%	Employed: mean 42.2 (16-59) Unemployed: mean 45.1 (19-59)	47 Rheumatoid Arthritis 5 Juvenile Arthritis	Employed: 8.3 (2-15) Unemployed: 8.2 (2.5-13)
42%	42.3 (SD 12.3)	All persons with a primary or secondary disability code, arthritis and rheumatism involving 3 or more extremities, 1 upper and 1 lower extremity, 1 or both upper extremities, 1 or both lower extremities, or trunk or spine, respectively	?
?	?	Arthritis and rheumatism, resulting in restricted use of at least one limb	?
?	?	Orthopaedic impairment due to arthritis of 3 or more extremities, 1 upper and 1 lower extremity, 1 or both upper extremities, 1 or both lower extremities, or trunk or back or spine, respectively	?
50%	46.2 (SD 12.8)	Rheumatoid Arthritis	?
18%	Mean 46 (SD ?)	52 Rheumatoid arthritis 28 Osteoarthritis 21 Fibromyalgia, 23 SLE, 17 Other	?

Table 2. Characteristics and results of vocational rehabilitation programs (see also next page for the another part of table 2)	
Study	Description intervention
Sheppard (35) Published:1981 UK	Assistance in placement in suitable employment (advice on job modification, job assessment, retraining and early retirement)
Straaton(42) Published: 1992 USw	State Federal Vocational Rehabilitation system (Alabama): 1. Physical restoration, including medical dental or surgical consultation or procedures, physical or occupational therapy, appliances or prostheses. 2. Training including the acquisition of new skills through higher education. 3. Work adjustment services, stressing the acquisition of appropriate or desirable work behaviours including job-readiness instruction, vocational evaluation and psychological counselling. 4. Support services such as transportation and maintenance.
Allaire (28) Published: 1993 US	State Federal Vocational Rehabilitation services (Massachusetts): counselling, guidance, vocational testing services, job referral and placement services. Physical and mental restoration, vocational training or education, transportation and other services helping the client to reach a vocational goal.
Straaton (25) Pub: 1995 US	State Federal Vocational rehabilitation service (Alabama): See Straaton #68, 1992
Schmidt (26) Pub: 1995 Netherlands	1. Vocational rehabilitation: Training of necessary work skills, improving awareness of possibilities, standard tests to assess capability, vocational assessment and counselling 2. Working on trial: to study maximum hours possible, need for adaptations and support by colleagues and/or immediate superior
Allaire (41) Pub: 1997 US	Arthritis Job Raising Program: 10 structured group meetings with 8-12 persons, 3 hours a week. Combination of didactic, peer interaction and individual exercise, a job search club, help from a business volunteer or peer role model or other available Arthritis Foundation Chapter or community based services

(Table 2, see also previous page)			
Setting	Professionals involved	Vocational status at baseline	Vocational status after intervention/ effectiveness
Job centers, Hospitals	Disablement Resettlement Officer (DRO)	Sick leave n=18 (35%) At work n=0 (0%) Unemployed n=34 (65%) Early retirement n=0 (0%)	Sickleave 0 % At work 67% Unemployed 33% (Early retirement 25%)
Community	Vocational rehabilitation counsellor, physical and occupational therapists, medical, dental or surgical consultants, other persons involved in work adjustment or support services.	At work n= 37 (8%)	Successful case closure 64%
Community	See Straaton #68, 1992	Work disability or threatened workability (100%)	Successful case closure for arthritis patients 52%
Community	See Straaton # 68, 1992	?	Successful case closure for arthritis patients 69%
1.Rehabilitation centre 2. Normal working environment	1. Multidisciplinary team 2. Employer, rehabilitation center therapist and patient	?	At work n= 4/26 (15%)
Community	Volunteers or staff of Arthritis-Foundation state chapters, personnel staff, business volunteers	Employed: n= 37 (26%) Unemployed: n= 104 (74%)	Employed: n= 58 (41%) Unemployed: n= 83 (59%)

Discussion

This review demonstrates that the number of publications reporting on the results of vocational rehabilitation programs for patients with rheumatic diseases is limited. Although the results of five of the studies show a positive effect on vocational status, the proof of the benefit of these interventions for patients with chronic rheumatic diseases is scanty, mainly due to methodological differences and shortcomings in most of the studies. Our study is the first to describe the effectiveness of vocational rehabilitation programs for patients with chronic rheumatic diseases in a systematic way. Two investigators independently assessed all articles and abstracts and consensus was reached concerning both the inclusion of the article as well as the data extraction. As the number of scientific databases was limited and the search was restricted to articles published in English, German or Dutch, it could be possible that additional relevant publications have been overlooked. However, as the results of the literature search were also presented to an external expert in the field of vocational rehabilitation, it is likely that this review is sufficiently complete.

With respect to the design of the studies the selected papers described five retrospective and one prospective cohort study with different follow-up periods. In none of the studies a controlled design was used. Patient populations described are not easily comparable because of lack of information concerning diagnoses, disease duration and age. Only two interventions were especially designed for rheumatic patients (35;41). Five of the studies involved multidisciplinary teams as part of the program.

Five out of six studies described a short-term positive effect of vocational rehabilitation programs with respect to the main outcome measure, which was defined as return to paid employment in all five studies.

Despite the trend towards a positive effect of the interventions, it appears from previous studies that the participation of patients with rheumatic diseases in vocational rehabilitation programs is generally low in comparison with patients with other disorders (28). Possible reasons for this low utilization by this specific group of patients have been described as multifactorial: health professionals and patients may be unaware of the existence of vocational rehabilitation programs, health professionals tend to be pessimistic about the rehabilitation potential of patients with rheumatic diseases because of the exacerbation- and remission characteristics of the disease and furthermore health professionals tend to have little knowledge on relevant interventions that can be implemented like counseling to

improve physical and mental abilities or job placement strategies (21;28;30). Moreover, considering the female to male ratio of the chronic rheumatic diseases in the general population, it appears from the studies included in our review that women were underrepresented in the vocational rehabilitation programs, which may indicate that sex may be a factor related to the use of vocational rehabilitation programs.

The long-term effects of vocational rehabilitation for persons with arthritis and other rheumatic diseases have only been studied twice, one of which was published in 1971 and therefore did not meet the review search criteria (35;43). If the results of these two studies are representative, then perhaps a third of individuals receiving vocational rehabilitation intervention (16% in the Sheppard study and 44% in the 1971 study) can be expected to be unemployed a year later. This re-occurrence of unemployment would not be unusual; in patients with spinal cord injuries it is demonstrated that those have a post-injury work history do not maintain employment long-term (44). A study that examined the long-term outcome of the U.S. state-federal vocational rehabilitation program among all participants found a significant drop in employment two years after service completion (45). A number of vocational rehabilitation experts believe many employed persons with disabilities need continued access to job retention services after they return to work (44).

The majority of the patients participating in the studies selected for our review were already work disabled or on sick leave at the start of the vocational rehabilitation program. As both work disability and sick leave are associated with substantial inconvenience and costs for both individual patients as well as society, it is worth considering if vocational rehabilitation programs can be effective in *preventing* the loss of paid employment. In that view it would be desirable that patients at increased risk of work disability or job loss could be identified in an early stage because prevention of work disability may be more effective than correction of work disability after job loss (6;10;14;46). For that purpose, more insight into factors that are predictors of work loss and/or permanent work disability in the early stages of the disease is needed.

To summarize, there is a limited number of uncontrolled studies evaluating the effectiveness of vocational rehabilitating programs for patients with chronic rheumatic diseases, suggesting that such programs may be effective with respect to return to paid employment. Future research should be aimed at the evaluation of the clinical effectiveness and costs of vocational

rehabilitation programs. These vocational rehabilitation programs should be aimed at both the prevention of sick leave and permanent work disability and at return to work if job loss has already occurred. Apart from the fact that these studies should have a randomized controlled design with a long-term follow-up, it is desirable that vocational rehabilitation programs, baseline- and endpoint- measures are sufficiently described. For the purpose of the identification of patients at an increased risk of sick leave or permanent work disability, the inclusion of sufficient numbers of patients with early stage rheumatic diseases is needed and factors related to disease activity and work disability should be incorporated in the study design.

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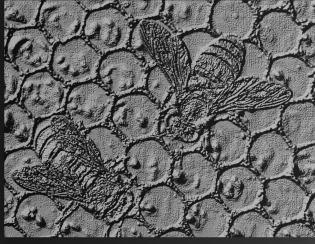
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3

Sick leave as a predictor of job loss in patients with chronic arthritis

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Abstract

Objectives: To study the occurrence and duration of sick leave as potential risk factors for permanent job loss after 24 months among 112 individuals with chronic arthritis and a disease-related problem at work.

Methods: Data collection was embedded in a multicentre randomised controlled trial in which the cost-effectiveness of a multidisciplinary job retention vocational rehabilitation programme for employees with chronic arthritis and a disease related problem at work was compared to usual outpatient care. Sick leave (complete or partial) was defined as absenteeism reported to the employer and permanent job loss as receiving a full work disability pension or unemployment. The association between sick leave at baseline and job loss after 24 months was investigated by multivariate logistic regression analysis, including those variables that were univariately significantly associated with job loss after 24 months.

Results: At baseline, 60 of the 112 subjects (54%) were on sick leave, with a mean duration of 18.7 weeks, in half of these patients the sick leave was complete. After 24 months, 26 of the 112 patients (23%) had lost their job. The presence of complete sick leave (OR 4.74, 95% CI 1.86-12.07) and the depression score of the Hospital Anxiety and Depression Scale (OR 1.18, 95% CI 1.02-1.36) were significantly and independently associated with job loss after two years follow-up.

Conclusion: The occurrence of complete sick leave and worse mental health status are risk factors for job loss in patients with chronic arthritis who have a disease related problem at work.

Introduction

Rheumatoid arthritis (RA) and other chronic inflammatory rheumatic diseases are disabling conditions that affect the lives of individual patients in many ways. The prevalence of permanent work disability is high (1-4) and it appears that job loss occurs often early in the course of the disease (5-8).

So far, most research in this field has been aimed at the epidemiology of permanent work disability. In three reviews on predictors of work disability in patients with RA (1;9;10), various sociodemographic, clinical and work-related factors were reported to be associated with work disability. In the systematic review by de Croon et al (10), using a rating system to assess the level of evidence for each predictive factor, strong evidence for old age, low education, low functional capacity and physical job demands to predict work disability was reported.

Sick leave, especially if it is long-term, is considered to precede permanent work disability in chronic arthritis (11). The Croon et al (10) concluded that there is a lack of information regarding the association between absenteeism and work disability. This lack of knowledge is striking, as the prevalence of sick leave among patients with rheumatic conditions appears to be significant (5;12-17). In cross-sectional studies and baseline data of follow-up studies, the proportion of employees with RA who are currently on sick leave varies from 13-55% (5;12-14). In follow-up studies the proportions of RA patients reporting sick leave days over a period of one year range from 50-76% (14-17). In patients with ankylosing spondylitis (AS), patients with a paid job were found to lose 5% of work days as a result of the disease, accounting for an average of 10.1 days of sick leave per year in addition to sick leave based on other grounds (18).

As until now little is known about the significance of sick leave as a predictor of permanent work disability in patients with chronic rheumatic conditions, the aim of the present study was to explore whether the occurrence and duration of sick leave is associated with job loss in employees with various rheumatic diseases who report disease related problems at work to their rheumatologist at the outpatient clinic. The identification of risk factors for work disability can be used to develop tailored vocational or occupational health interventions.

Subjects and Methods

Study design. The current analysis was embedded in a multicentre, randomised, controlled trial in patients with chronic rheumatic diseases who had a paid job and reported a disease-related problem at work. In this trial, the cost-effectiveness of a multidisciplinary job retention vocational rehabilitation programme, described in detail earlier (19), was compared to usual outpatient care initiated by the rheumatologist (20). The programme was executed at the Leiden University Medical Center by a multidisciplinary team, involving a rheumatologist, a social worker, a physical therapist, an occupational therapist and a psychologist. An occupational physician had a general advisory role. After a standardised assessment procedure, the patients' health problems, the challenges in maintaining employment and the implementation of tailor-made solutions were discussed in a multidisciplinary team conference. Dependent on the specific problems, the intervention further consisted of education, counselling, guidance, medical or non-medical treatment. All patients visited the hospital at least twice as part of the vocational rehabilitation programme. The treatment in the group of patients who were randomised to receive usual outpatient care was left to their rheumatologist. The Medical Ethics Committees of all 11 hospitals involved approved the study and all participating patients gave written informed consent.

Assessments were done at baseline and after 6, 12, 18 and 24 months of follow up. For the present analysis on sick leave as a risk factor for job loss, data obtained at baseline and after 24 months were used.

Subjects. Between March 1999 and June 2001, 140 subjects with a chronic rheumatic disease with arthritis of one or more joints, a paid job of more than 12 hours per week, and a disease-related problem in maintaining work, were enrolled in the study. Patients with a diagnosis in the following three categories were eligible for the study: 1. RA according to the ARA classification criteria (21); 2. AS according to the modified New York classification criteria (22), reactive arthritis or psoriatic arthritis; 3. systemic lupus erythematosus (SLE) according to the ARA classification criteria (23), or scleroderma. The presence of a disease related problem in maintaining work was verified by the rheumatologist by asking the question: "Do you have concerns that your rheumatic condition-related problems at work may result in job loss?". Exclusion criteria were reaching the pensionable age

within two years or having another disease or situation influencing work ability.

Assessment methods

Sociodemographic and clinical characteristics at baseline. The following variables were recorded at baseline: age, sex, status of living (living with a partner yes/no) and education level, divided into three categories: primary education (0-8 years), secondary education (9-16 years), and higher vocational education/university (17 years and more). Disease duration was listed from the medical record. Disease activity was measured by means of the patient's global assessment of disease activity, pain and fatigue on three separate visual analogue scales (VAS). Moreover, the physician's global assessment of disease activity was recorded on a VAS. All VAS were 10 cm horizontal lines. The anchors on the left were no disease activity, no pain and no fatigue whereas the anchors on the right were worst imaginable disease activity, severe pain and severe fatigue. In addition, the Westergren erythrocyte sedimentation rate in the first hour (ESR) and the Health Assessment Questionnaire (HAQ) a 20-item questionnaire comprising eight domains of activities of daily living (24) were included.

Co-morbidity was assessed by means of the Charlson Index (25) and categorised as not present (Charlson index = 0) or present (Charlson index >0).

Anxiety and depression were measured by means of a Dutch version of the Hospital Anxiety and Depression Scale (HADS) (26). The higher the scores, the more anxious or depressed the subject is (range 0-21 per scale).

General quality of life was measured using the RAND 36-item Health Survey (26). The RAND contains nine subscales: physical functioning, role limitations physical functioning (four questions on perceived problems at work or other daily activities in the last four weeks), general health perception, social functioning, role limitations emotional problems (at work or other daily activities in the last four weeks), mental health, vitality, pain and health change. Each subscale generates a score from 0 to 100, higher scores indicating better health. The RAND-36 may be converted into two summary scales: the physical and mental component summary scales. The RAND includes the same items as the Medical Outcomes Study Short-Form (SF 36) and although the scoring procedures are somewhat different, the effects on final scores are minimal (27).

Job characteristics at baseline. The current occupation was grouped into one of four categories, each representing different levels and types of demands at work (28) category 1 is characterised by predominantly mental demands and absence of physical demands, category 2 by occupations with a combination of physical and mental effort, category 3 by light physical demands and category 4 by heavy physically demanding tasks.

The presence of material or immaterial adaptations at the workplace (including adapted tools, adapted furniture, aids to perform present job, reduction of tasks or duties, help of colleagues, rest facilities, commuter traffic facilities, flexible working hours, opportunities for more breaks, less working hours or reduced work pace) was recorded. Reduced working hours were only considered as an adaptation at work when this adaptation did not pertain to official, incomplete sick leave.

Perception and judgement of the job were assessed using eight scales of the Questionnaire on Perception and Judgement of Work (VBBA; Vragenlijst Beleving en Beoordeling van Arbeid) (29): job autonomy, emotional demands, relationships with colleagues, work pace and amount of work, physical demands of the job, relationships with supervisors, job satisfaction, need for recovery after work and work related fatigue. For all dimensions higher scores indicated less favourable work characteristics. With all questions subjects had to make a choice between always, often, sometimes or never. This questionnaire has been validated in the general working population as well as in employees with a chronic disease (30). Satisfaction with the job was scored on a horizontal VAS (range 0-10 cm), the anchor on the left was not satisfied and the anchor on the right was fully satisfied with the job. The VAS was only to be filled in by those subjects who had worked at least a few days in the last month.

Working status and job loss at baseline and follow-up. At baseline, it was recorded whether patients were receiving a partial work disability pension. In the Dutch social security regulations a partial work disability pension in combination with a part-time job is common. In this situation sick leave may occur during the hours active at work.

Current sick leave, defined as absenteeism reported to the employer, was registered. In accordance with the Dutch social security regulations the maximum duration of sick leave is one year, and sick leave can be either complete (reported sick for all hours that one is engaged) or partial (reported sick for part of the hours that one is engaged). As in the

Netherlands comprehensive interventions to return people to work are started after 6 weeks of sick leave, the duration of sick leave was also defined in terms of shorter or longer than 6 weeks.

Job loss was defined as receiving a full work disability pension or being unemployed. In addition, any increases in partial work disability pensions were recorded, and denoted as deterioration of the work status. For that purpose, it was registered whether either a partial work disability pension had been entitled in patients who did not receive such a pension at baseline or whether there was an increase in a partial work disability pension that had already been entitled at baseline.

Analyses and statistical methods. Data management was performed using the Project Manager Software package version 6.1 based on the Knowledge Man relational database system (31). Data were automatically and integrally converted to SPSS 11 for Windows for statistical analysis. If applicable, sum-scores were calculated according to the original description of the assessment instrument. For categorical data proportions were calculated, all other data were expressed as means with standard deviations. Missing values were imputed by the mean value of that person for that specific scale if not more than 50% was missing.

Baseline characteristics of the 112 patients of whom data on the working status at 24 months were available were compared with those of the other 28 patients by means of Student-t or Chi Square tests. In case of skewed data, a logarithmic transformation was applied.

Characteristics of the working status at baseline were compared between patients who had lost their job after 24 months and those who had not, and between patients in whom the working status had deteriorated after 24 months and patients in whom the working status remained stable or improved by means of Student-t or Chi Square tests.

To analyse the association between the occurrence of sick leave (yes/no), completeness of sick leave (complete versus partial), duration of sick leave (as continuous variable in weeks and categorized as >6 weeks versus <6 weeks) and other baseline variables on the one side and job loss and deterioration of working status on the other side, univariate logistic regression analysis was performed, with the results expressed as odds ratios with the 95% confidence interval. For the univariate analyses, all sociodemographic, health and work characteristics, including the randomisation status (multidisciplinary job retention vocational

rehabilitation programme versus usual care) were considered to be potential determinants of job loss. In case of a skewed distribution of the variables, a logarithmic transformation was performed, except for the dichotomous variables. Only variables that were statistically significantly associated with the occurrence of job loss in the univariate analyses were entered into multivariate logistic regression models with job loss and deterioration of work status as dependent variables. A p-value <0.05 was considered as statistically significant. All multivariate analyses were done conditional on randomisation status.

Results

In table 1 the baseline characteristics of the 112 subjects of whom data on the working situation at 24 months were available are presented. The mean age was 43.9 years (SD 9.0), 66 subjects (55%) were female, and 19 subjects (17%) had a high education level. Regarding the education level, subjects are a representative sample compared with a nationwide sample of Dutch RA patients with a paid job (32) and with the Dutch population (33).

The mean disease duration was 28 months (SD 34.2). Half of the subjects had RA, 44 patients (39%) had one or more co-morbid conditions. With respect to disease severity, the results indicate moderate disease activity and physical functioning limitations, whereas the impairment of psychological functioning was mild in this population.

Concerning the working situation, about half of the subjects reported mentally or mixed mental-physically demanding work, whereas the other half mentioned light to heavy physical demands at work. Twenty-six percent of the subjects reported the implementation of work adjustments. With respect to the perception and judgment of the job, the aspects job autonomy, work pace and quantity, and recovery period after work were scored the least favourable. The mean job satisfaction scored on a VAS in subjects who had worked at least a few days in the last month (n=85) was 5.5.

Table 1. Characteristics of 140 patients with chronic arthritis and a disease related problem at work. Of 112 of the 140 patients data on working status at 24 months were available.

	N=112	N=28	p-value*
<i>Sociodemographic characteristics</i>			
Age, years; mean (SD)	43.9 (9.0)	41.6 (10.5)	0.237
Female patients; n (%)	66 (59%)	13 (46%)	0.288
Living with partner/family; n (%)	90 (80%)	19 (68%)	0.202
High educational level; n (%)	19 (17%)	6 (21%)	0.587
<i>Disease characteristics</i>			
Diagnosis; n (%)			
Rheumatoid arthritis	60 (54%)	10 (36%)	0.231
Ankylosing spondylitis, spondylarthropathies	22 (20%)	7 (25%)	
Miscellaneous (SLE, scleroderma)	30 (27%)	11 (39%)	
Duration of disease, months; mean (SD)	28.0 (34.2)	51.2 (49.8)	0.067 [#]
Visual analogue scales, 0-10 cm; mean (SD)			
Disease activity patient	5.1 (2.4)	5.7 (2.9)	0.242
Pain patient	4.5 (2.2)	4.7 (2.8)	0.776
Fatigue patient	6.0 (2.5)	5.0 (2.7)	0.084
Disease activity physician	3.2 (2.0)	4.0 (2.3)	0.078
ESR, mm/hr; mean (SD)	18 (17)	18 (22)	0.521 [#]
HAQ (0-3); mean (SD)	0.79 (0.50)	0.83 (0.62)	0.704
<i>Comorbidity: Charlson Index ≥ 1</i>	44 (39%)	16 (57%)	0.068
<i>Mental functioning and Quality of life</i>			
HADS-anxiety; mean (SD)	6.8 (3.9)	7.9 (4.2)	0.193
HADS-depression; mean (SD)	5.7 (3.4)	6.7 (3.7)	0.180
RAND-36 summary scales; mean (SD)			
Physical health	43.0 (17.8)	37.4 (20.0)	0.144
Mental health	61.8 (23.8)	61.1 (24.1)	0.890
<i>Job characteristics</i>			
Current occupational category; n (%)			
Mental demands	36 (32%)	8 (29%)	0.639
Mixed mental / physical demands	22 (20%)	6 (21%)	
Light physical demands	33 (30%)	6 (21%)	
Heavy physical demands	21 (19%)	8 (29%)	
Adaptations at work; n (%)	29 (26%)	8 (29%)	0.774
Perception and judgment of work; mean (SD)			
Job autonomy	42.9 (21.8)	50.0 (20.4)	0.120
Emotional demands	29.5 (16.1)	26.8 (17.6)	0.446
Relationships with colleagues	21.7 (14.8)	20.3 (13.2)	0.650
Work-pace and quantity	47.9 (15.8)	47.3 (16.5)	0.868
Physical demand level	32.0 (19.2)	40.5 (21.8)	0.045
Relationships with supervisor	22.6 (17.2)	23.2 (18.9)	0.862
Job satisfaction	23.9 (17.4)	23.2 (15.1)	0.857
Recovery period after work	48.3 (17.3)	47.3 (20.2)	0.790
Fatigue after work	28.9 (14.8)	28.5 (14.0)	0.887
VAS Job satisfaction, 0-10 cm; mean (SD)	5.5 (2.5) ¹	5.8 (2.6) ²	0.648
<i>Work status</i>			
Partial work disability benefit; n (%)	21 (19%)	2 (7%)	0.165
Currently on sick leave; n (%)	60 (54%)	17 (61%)	0.531
Complete sick leave; n (%)	31 (28%)	10 (36%)	0.487
Duration of sick leave, weeks; mean (SD)	18.7 (12.8)	22.8 (18.6)	0.420
Duration of sick leave >6 weeks; n (%)	45 (40%)	12 (43%)	0.832
<i>Randomisation status: Multidisciplinary job retention vocational rehabilitation programme; n (%)</i>	59 (53%)	15 (54%)	0.933
*Student's t-test or Chi Square test where appropriate			
[#] Student's t-test applied after logarithmic transformation			
HAQ=Health Assessment Questionnaire; HADS=Hospital Anxiety and Depression Scale; VAS=visual analogue scale ; ESR=erythrocyte sedimentation rate			
¹ n=85 patients and ² n=19 patients; VAS job satisfaction was only filled in by those subjects who worked five days or more in the past month			

At baseline, 60 of the 112 of the subjects (54 %) were on sick leave, with a mean duration of 18.7 (SD 12.8) weeks. The duration of sick leave was more than 6 weeks in 45 patients (75% of those who were on sick leave), whereas in 13 patients (22% of those who were on sick leave) the duration of sick leave was more than 26 weeks. In 31 patients (52% of those who were on sick leave) the sick leave was complete.

Fifty-nine of the patients (53%) were randomised in the multidisciplinary job retention vocational rehabilitation group.

A comparison of the baseline characteristics of the 112 subjects included in the present analysis with the 28 patients who were lost to follow up or of whom no data on working status after 24 months were available showed no statistically significant differences.

Table 2 shows the working status at baseline of patients who lost their job after 24 months versus those who did not. A significantly larger proportion of the patients who lost their job was on sick leave (73%) or on complete sick leave (54%) at baseline than of those who maintained work (48% and 20%, respectively). So, of the 60 patients who were on sick leave at baseline, 19 (32%) lost their job after 24 months, whereas in the subgroup of 31 patients who were on complete sick leave, 14 (45%) lost their job. The proportions of patients who were randomised to the multidisciplinary job retention vocational rehabilitation group at baseline were similar in the groups of patients who lost their job and who did not, indicating no effect of the programme on the maintenance of work [20].

Regarding any increase in disability pension, the proportions of patients who were on sick leave at baseline (74%), on sick leave with a duration of >6 weeks (54%) or on complete sick leave (44%) at baseline were significantly higher than those of the patients in whom there was no increase in disability pension after 24 months (34%, 28% and 12%, respectively). So, of the 60 patients who were on sick leave at baseline, 40 (67%) patients had an increase in disability pension after 24 months, whereas in the subgroup of 31 patients who were on complete sick leave, 24 (77%) had an increase in disability pension. In parallel with the results regarding job loss, the proportions of patients who were randomised to the multidisciplinary job retention vocational rehabilitation programme were similar in the groups of patients of whom the working status deteriorated and of those in whom the working situation was stable or improved.

Table 2. Working status at baseline of 112 patients with chronic arthritis and a disease related problem at work according to their working situation after 24 months of follow-up			
	Work status after 24 months		
	Job loss n=26	No Job loss n=86	p- value*
<i>Working status at baseline</i>			
Partial work disability pension; n (%)	7 (27%)	14 (16%)	0.255
Currently on sick leave; n (%)	19 (73%)	41 (48%)	0.026
Duration of sick leave, weeks; mean (SD)	18.5 (13.0)	18.8 (12.9)	0.939
Duration of sick leave >6 weeks; n (%)	13 (50%)	32 (37%)	0.262
Complete sick leave; n (%)	14 (54%)	17 (20%)	0.002
<i>Randomisation status</i>			
Job retention vocational rehabilitation programme; n (%)	14 (54%)	45 (52%)	0.892
	Increase in work disability pension n=54	No increase in work disability pension n=58	p- value
<i>Working status at baseline</i>			
Partial work disability pension; n (%)	7 (13%)	14 (24%)	0.152
Currently on sick leave; n (%)	40 (74%)	20 (34%)	<0.001
Duration of sick leave, weeks; mean (SD)	19.1 (13.0)	17.8 (12.9)	0.731
Duration of sick leave >6 weeks; n (%)	29 (54%)	16 (28%)	0.007
Complete sick leave; n (%)	24 (44%)	7 (12%)	<0.001
<i>Randomisation status</i>			
Job retention vocational rehabilitation programme; n (%)	31 (57%)	28 (48%)	0.333

*p-value of Chi-square test or Student's t-test where appropriate

Table 3. Univariate analysis of risk factors for job loss or increase in disability pension in 112 patients with chronic arthritis and a disease related problem at work. Results are presented as odds ratios with the 95% CI#.

		Job loss	Increase in work disability pension
<i>Sociodemographic characteristics - Age</i>		1.03 (0.98-1.08)	1.03 (0.99-1.08)
	- Male patients	1.31 (0.54-3.17)	1.13 (0.53-2.40)
	- Living with partner/family	3.64 (0.79-16.7)	3.05 (1.09-8.50)
	- High educational level	0.86 (0.26-2.86)	0.43 (0.15-1.24)
<i>Disease characteristics</i>			
Diagnosis: - rheumatoid arthritis		1	1
	- AS	0.14 (0.02-1.15)	0.65 (0.24-1.79)
	- miscellaneous	1.58 (0.60-4.14)	1.62 (0.66-1.04)
Duration of disease*		0.86 (0.67-1.11)	0.83 (0.66-1.04)
Visual analogue scale -disease activity patient		1.14 (0.94-1.38)	0.93 (0.79-1.08)
	- pain patient	1.15 (0.93-1.41)	1.10 (0.92-1.30)
	- fatigue patient	1.16 (0.96-1.41)	1.06 (0.91-1.22)
	- disease activity physician	1.10 (0.88-1.37)	1.05 (0.86-1.27)
ESR*		0.86 (0.54-1.38)	1.03 (0.69-1.53)
HAQ		2.25 (0.93-5.45)	1.68 (0.79-3.59)
<i>Comorbidity</i>	<i>Charlson index >1</i>	1.18 (0.48-2.87)	1.77 (0.82-3.81)
Mental functioning, Quality of life	HADS-anxiety	1.07 (0.96-1.20)	1.09 (0.99-1.20)
	HADS-depression	1.19 (1.04-1.37)	1.16 (1.03-1.31)
	RAND summary scales physical health	0.97 (0.94-1.0)	0.95 (0.93-0.98)
	mental health	0.99 (0.97-1.0)	0.97 (0.95-0.99)
<i>Job Characteristics</i>			
Current occupational category: % (n)			
	mental demands	1	1
	mixed mental / physical demands	1.03 (0.29-3.66)	1.20 (0.41-3.48)
	light physical demands	1.12 (0.37-3.43)	0.65 (0.25-1.69)
	heavy physical demands	1.09 (0.31-3.19)	1.10 (0.38-3.23)
Adaptations at work		0.62 (0.21-1.82)	0.69 (0.29-1.62)
Perception and judgment of work			
	Job autonomy	1.02 (1.00-1.04)	1.02 (0.99-1.03)
	Emotional demands	1.0 (0.97-1.02)	0.99 (0.97-1.01)
	Relationships with colleagues	1.01 (0.98-1.04)	0.99 (0.97-1.02)
	Work -pace and quantity	1.01 (0.98-1.04)	1.01 (1.00-1.05)
	Physical demand level	1.03 (1.00-1.05)	1.01 (1.00-1.04)
	Relationships with supervisor	0.98 (0.95-1.01)	0.99 (0.97-1.02)
	Job satisfaction	0.99 (0.97-1.02)	0.99 (0.97-1.01)
	Recovery period after work	1.03 (1.00-1.06)	1.01 (0.99-1.04)
	Fatigue after work	1.02 (0.99-1.05)	1.0 (0.97-1.02)
Job satisfaction VA		1.11 (0.87-1.40)	1.04 (0.87-1.23)
Work status	Partial work disability benefit	1.90 (0.67-5.35)	0.47 (0.17-1.27)
	Currently on sick leave	2.98 (1.14-7.82)	5.43 (2.40-12.26)
	Complete sick leave	4.74 (1.86-12.07)	5.83 (2.24-15.15)
	Duration of sick leave	1.0 (0.95-1.04)	1.01 (0.96-1.05)
	Sick leave >6 weeks	1.69 (0.70-4.09)	3.05 (1.39-6.68)
Randomisation status	Multidisciplinary job retention vocational rehabilitation programme	1.06 (0.44-2.56)	1.44 (0.69-3.04)
<p>#Results in bold indicate that worse (higher) scores on the HADS, and worse (lower) scores on the RAND physical and mental health summary scale, being currently on sick leave and being currently on complete sick leave at baseline were significantly associated with job loss and increase in work disability pension. In addition, living with a partner or family and sick leave >6 weeks at baseline were significantly associated with increase in work disability pension.</p> <p>*based on logarithmic transformation in case of skewed data</p>			

In table 3, the univariate analyses concerning factors associated with job loss or increase in disability pension are presented. It was found that worse (higher) scores on the HADS depression scale, worse (lower) scores on the RAND physical and mental health summary scales, being currently on sick leave or on complete sick leave at baseline were significantly associated with both job loss and increase in work disability pension. In addition, living with a partner or family, and sick leave more than 6 weeks at baseline were significantly associated with increase in work disability pension.

The results of the multivariate analyses (table 4) indicate that a worse score on the HADS depression scale and being on complete sick leave were independently and significantly associated with job loss, whereas a worse score on the RAND summary scale mental health and being on complete sick leave were independently and significantly associated with an increase in work disability pension.

Table 4. Multivariate analysis of risk factors for the occurrence of job loss in 112 patients with chronic arthritis and a disease related problem at work. Results are presented as odds ratios with the 95% CI and are conditional on randomisation status*.		
	Job loss	Increase in work disability pension
Mental functioning, Quality of life	1.18 (1.02-1.36)	-
<i>HADS depression</i>	-	0.97 (0.95-0.99)
RAND Summary scale Mental health		
Work status		
Complete sick leave	4.30 (1.64-11.25)	4.97 (2.10-11.75)
*Results indicate that a higher (worse) HADS depression score and the occurrence of complete sick leave are independently and significantly associated with job loss after 24 months, whereas a lower (worse) score on the RAND mental health summary scale and the occurrence of complete sick leave are independently and significantly associated with an increase in disability pension after 24 months.		

Discussion

In this study in subjects with chronic arthritis and a disease-related problem at work, threatening their work ability, it was shown that mental health status and being on complete sick leave were significantly associated with job loss and any increase in work disability pension assessed after 24 months.

So far, few studies have examined the significance of sick leave as a determinant of work disability. In a systematic review regarding predictive factors of work disability in RA, it was concluded that for absenteeism little evidence for a relationship with work disability was available (10). In that review a study by Reisine et al. (34) was included, in which 472 employed patients with RA were followed for 9 years. Not only age and type of occupation, but also the number of days missed from work as a time varying co-variate was a factor significantly associated with work survival. Bräuer et al. (11) evaluated in a prospective study prognostic indicators related to the occurrence of work disability in the first year of RA. Of the 141 patients with a paid job, 110 participated in a reevaluation after a mean follow-up of 6.1 years, with 53 patients (48%) still being employed. In a multivariate analysis, duration of sick leave more than 8 weeks was, apart from age higher than 45 years, limited joint motion interfering with job tasks and working under pressure of time, significantly associated with work disability. In the present study, the duration of sick leave more than 6 weeks was, just as currently being on sick leave and complete sick leave, univariately associated with increase in disability pension. However, in the multivariate analyses the completeness of sick leave, together with mental health status, appeared to be a significant predictor of both job loss and increase in disability pension over 24 months.

In contrast with the studies by Bräuer and Reisine, the present study comprised, apart from RA, patients with other forms of chronic arthritis. We found no association between the diagnosis and deterioration of the working situation after 24 months. However, this finding might be due to the small numbers of patients within each group, so differences between the three diagnosis groups cannot be completely excluded. In addition, in the present study patients were selected regarding the presence of a disease related problem at work. Because of this latter selection, the prevalence of sick leave cannot be directly compared with that of otherwise unselected groups of patients with chronic arthritis. It is conceivable that the risk of job loss is increased in our population. However, as has it has been found in previous studies that many patients with chronic arthritis face multiple

challenges and make major adaptations to remain in employment (35-37), the sample may be representative for a considerable proportion of employed patients with chronic arthritis.

Despite differences in patient populations, study design and settings, it can be concluded from both the studies by Reisine and Bräuer et al. and from the present study that sick leave in patients with chronic arthritis is a red flag for impending work disability. In the present study, the average duration of sickness absence (18.7 weeks) in those who were on sick leave was substantial. Although subjects in our study were initially motivated to stay in the work force, with a relatively long period of sickness absence job loss may become inevitable. This apparent unavoidableness is remarkable, since at the time the study was conducted sick leave should last at least 52 weeks before a work disability pension could be entitled and in 78% of our patients the duration of sick leave was less than 26 weeks, still leaving 6 months for reintegration. It is however conceivable that as time goes by patients as well as health professionals and employers may lose their belief in the individual's capacity for employment and accept his or her inability to work.

Another striking finding in this study is the significance of the completeness of sick leave as a predictor of job loss and deterioration of the working status. This result indicates that staying in the work force for at least a few hours per week may be very important in maintaining the job. In daily practice this implies that patients/employees, occupational physicians, employers and rheumatologists should leave no stone unturned to adapt the working situation as well as to improve the health status in such a way that complete sick leave is avoided.

The results of the present study underscore the importance of the recognition of sick leave as a risk factor for work disability in patients with chronic arthritis. Previously, it has been questioned whether rheumatologists do sufficiently recognize patients' working problems (38). Apart from paying attention to the presence of sick leave and the patient's mental health status, the use of instruments that have been specifically developed for the identification of those individuals with chronic arthritis having difficulties at work could be helpful, because by using these tools working problems could be recognized in earlier stages. Examples of those instruments are the RA-Work Instability Scale (39) and the Work Limitations Questionnaire (40). Daille et al (41) showed which issues are important from the patients' perspective and recommended a topic list for

various health professionals to use during consultations. Although for the treatment of working problems various interventions are available, such as guidance by a social worker, occupational therapist, clinical nurse specialist or occupational physician or referral to vocational rehabilitation programmes, adequate medical treatment of the underlying rheumatic condition is indispensable. In RA it was proven that aggressive initial treatment with a combination of Disease Modifying Anti Rheumatic Drugs significantly improved 5-year outcome in terms of lost productivity (number of days receiving sickness allowance or disability pension) (8). In conclusion, the results of the present study underscore the need to raise the awareness of rheumatologists and other health professionals for the significance of sick leave, especially if this is complete, in patients with chronic arthritis and a paid job. Specific screening instruments for the recognition of working problems in even earlier stages need to be further developed and evaluated.

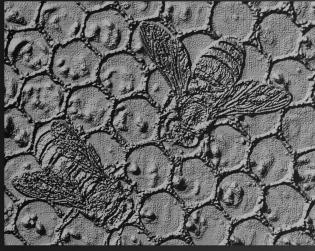
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4

Randomized comparison of a multi-disciplinary job-retention vocational rehabilitation program with usual outpatient care in patients with chronic arthritis at risk for job loss

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Abstract

Objective: Work disability is a major consequence of inflammatory rheumatic conditions. Evidence regarding the effectiveness of interventions aimed at the prevention or reduction of work disability in rheumatic diseases is limited. This randomized controlled trial aimed to investigate the effectiveness of a multidisciplinary job retention vocational rehabilitation program (VR-program) in patients with a rheumatic condition who were at risk for job loss.

Methods: 140 patients with a chronic rheumatic condition were randomly assigned to a multidisciplinary job retention VR-program (n=74) or usual outpatient care (UC) (n=66). Patients in the VR group were assessed and guided by a multidisciplinary team, whereas subjects in the UC group received care as initiated by their rheumatologist, supplemented with written information. Main outcome measure was the occurrence of job loss (complete work disability or unemployment), additional outcome measures included job satisfaction, pain, functional status, emotional status, and quality of life.

Results: There was no difference between the two groups regarding the proportion of patients having lost their job at any time point, with 24% and 23% of the patients in the VR and UC groups having lost their job after 24 months, respectively. Over the total period of 24 months, patients in the VR group had a significantly greater improvement of the VAS fatigue and of emotional status (all p-values <0.05).

Conclusion: A job retention vocational rehabilitation program did not reduce the risk of job loss but improved fatigue and mental health in patients with chronic rheumatic diseases at risk for job loss.

Introduction

The prevalence of work disability among persons with chronic rheumatic diseases is high. In patients with rheumatoid arthritis (RA), work disability rates are varying between 25% and 50% after 10 years of disease and increasing to 90% in patients with longer disease duration (1-4). Work disability is also substantial in patients with other rheumatic conditions, such as ankylosing spondylitis (5;6) and systemic lupus erythematosus (7). Costs ensuing from work disability account for a large part of the total costs associated with rheumatic conditions (8;9). In addition to the economic consequences of work disability, its non-economic impact on a person and his or her family may be substantial. Work disability was found to be associated with lower levels of self-esteem, life satisfaction, perceived health status and higher levels of depression and pain (10-14).

Given the large impact of work disability, work retention issues have been identified as one of the aims of the management of patients with rheumatic conditions (15). In the United States and European countries, vocational rehabilitation programs are being offered to patients with the aim of preventing the loss of paid employment or returning patients to work. In contrast with the many studies on factors associated with work disability (4;16), the number of publications reporting on the results of vocational rehabilitation programs is limited (17-19). The results of the few available studies, of which the majority had an uncontrolled design, indicate an overall a positive effect on vocational status (18). A recent randomised controlled trial on the effectiveness of a job retention vocational rehabilitation program (two 1.5-hour sessions) in patients with rheumatic diseases showed that such an intervention delayed and reduced job loss (17). That study did not include outcome measures reflecting the impact of the vocational rehabilitation program on quality of life.

The aim of the present study was to evaluate the effectiveness of a multidisciplinary job retention vocational rehabilitation on the prevention of job loss and on quality of life. For that purpose, we conducted a multicenter, randomised controlled trial among patients with chronic rheumatic diseases who were in paid employment and at risk for job loss.

Subjects and Methods

Study participants. Between March 1999 and June 2001, subjects were recruited at the outpatient rheumatology departments of Leiden University Medical Center and 10 non-academic hospitals within the region of Leiden,

the Netherlands. Participants were between 18-63 years of age and had a chronic rheumatic disease (diagnosis rheumatoid arthritis (RA); ankylosing spondylitis (AS); psoriatic arthritis; reactive arthritis; systemic lupus erythematosus, SLE; or scleroderma (20-22). All patients had a paid job (working full-time or part-time or being on sick leave, either with or without a partial disability pension) and were having a self-perceived, disease related problem at work, threatening their ability to work. This condition was verified by asking every potential participant the question: "Do you have concerns that your rheumatic condition-related problems at work may result in job loss?". Exclusion criteria were reaching the pensionable age within two years or having another disease or situation influencing work ability. The medical ethics committees of all participating hospitals approved this trial and all patients gave written informed consent.

Study protocol. This study was a randomised controlled trial comparing a job retention vocational rehabilitation program (VR group) with usual outpatient care (UC group), with 24 months of follow-up. After enrolment and baseline assessments had been completed, participants were randomly allocated to either the multidisciplinary job retention vocational rehabilitation program or to usual outpatient care. Randomisation was done with stratification for center (academic hospital versus non-academic hospital) and three diagnosis groups (RA; AS, psoriatic arthritis or reactive arthritis; and SLE or scleroderma), according to a randomisation list that was made up by a random digit generator. All clinical assessments were done by a trained research nurse (JB) who was blinded to the patients' treatment status. Assessments were done at baseline and after 6, 12, 18 and 24 months of follow up. To maintain allocation concealment, patients were instructed not to inform the principal investigator or the research nurse about the type of care they received.

Intervention. The job retention vocational rehabilitation program has been described in detail earlier (23). In brief, the job retention vocational rehabilitation program was delivered at the department of Rheumatology of the Leiden University Medical Center by a multidisciplinary team comprising a rheumatologist, a social worker, a physical therapist, an occupational therapist and a psychologist. Moreover, an occupational physician who was linked to the occupational health service of the Leiden University Medical Center was connected to the team. This occupational

physician was not involved in the guidance of individual patients, but had a general advisory role. The organisation of the program was in the hands of a coordinator. All patients made at least two visits to the hospital in connection with the job retention vocational rehabilitation program.

The intervention consisted of a systematic assessment followed by education, vocational counselling, guidance and medical or non-medical treatment. The basic assessment was done by a rheumatologist (current level of disease activity and joint destruction, presence of extra-articular manifestations or co-morbidity and extent and severity of activity limitations; prognosis regarding future impairments and activity limitations) and the coordinator (education level and previous jobs, systematic registration of the problems encountered in the current working situation, using a list of potential challenges and psychosocial situation). If necessary, additional team members were asked to see the patient in order to gather more information about specific aspects of the work situation. Dependent on the specific problems of the individual patient, the intervention further consisted of education (such as providing written and oral information about the Dutch social security system regarding sick leave and work disability), counselling and guidance (such as the identification of resources for adapting the working environment or working hours, promotion of work self-efficacy), or treatment (such as adaptation of the medical treatment in consultation with the referring rheumatologist, exercise therapy, occupational therapy, functional training of relevant activities or mental restoration).

All information concerning the patient's health status, working situation and working challenges and the course of the process of education, counselling, guidance or treatment was listed in a final report. This report was then sent to the referring rheumatologist and the occupational physician connected with the patient's company if applicable. The total duration of the intervention varied, and lasted on average between 4-12 weeks.

Patients assigned to the UC group were treated and referred to other health professionals in relation to their working problem if regarded necessary by their rheumatologist. In addition, they all received the same written information about the Dutch social security system regarding sick leave and work disability as patients in the VR group.

The referring rheumatologists were informed about the treatment allocation. In both groups, physicians had free choice with respect to their

medical prescriptions and other treatment strategies. All medical treatment and the use of health services during the intervention period and two-year follow-up were recorded in both groups.

Sociodemographic and disease characteristics and the use of health care services. The following variables were recorded at baseline: age, sex, status of living (living with a partner yes/no), diagnosis and disease duration. Comorbidity was measured with the Charlson index (24) and categorised as not present: Charlson index = 0 or present: Charlson index >0.

Education level was divided into three categories based on the Dutch school system: primary education (0-8 years), secondary education (9-16 years), and higher vocational education/university (17 years and more). Information about the job characteristics included the level and type of objective physical and mental demands at work (25). Category 1 is characterised by predominantly mental demands and 'no' physical demands; category 2 by occupations with a combination of physical effort (light or heavy; standing, walking, lifting, high physical strain on the low back) and mental effort; category 3 by light physical demands (standing, walking, lifting of light objects); and category 4 by heavy physically demanding tasks (lifting of heavy objects, handling of heavy tools, and stooping frequently in combination with standing or walking). In addition, the presence of material or immaterial adaptations at the workplace was recorded (yes/no).

Current sick leave was recorded, with sick leave being defined as being absent from work as officially reported to the employer. At the time the study was conducted and according to the Dutch social security system, employees who were more than one year on full or partial sick leave are entitled a full or partial work disability pension if permanent work disability had officially been determined. If a person was judged to be impaired for 80% or more, this person was entitled full work disability, while those who were impaired for 15-80% were entitled partial work disability. In the Dutch social security system it is possible to receive a partial work disability pension and to remain in paid employment on a part-time basis, in which situation again partial or complete sick leave may occur.

The use of health care services and visits to different health professionals, such as an occupational therapist or the clinical nurse specialist, were measured using a three-monthly diary.

Endpoint measures. The main outcome was the occurrence of job loss, defined as receiving an official full work disability pension or unemployment. The classification of job losses was based on the participants' records of their work status at every follow-up visit. Subjects being less than 1 year on full sick leave were classified as being in paid employment. In addition to job loss, the number of patients in whom the extent of the disability pension had increased (by receiving an official full disability pension or by receiving a new or a larger official partial disability pension) was recorded at every time point.

Secondary outcome measures were satisfaction with the job, pain, fatigue, physical functioning, and quality of life.

Satisfaction with the job was measured on a horizontal visual analogue scale (VAS; range 0-10 cm). The anchor on the left was not at all satisfied and the anchor on the right was fully satisfied with the job. The VAS was only to be filled in by those subjects who had worked at least five days in the last month.

The patient's global assessments of pain and fatigue were measured on a VAS (0-10 cm). The anchors on the left were no pain and no fatigue whereas the anchors on the right were severe pain and severe fatigue. To assess physical functioning, the Health Assessment Questionnaire (HAQ), a 20-item questionnaire comprising 8 domains of activities of daily living (26) was included.

Anxiety and depression were measured by means of a Dutch version of the Hospital Anxiety and Depression Questionnaire (HADS) (27). It contains two 7-item scales: one for anxiety and one for depression both with a score range of 0-21.

Quality of life was measured using the RAND 36-item Health Survey (28). The RAND-36 was converted into 2 summary scales: the physical and mental component summary scales. The RAND includes the same items as the Medical Outcomes Study Short-Form (SF 36) and although the scoring procedures are somewhat different, the effects on final scores are minimal (28).

Analysis and statistical methods. The sample size was calculated to allow detection of a 20% difference between the two groups. Assuming 10% job loss in the VR group and 30% job loss in the UC group, with 80% power based on a 2-sided test with a significance level of 0.05, 63 patients per group would be needed to detect a significant difference. Considering a

dropout rate of 10%, 140 patients in total would be needed for the present study.

Data management was performed using the Project Manager Software package version 6.1 (29). Data were automatically and integrally converted to SPSS 11.5 for Windows for statistical analysis.

Baseline characteristics and baseline values of outcome measures were compared with the Mann-Whitney U test, unpaired student t-test or Chi-Square test where appropriate. The primary analyses of effectiveness were based on intention to treat as initially assigned. All available data were used. As a secondary analysis a per protocol analyses was done, comparing the subjects who did actually receive the treatment in the vocational rehabilitation group with the subjects in the usual care group.

Regarding the primary outcome measure job loss, proportions of patients in both groups were compared at each time point with a Chi square test. A logistic regression model with time, randomisation group and a random person effect was used to compare the overall change in percentages over time between the groups (test for interaction between time and randomisation group). The same procedure was followed to compare proportions of patients in whom the extent of the disability pension had increased. To investigate the presence of subgroups of patients who would or who would not benefit from the intervention, tests for interaction between randomisation group and age, diagnosis at baseline, and the presence of sick leave at baseline were performed in the logistic model.

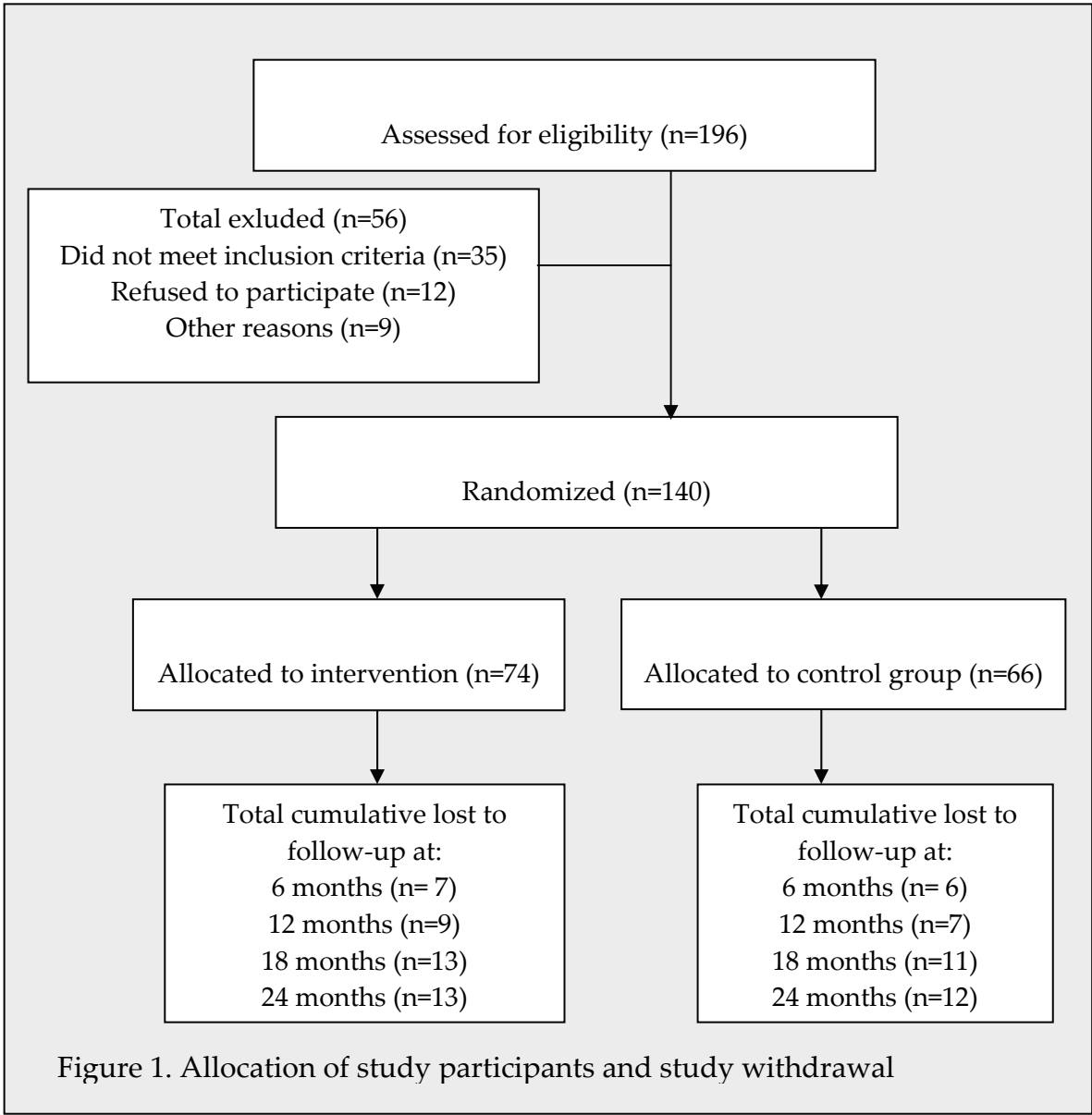
With respect to the secondary outcomes, within each group changes from baseline with the 95% confidence interval (CI) were computed at each time point. Change scores were compared between the two groups with an unpaired student t-test. A linear mixed model with time as covariate was used to compare the difference in trend over the total follow-up period of two years.

Results

196 subjects were assessed for eligibility. Fifty-six subjects were excluded, because they did not meet the inclusion criteria (n=35), refused to participate (n=12) or could not enter the study for other reasons (n=9).

Of the 74 patients randomized to the VR program, 10 (14%) did not take part in the intervention (protocol violations) for various reasons: finding visits to the hospital too troublesome (n=4), hospital admission (n=2), myocardial infarction (n=1), finding a new job (n=1) and unknown (n=2).

Four of these 10 patients did not show up at any of the follow-up visits (lost to follow-up at t=6 months). Over the period of 2 years, 12 participants allocated to the UC group and 13 participants allocated to the VR group withdrew from the trial (Figure 1). Reasons for withdrawal were moving out of the area (n=5), personal and family matters (n=7), not responding to our repeated telephone calls (n=3), death of a heart attack (n=1), time constraints (n=1), loss of interest (n=5) or other reasons (n=3). The baseline sociodemographic and disease characteristics of the 115 completers of the study did not differ from those of the 25 who withdrew (data not shown).



The sociodemographic and disease characteristics of the 140 study participants at baseline are shown in table 1. There were no statistically significant differences in any of the characteristics between the two groups.

Table 1. Baseline sociodemographic and clinical characteristics* of 140 patients with chronic arthritis participating in a randomized controlled trial comparing a multidisciplinary job retention vocational rehabilitation program with usual care			
	Vocational Rehabilitation (n=74)	Usual care (n=66)	P-value #
Age, years; median (range)	43 (21-57)	44 (24-58)	0.86
Female	41 (55%)	38 (58%)	0.80
Living with partner	61 (82%)	48 (73%)	0.18
Diagnosis			
-Rheumatoid arthritis	34 (46%)	36 (55%)	0.54
-Ankylosing spondylitis, psoriatic or reactive arthritis	17 (23%)	12 (18%)	
-SLE, scleroderma	23 (31%)	18 (27%)	
Duration of disease, months; median (range)	11.0 (0-158)	19.5 (0-174)	0.60
Comorbidity present (Charlson Index >0)	32 (43%)	28 (42%)	0.88
Education level			
-High	15 (20%)	10 (15%)	0.54
-Medium	37 (50%)	39 (59%)	
-Low	22 (30%)	17 (26%)	
Current occupational category			
-Mental demands	20 (28%)	24 (36%)	0.41
-Mixed mental / physical demands	15 (20%)	13 (20%)	
-Light physical demands	20 (27%)	19 (29%)	
-Heavy physical demands	19 (25%)	10 (15%)	
Adaptations at work due to rheumatic disease	22 (29%)	15 (23%)	0.35
Partial work disability benefit	12 (16%)	11 (17%)	0.94
Sick leave	42 (57%)	35 (53%)	0.66
<i>Complete sick leave</i>	21 (50%)	20 (57%)	0.80
Duration of sick leave in weeks; median (range)	16 (1-52)	18 (3-48)	0.80
Duration of sick leave more than 6 weeks	29 (39%)	28 (42%)	0.70
<i>Duration of sick leave more than 40 weeks</i>	6 (8%)	2 (3%)	0.17
* All values are presented as number (%), unless specified otherwise			
# Chi-Square test or Mann Whitney U test where appropriate			

The use of health services during the intervention period and two-year follow-up. Over the first 6 months of the study as well as during the total two years of follow-up no significant difference between the two groups was found with respect to the mean number of visits to the rheumatology nurse specialist,

occupational therapist, physical therapist, social worker, psychologist or the occupational physician (data not shown). However, subjects in the UC group paid more visits to the rheumatologist in the first six months of the study (2.8, SD 2.0) as compared to the subjects in the intervention group (1.5, SD 1.9; $p < 0.001$).

Permanent job loss and increase in disability pension. Over the total follow-up period, in both groups job loss occurred, predominantly in the first 12 months of follow-up (table 2). All job losses were related to the rheumatic disease and could be classified as receiving a full work disability pension. None of the patients became unemployed for other reasons. There was no statistically significant difference in the proportion of patients with permanent job loss between the groups at any time point. Moreover, the mixed effects logistic regression model did not indicate a different trend over time between the two groups (test for interaction between time and intervention group $p = 0.13$, test for main group effect $p = 0.86$).

Table 2. Job loss and increase in official disability pension (cumulative) in 140 patients with a rheumatic condition randomised to a multidisciplinary job retention VR programme or usual care.			
	Vocational rehabilitation (n=74)	Usual care (n=66)	p-value*
Job loss			
6 months	6/66 (9%)	3/59 (5%)	0.39
12 months	12/64 (19%)	11/58 (19%)	0.97
18 months	11/59 (19%)	13/55 (24%)	0.51
24 months	14/59 (24%)	12/53 (23%)	0.89
Job loss or increase in official disability pension			
6 months	14/66 (21%)	4/59 (7%)*	0.02
12 months	26/64 (41%)	19/58 (33%)	0.37
18 months	26/59 (44%)	23/55 (42%)	0.81
24 months	31/59 (53%)	23/53 (43%)	0.33
* Chi-Square test			

In a secondary per protocol analysis, comparing the 64 subjects who did actually receive the treatment in the VR group with the 66 subjects in the UC group, there was no statistically significant difference in the proportion of patients with job loss between the groups at any time point or over the

follow-up total period (data not shown).

With respect to the primary outcome measure job loss, there was no significant interaction between randomisation group and age, diagnose at baseline, and the presence of sick leave at baseline as performed in a logistic model.

Regarding deterioration of the working situation defined as either full work disablement or institution or increase of a partial disability pension, initially more subjects in the VR group than in the UC group became either fully work disabled (job loss) or to a greater extent partially work disabled at six months of follow-up (p=0.02). However, after 12 months this difference disappeared. Regarding this endpoint, over the whole time period there was no statistically significant difference between the two groups (test for interaction between time and randomisation group p= 0.09, test for main effect p= 0.27).

Table 3. Clinical outcome data at baseline and change scores from baseline in 140 patients with chronic arthritis at risk for job loss randomised to a multidisciplinary job-retention vocational rehabilitation program ∞ usual care) (second part of table, see next page)				
		Baseline ⁺	6 months	12 months
Job satisfaction ⁵ (VAS ¹ ; 0-10)	VR	5.57 (2.55)	0.18 (-.92, 1.27)	1.78 (0.85, 2.70)
	UC	5.53 (2.55)	0.15 (-.80, 1.10)	0.53 (-.48, 1.55)
Pain (VAS ¹ ; 0-10)	VR	4.37 (2.31)	-0.70 (-1.40, 0.01)	-0.31 (-1.08, 0.47)
	UC	4.71 (2.27)	-0.20 (-.81, 0.41)	-0.58 (-1.28, 0.13)
Fatigue (VAS ¹ ; 0-10)	VR	6.11 (2.42)	-0.23 (-.92, 0.47)	-0.58 (-1.29, 0.14)
	UC	5.43 (2.74)	0.11 (-.53, 0.75)	-0.55 (-1.38, 0.28)
HAQ ³ (0-3)	VR	0.76 (0.50)	0.03 (-.08, 0.13)	-0.04 (-.15, 0.06)
	UC	0.83 (0.55)	-0.04 (-.16, 0.08)	-0.07 (-.19, 0.05)
HADS ² Anxiety	VR	7.20 (4.00)	-0.30 (-1.08, 0.48)	-0.83 (-1.78, 0.11)
	UC	6.80 (4.10)	-0.43 (-1.39, 0.54)	-0.25 (-1.37, 0.89)
HADS ² Depression	VR	6.10 (3.30)	-0.02 (-1.05, 1.01)	-.46 (-1.50, 0.57)
	UC	5.70 (3.50)	0.28 (-0.54, 1.10)	0.02 (-0.89, 0.92)
RAND SSC ⁴ Physical health	VR	40.64 (17.66)	5.75 (-0.45, 11.95)	13.6 (7.04, 20.18)
	UC	43.32 (19.03)	5.96 (0.38, 11.53)	11.7 (5.04, 18.39)
RAND SSC ⁴ Mental health	VR	59.59 (24.08)	-1.40 (-8.40, 5.54)	5.31 (-1.99, 12.61)
	UC	64.10 (23.31)	1.72 (-5.05, 8.50)	3.33 (-4.42, 11.08)
¹ VAS= Visual Analogue Scale, ² HADS=Hospital Anxiety and Depression Score, ³ HAQ=Health Assessment Questionnaire, ⁴ RAND SSC=RAND summary scale ⁵ VAS Job satisfaction was only filled in by those subjects who worked five days or more in the past month. Numbers of subjects were 58, 46, 46, 37, 37 (at baseline, 6, 12, 18 and 24 months of follow-up) for the intervention group and 46, 39, 41, 32, 37 for the usual care group, respectively.				

In contrast with the 54 subjects who deteriorated regarding the extent of the disability pension, 7 subjects improved (three in the VR group and four in the UC group). Two subjects, both in the UC group, who were partially work disabled at baseline, did not receive a disability pension anymore after 12 months of follow-up. In addition, four subjects who were fully work disabled became partially work disabled (three from the VR group after 12, 18 and 24 months and 1 from UC group after 24 months of follow-up), whereas one subject in the UC group who was fully work disabled did not receive a disability pension after 12 months of follow-up.

Job satisfaction, physical and mental functioning and quality of life. In table 3 it is shown that over the total follow-up period of 24 months, patients in the VR group showed a significantly greater improvement of fatigue, the HADS-depression and anxiety sub-scales and mental health as measured by the RAND 36 summary scale mental health than patients in the UC group.

Table 3. (first part, see previous page)				
		18 months	24 months	P value#
Job satisfaction ⁵ (VAS ¹ ; 0-10)	VR	1.65 (0.55, 2.74)	2.00 (1.25, 2.75)	0.12
	UC	0.24 (-.96, 1.45)	0.88 (-.33, 2.11)	
Pain (VAS ¹ ; 0-10)	VR	-0.43 (-1.19, 0.32)	-0.59 (-1.28, 0.09)	0.85
	UC	-0.33 (-1.00, 0.34)	-0.42 (-1.16, 0.32)	
Fatigue (VAS ¹ ; 0-10)	VR	-0.48 (-1.20, 0.25)	-1.23(-1.91, .54)*	0.04
	UC	-0.05 (-.88, 0.77)	-0.15 (-1.03, 0.73)	
HAQ ³ (0-3)	VR	0.00 (-.11, 0.11)	-0.01 (-.14, 0.12)	0.43
	UC	0.08 (-.04, 0.21)	-0.10 (-.23, 0.03)	
HADS ² Anxiety	VR	-.94 (-1.87, -.020)	-1.83 (-2.86, -.80)*	0.01
	UC	-0.34 (-1.53, 0.89)	-0.03 (-1.26, 1.34)	
HADS ² Depression	VR	-0.64 (-1.71, 0.44)	-1.66 (-2.72,-.60)*	0.04
	UC	-0.21 (-1.36, 0.93)	0.15 (-1.12, 1.42)	
RAND SSC ⁴ Physical health	VR	13.78 (6.32, 1.25)	13.72 (6.73, 0.71)	0.63
	UC	9.32 (2.75, 15.90)	11.69 (5.36, 8.02)	
RAND SSC ⁴ Mental health	VR	11.20 (2.40, 0.06)	13.61(6.61,20.60)	0.01
	UC	3.60 (-4.78, 12.00)	2.16 (-5.30, 9.62)*	
+All differences between baseline values p>0.05, unpaired student t-test, # =linear mixed model, *p<0.05, unpaired student t-test				

Moreover, there was a trend towards a greater improvement of job satisfaction in the VR group. Pain, functional ability and physical health did not differ between the two groups over time.

Discussion

The results of this randomised controlled study showed that participating in a vocational rehabilitation program had no effect on remaining in paid employment. However, there was a significant effect on fatigue and mental health as compared to the usual care.

To our knowledge, this is the second randomised controlled trial investigating the effectiveness of a vocational rehabilitation program for patients with rheumatic diseases at the level of prevention of job loss. In contrast to our study, Allaire (17) and co-workers found that job loss was significantly delayed and reduced among study participants who received a job retention vocational rehabilitation intervention.

There may be several possible explanations for this discrepancy. First, there may have been differences regarding the components and execution of the intervention. Although job accommodation, vocational counselling and guidance, education and self-advocacy were elements of the interventions in both the study by Allaire et al. and the present study, the focus and intensity may have varied. Moreover, the program as provided in the study by Allaire et al. was conducted in connection with an ongoing state vocational rehabilitation program, whereas in the present study the intervention was delivered in a health care setting. In the Dutch health care and social security system the occupational physician plays an important role in the process of vocational rehabilitation. The occupational physician is linked to occupational health services, with which all companies are legally obliged to have a contract since January 1998. The co-operation between occupational physicians and other health professionals, including our multidisciplinary vocational rehabilitation team, has however previously been found to be an important but often troublesome element in the vocational guidance of patients with a health related problem at work (15;23;30-32).

A second explanation for the difference with the results of the study by Allaire may be that differences in the contrast between the vocational rehabilitation program and usual care may have occurred between the two studies. In our study, patients were directly referred for participation in the

trial by the rheumatologist, who was thus aware of the working problems the patient encountered. Moreover, the rheumatologist was informed about the treatment allocation in a later stage, another factor which could have induced enhanced treatment or referrals in connection with the work problem in the UC group. Indeed, patients in the UC group initially paid more visits to the rheumatologist than patients in the VR group. The patients' participation in the trial could have made rheumatologists aware of their patients' problem at work and if a patient was allocated to the usual care group they could have had the feeling they needed to act on account of their patients. In addition, it is possible that patients who were allocated to the control group made an extra appointment with their rheumatologist to discuss their working problem and potential solutions. In the study by Allaire, the connection between regular rheumatologic care and the trial appeared to be less close.

A third explanation for the discrepancy between the results of the two trials may be that the populations studied were different. In general, patients in the study by Allaire et al were about five years older, were more often female, and had better functional status as measured with the HAQ than the patients in the present study. Moreover, there may have been differences in the severity of the working problems. In our study, more than 40% of the patients in both groups were on sick leave at baseline, many of them longer than six weeks. Long-term sick leave usually indicates substantial limitations in work capacity and often precedes permanent work disability. At the time the study was conducted, the genuine setting of vocational rehabilitation plans by the occupational physician in collaboration with the patient and the employer was often postponed until the medical examination for a work disability pension approached at 12 months of sick leave, making job loss unavoidable. Although subjects in our study were motivated to stay in the work force, with a relatively long period with sickness absence, individuals may have come to lose their belief in their own capacity for employment and accept their inability to work. A relatively long duration of sick leave may also have played a role in the initial excess job loss in the VR group. In our study, there were 6 patients in the VR group and 2 patients in the UC group with a duration of sick leave of more than 40 weeks. Although this difference did not reach statistical significance, it is conceivable that the few extra patients with a relatively long duration of sick leave at the start of the study in the VR group could explain the initial excess job loss in the VR group. Overall, it

could be that for those patients with a relatively long duration of sick leave, the intervention was provided too late to make a difference. Only recently the Dutch occupational health law has changed and employees on sick leave are now seen by the occupational physician in the first six weeks of sick leave.

Despite the fact that our study did not demonstrate a quantitative effect regarding the prevention of job loss, a beneficial effect of the vocational rehabilitation program on fatigue, and mental health depression was found. Fatigue has been described as persistent disease-related threat to employment (23;33;34). In order to cope with fatigue patients can make a number of job accommodations such as altering working hours, taking more and shorter breaks, working at home, delegating specific tasks or making adaptations aimed at conserving energy in their personal lives in order to save themselves for the job. These changes take time and may not have a direct effect on the short term working situation. Two studies (35;36) report the relationship between fatigue and health related quality of life as measured with the SF-36 in patients with chronic arthritis. Fatigue, general, physical and mental health, went hand in hand with diminished work productivity and work quality.

In addition to the beneficial effect on fatigue and mental health, a trend towards greater satisfaction with the job for those who remained in the work force was seen. This positive trend might have reached statistical significance if the study sample had been larger. However, the considerable drop-out rate in the present study, which was larger than anticipated, has negatively affected the statistical power of this study.

Although the results of the present study did not confirm the positive effect of the previous study by Allaire et al, there is ample rationale for the future development and evaluation of vocational rehabilitation programs. First, work disability remains a major problem in patients with rheumatic diseases, and second there are a number of starting points for the design of effective interventions. For the effectiveness of job retention vocational rehabilitation programs it is important that patients at risk for work disability are identified in an early stage. It has been found however, that rheumatologists often do not recognize the working problems (15;23;33;37), and the same might apply to other health professionals. Nowadays, a number of instruments to measure work disability have become available, such as the work limitations questionnaire (WLQ) or the work instability scale (38-40). The broad implementation of such instruments in the clinical

setting of rheumatologic care, especially in connection with early arthritis clinics, deserves consideration.

Apart from its timing, the connection between the health care system and vocational rehabilitation systems needs to be further developed. With respect to the Dutch situation, the role of the occupational physician as a potential participant in the vocational rehabilitation process should be explained more clearly and more communication should take place in earlier phases of vocational guidance (23).

In conclusion, a job retention vocational rehabilitation program did not reduce the risk of job loss but improved fatigue and mental health in patients with rheumatic diseases. With the development of vocational rehabilitation interventions, the provision of these services in early phases of the work problems and the collaboration between various health care professionals including occupational physicians, employers and the patient/employer themselves deserve special attention.

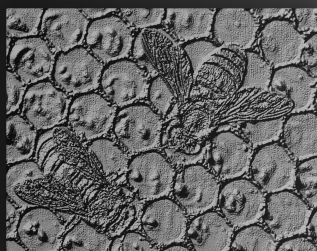
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5

Cost-utility analysis of a multi-disciplinary job-retention vocational rehabilitation program for patients with chronic rheumatic diseases at risk of job loss

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Abstract

Objectives: To estimate, from a societal perspective, the cost-utility of a multidisciplinary job retention vocational rehabilitation programme compared to usual care, in patients with chronic rheumatic diseases at risk of job loss.

Methods: Patients (n =121) were randomly assigned to either the vocational rehabilitation programme or usual outpatient care initiated by the treating rheumatologist. Follow-up lasted for 2 years. Programme costs were estimated using time registrations and other societal costs using quarterly cost questionnaires filled out by the patients. To estimate quality-adjusted life years, utility was assessed using the EuroQol classification system, EuroQol rating scale, Short Form 6D, and Time Trade-Off.

Results: As part of the vocational rehabilitation programme, patients on average made a total of 7.1 consultations and the total time spent by the multidisciplinary team amounted to 12.7 hours per patient. Programme costs were estimated at € 1426, of which about 20% were time and travel costs incurred by the patients. These costs were outweighed by savings on medical and productivity costs, but non-significantly so. Except for the programme costs, no significant differences were observed in health-care consumption, productivity, costs or quality-adjusted life years.

Conclusion: Programme costs were non-significantly outweighed by savings on other costs. From a societal perspective, it remains unclear whether the programme reduces or increases costs. Moreover, programme costs cannot be justified by a gain in quality-adjusted life years. Further research on effective vocational rehabilitation seems warranted, with special attention to early detection of work problems and the collaboration between health-care and vocational rehabilitation services.

Introduction

A wide body of literature exists on the considerable impact of rheumatic diseases on work disability (1-9) and on factors associated with work disability(10-12). Moreover, cost-of-illness studies invariably point out that disability costs far exceed medical costs (13;14). However, these high disability costs are not necessarily accompanied by opportunities for cost reduction. Controlled studies evaluating the effectiveness of vocational rehabilitation programmes are rare (15-18) and so far have not involved explicit cost comparisons. In other diseases, economic evaluations usually conclude that vocational rehabilitation programmes are cost-effective (19-22) but these programmes are mostly aimed at returning to work, as opposed to preventing job loss.

The purpose of this paper is to estimate, from a societal perspective, the cost-utility of a multidisciplinary job retention vocational rehabilitation programme for patients with chronic rheumatic diseases at risk of job loss.

Patients and Methods

The study was undertaken between March 1999 and June 2001. Patients participated in a multicentre randomised controlled trial in which the cost-effectiveness of a multidisciplinary job retention vocational rehabilitation programme was compared to normal outpatient care initiated by the treating rheumatologist (23;24). The Medical Ethics Committees of the eleven involved hospitals approved the study and all participating patients gave written informed consent.

Patients were eligible for enrolment in the trial if they had a chronic rheumatic disease with arthritis of one or more joints (rheumatoid arthritis or systemic lupus erythematosus (SLE), according to the American Rheumatism Association classification criteria (25;26), ankylosing spondylitis according to the modified New York classification criteria (27), or reactive arthritis, psoriatic arthritis, or scleroderma). All patients perceived challenges in maintaining their jobs and were highly motivated to remain in the workforce. Patients were either still working or had a sick leave of less than one year. Patients were referred for screening for eligibility for the trial by their treating rheumatologist.

Intervention. The job retention vocational rehabilitation programme was delivered at the department of Rheumatology of the Leiden University Medical Center by a multidisciplinary team comprising a coordinator, a

rheumatologist, a social worker, a physical therapist, an occupational therapist, a psychologist, and an occupational physician.

The intervention consisted of a basic, systematic assessment followed by education, vocational counselling and guidance and medical or non-medical treatment. The basic assessment was performed by a rheumatologist (current level of disease activity and joint destruction, presence of extra-articular manifestations or co-morbidity and extent and severity of activity limitations; prognosis regarding future impairments and activity limitations) and by the coordinator (education level and previous jobs, systematic registration of the problems encountered in the current working situation using a list of potential challenges and the psycho-social situation). If necessary, additional team members were asked to see the patient in order to gather more information about the work situation. Depending on the specific problems of the individual patient, the intervention further consisted of education (such as providing written and oral information about the Dutch social security system regarding sick leave and work disability), counselling and guidance (such as the identification of resources for adapting the working environment or working hours, promotion of work self-efficacy), or treatment (such as adaptation of the medical treatment in consultation with the referring rheumatologist, exercise therapy, occupational therapy, functional training of relevant activities or mental restoration). Patients made at least two visits to the hospital in connection with the job retention vocational rehabilitation programme. Preferably, consultations with different disciplines were scheduled in a single visit to the hospital. The total duration of the intervention varied depending on the contents of the individual guidance and treatment process and ranged from 4 to 12 weeks. Further details of the programme have been described elsewhere (28;29).

Patients assigned to the usual care group were treated and referred to other health professionals in relation to their work-related problem if this was regarded as necessary by their rheumatologist. In addition, they all received the same written information about the Dutch social security system regarding sick leave and work disability as patients in the vocational rehabilitation group.

The referring rheumatologists were informed of the treatment allocation. In both groups, physicians had free choice with respect to their medical prescriptions and other treatment strategies.

Baseline characteristics. At baseline age, gender, disease duration, co-

morbidity, physical functioning, anxiety and depression, and work status was assessed. Presence of co-morbidity was defined as a Charlson index larger than zero (30). Physical functioning was assessed using the Health Assessment Questionnaire (HAQ), which consists of 20 questions concerning 8 domains of problems in the activities of daily living (31;32). The total HAQ score ranges from 0 (without any difficulty) to 3 (unable to do). Anxiety and depression were assessed using a Dutch version of the Hospital Anxiety and Depression Questionnaire (HADS) (33) Higher scores indicate more anxiety and depression (range 0-21 per scale).

Assessment of costs. Societal costs during the two-year follow-up period were assessed. Costs of the vocational rehabilitation programme were estimated from time registrations. Each member of the team registered both the direct consultation time and the indirect time required to prepare consultations and take steps. In addition, time for the biweekly 50-minute multidisciplinary team meetings was attributed to the patients in the programme in proportion to their number of consultations. Time of the coordinator, rheumatologist, social worker, physical therapist, occupational therapist, psychologist, and occupational physician was valued at € 47, € 260, € 48, € 55, € 40, € 80, and € 153 per hour, respectively, which included housing and overhead costs. Patient time and travel costs were included at € 10 per hour (34) and € 2.60 plus € 0.17 per kilometre (35), respectively.

Quarterly cost questionnaires filled out by the patients were used to estimate non-programme health-care costs (consultations, hospitalizations, home nursing care) and non-health care costs (aids and appliances, productivity costs, home help and informal care). Prices were mostly obtained from Dutch standard prices that were designed to reflect societal costs and to standardize economic evaluations (35;36). Otherwise, published cost prices (37;38) or market prices were used. Reported costs include patient time and travel costs. Aids and appliances at work and at home, like special office furniture and house adaptations, were valued as reported by the patients.

Costs were not discounted and were converted to price level 2005 euros using the price index rate for the Dutch health-care sector (obtained from Statistics Netherlands). Euros can be converted to US dollars using the Dutch purchasing power parity index for 2005: €1 ≈ \$1.09 (www.oecd.org).

Assessment of productivity. During the research visits every six months,

patients reported their official working hours for each day of the week. The quarterly cost diaries contained a calendar in which patients reported the number of hours of absenteeism for each day. The number of hours actually worked was calculated as the official working hours minus absenteeism. The value of paid labour per hour was estimated as the reported monthly gross income divided by the official working hours per month, with a minimum of € 10 (minimum wage). The average of € 15 over the entire sample was used for patients who did not report their income. Costs associated with paid labour were calculated for each patient as the difference between the official working hours reported at baseline and the number of hours actually worked in each quarter, valued at the patient's value per hour.

In the diaries, patients also reported the average time spent on unpaid labour per week over the previous quarter, including, for example, household tasks and volunteer work.³⁹ Costs associated with unpaid labour were calculated as the difference between the patient's amount of unpaid labour and the gender-specific average over the entire sample (263 and 296 hours per quarter, for men and women respectively), valued at € 10 per hour (40).

Assessments of utility. Utility is the valuation of the health of the patient,⁴¹ on a scale from 0 (as bad as death) to 1 (full health). In this study, utility was assessed every six months using four different utility measures. The area under the utility curves is known as quality-adjusted life years (QALYs). QALYs are an accepted measure for resource allocation decisions involving diverse treatments and patient populations.

Patients described their general health status using the EuroQol classification system (EQ-5D), consisting of 5 questions on mobility, self-care, usual activities, pain/discomfort, and anxiety/depression (42). From the EQ-5D classification system, the EQ-5D utility index was calculated (43). This utility measure reflects how the general public values the health status described by the patient, which is preferred for economic evaluations from a societal perspective. Quality of life was also assessed using the RAND-36 questionnaire (44). The RAND-36 consists of 36 items on physical and social functioning, role limitations, mental health, vitality, pain, and general health perception. From the RAND-36, the Short Form 6D (SF-6D) utility index was calculated (45). Like the EQ-5D, this SF-6D reflects the general public's valuation of the health state described by the patient. The

SF-6D is a more recent instrument and its richer classification system makes it a potentially more sensitive utility measure than the EQ-5D. The EQ-5D and Rand-36 questionnaires were filled out by the patients, without supervision.

Patients rated their personal health using the EuroQol rating scale (RS) ranging from 0 (worst imaginable health) to 100 (best imaginable health). Because the RS has repeatedly been found to render less favourable valuations than more valid (but also more complicated) utility measures, transformed rating scale (TRS) values were obtained using the power function $TRS=1-(1-RS/100)$ (1;61;46;47). Because patients experience all the subtleties of their health status, the TRS is potentially more sensitive to change, but it is not preferred for economic evaluations from a societal perspective (48). In addition, patients valued their current health using the Time Trade-Off (TTO) method, measuring how much life expectancy respondents would be willing to trade to obtain perfect health. The patient is asked how many years in optimal health she would consider equivalent to her remaining life expectancy in her current health. The utility score for her current health is then calculated as the ratio of both. If she is willing to trade a large part of her life expectancy to obtain optimal health, then her TTO score is correspondingly lower. Both the rating scale and the TTO were administered during the research visits, by trained independent assessors who were unaware of the patients' treatment status.

Analysis

Patients were evaluated according to intention to treat. Of 140 patients included in the study, eleven were excluded from the economic evaluation because the initial cost questionnaire was missing and eight were excluded because the initial questionnaire was the only cost questionnaire available. Of the 121 patients included in the economic evaluation, on average 6.5 and 7.0 out of 8 cost questionnaires were available in the treatment and control group, respectively ($p=0.14$). On average 4.5 and 4.6 out of 5 utility measurements were available, respectively ($p=0.68$). Missing data were imputed by carrying forward the preceding data.

For all outcome measures, differences between the randomisation groups were tested using double-sided bootstrapping (49), with 1,000,000 replications and 0.05 significance threshold. Reported confidence intervals are the corresponding 95% trimmed asymmetric confidence intervals (95% CIs). Bootstrapping explicitly compares the means in both groups, without

making distributional assumptions and thus allowing for skewed distributed costs.

Results

Table 1 shows the baseline characteristics of the sample used for the economic evaluation. No statistically significant differences between the randomisation groups were found.

Table 1. Trial flow and baseline characteristics* of patients included in the economic evaluation			
	Usual care (n = 59)	Vocational rehabilitation programme (n = 62)	<i>P</i> value [†]
Randomised patients	66	74	
In study after 1 year	59 (89%)	65 (88%)	0.76
In study after 2 years	54 (82%)	61 (82%)	0.92
Included in economic evaluation	59 (89%)	62 (84%)	0.34
Age; mean (range)	44 (24-57)	43 (21-58)	0.54
Female gender	25 (42%)	26 (42%)	0.93
<i>Diagnosis</i>			
- Rheumatoid arthritis	32 (54%)	30 (48%)	0.85
- SLE, scleroderma	17 (29%)	18 (29%)	
- Ankylosing spondylitis, reactive arthritis or psoriatic arthritis	10 (17%)	14 (23%)	
Disease duration in months; median (range)	17 (0-127)	13 (0-174)	0.40
Co-morbidity (Charlson Index ≥ 1)	24 (41%)	25 (40%)	0.93
HAQ; mean (SD)	0.83 (0.53)	0.72 (0.50)	0.25
HADS-anxiety; mean (SD)	6.4 (3.8)	7.2 (4.0)	0.27
HADS-depression; mean (SD)	5.4 (3.6)	6.0 (3.2)	0.34
Working hours; mean (SD)	32 (11)	30 (13)	0.29
At least six weeks of sick leave	26 (44%)	22 (35%)	0.32
Partial work disability benefit	11 (19%)	11 (18%)	0.91
* Numbers and percentages, unless stated otherwise			
† Two-sided non-parametric bootstrapping or chi-square test			

Intervention. As part of the multidisciplinary job retention vocational rehabilitation programme, patients made an average total of 7.1 consultations (range 0-15, table 2), in at most 6 hospital visits. Besides the coordinator and rheumatologists, three out of four patients consulted the physical therapist and occupational therapist, and about half consulted the social worker. Only one in fifteen patients consulted the psychologist.

The total time spent for all disciplines together was 12.7 hours per patient, of which 5.8 hours direct consultation time (46%), 2.5 hours indirect time for preparing consultations and taking steps (20%), and 4.4 hours for the biweekly multidisciplinary team meetings (34%). The medical costs of the multidisciplinary team were estimated at € 1180 per patient. Including the time and travel costs incurred by the patients, total programme costs were estimated at € 1426 per patient.

	Fraction of patients	Consultations per patient	Direct time [†] per consultation	Indirect time [‡] per consultation	Meeting time [§] per patient	Total time [¶] per patient	Costs per patient (in €)
Coordinator	97 %	2.4	0.72 h	0.50 h	0.63 h	3.58 h	176
Rheumatologists	95 %	1.9	0.77 h	0.02 h	0.63 h	2.08 h	560
Social worker	56 %	0.7	1.05 h	0.30 h	0.63 h	1.53 h	65
Physical therapist	76 %	0.8	0.93 h	0.48 h	0.63 h	1.72 h	98
Occupational therapist	79 %	1.2	0.90 h	0.52 h	0.63 h	2.33 h	116
Psychologist	6 %	0.2	0.50 h	0.73 h	0.63 h	0.82 h	68
Occupational physician*	0 %	0.0	0.00 h	0.00 h	0.63 h	0.63 h	98
Total programme costs		7.1				12.7 h	1180
Patient time costs						19.8 h	204
Patient travel costs							42
Total programme costs							1426

* The occupational physician only participated in the biweekly multidisciplinary team meetings
[†] Time of the consultation itself
[‡] Time required to prepare consultation and take steps
[§] Time of the biweekly multidisciplinary team meetings
[¶] Consultations per patient × (direct + indirect time per consultation) + meeting time per patient

Productivity. No statistically significant differences in productivity were found between both randomisation groups (table 3). Yet, the cost differences were considerable (table 4). The differences in costs for paid and unpaid labour between both randomisation groups were estimated at € 3710 (95% CI from € -3858 to € 10858) and € 3073 (95% CI from € -1627 to € 7771), respectively. Both differences were non-significantly in favour of the vocational rehabilitation programme.

Table 3. Amount of paid and unpaid labour per patient (Average, SD)				
		Usual care (n = 59)	Vocational rehabilitation programme (n = 62)	P value*
Job loss	yr 1	9 (15%)	10 (16%)	0.90
	yr 2	17 (29%)	16 (26%)	0.75
Official working hours	yr 1	1535 h (624)	1373 h (656)	0.17
	yr 2	1052 h (807)	1051 h (727)	0.99
	total	2587 h (1286)	2424 h (1275)	0.48
Absenteeism	yr 1	586 h (543)	501 h (528)	0.39
	yr 2	270 h (500)	240 h (335)	0.71
	total	855 h (889)	741 h (713)	0.44
Hours actually worked	yr 1	950 h (595)	872 h (706)	0.51
	yr 2	782 h (740)	811 h (720)	0.83
	total	1732 h (1230)	1683 h (1357)	0.83
Unpaid labour	yr 1	952 h (601)	1174 h (695)	0.06
	yr 2	999 h (677)	1075 h (727)	0.55
	total	1951 h (1222)	2249 h (1324)	0.20
* Two-sided non-parametric bootstrapping				

	Usual care (n = 59)		Vocational rehabilitation programme (n = 62)		Difference in costs	
	Volumes †	Costs (in €)	Volumes †	Costs (in €)	Costs (in €)	P value*
Total programme costs (SD)				1426 (438)	1426	<0.001
Non-programme health-care costs						
Rheumatologists	9.6	897	8.5	793	-104	0.26
Social worker	1.3	75	2.5	144	69	0.23
Physical therapist	34.4	1315	30.2	1162	-153	0.66
Occupational therapist	0.7	43	0.8	50	7	0.75
Psychologist	0.7	57	0.5	42	-15	0.82
Occupational physician	6.3	422	5.9	395	-27	0.70
Clinical nurse specialist	2.2	131	1.8	104	-27	0.56
General practitioner	9.3	292	10.3	302	10	0.88
Labour expert	1.0	68	1.2	79	11	0.55
Exercise therapists	10.4	403	6.6	254	-149	0.43
Other specialists	6.3	464	6.5	480	16	0.91
Other paramedical professionals	1.8	156	3.4	222	66	0.54
Alternative medicine	0.9	63	2.2	162	99	0.40
Day patient hospitalizations	15%	154	19%	272	118	0.37
Inpatient hospitalizations	22%	1118	21%	611	-507	0.27
Home nursing care	0%	0	2%	5	5	0.08
Total non-programme health-care costs (SD)		5657 (5450)		5078 (3739)	579	0.50
Total health-care costs (SD)		5657 (5450)		6504 (3724)	847	0.33
Non-health care costs						
Aids and appliances at home	53%	280	52%	290	10	0.95
Aids and appliances at work	22%	174	29%	197	23	0.82
Paid labour		24668		20959	-3709	0.32
Unpaid labour		2073		-1000‡	-3073	0.20
Home help	50 h	1122	53 h	1184	62	0.91
Informal care	51 h	532	49 h	504	-28	0.93
Total non-health care costs (SD)		28849 (28171)		22134 (23155)	-6715	0.16
Total societal costs (SD)		34506 (29799)		28638 (24122)	-5868	0.24

* Two-sided non-parametric bootstrapping,
† Number of consultations, percentage of patients or hours
‡ Negative costs indicate more than average unpaid labour

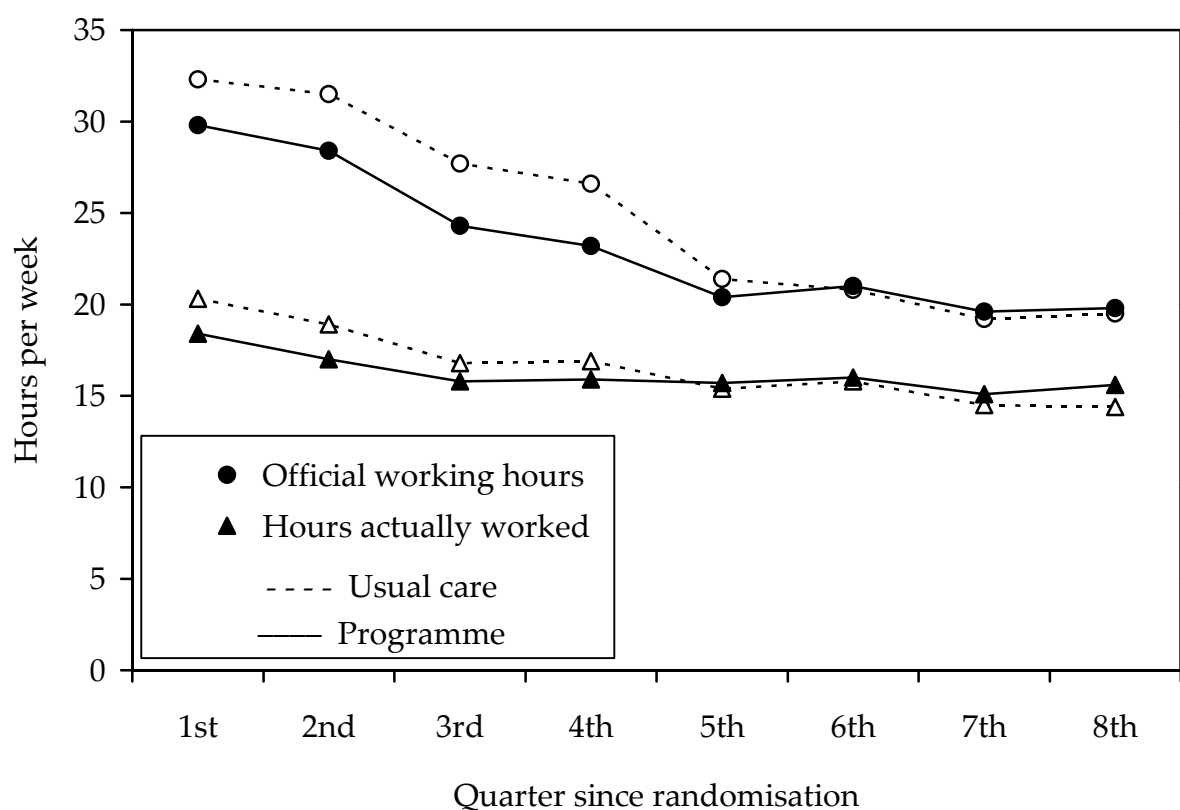


Figure 1. Average amount of paid labour per patient

Over the entire group, job loss increased during the study period from 0% at baseline to 16% after one and 27% after two years. All job losses were related to the rheumatic disease and led to a full work disability pension. Official working hours decreased on average from 31 per week in the first quarter to 20 per week in the last quarter (Figure 1). However, absenteeism also decreased. As a result, the number of hours actually worked decreased less markedly from 19 to 15 hours per week. Over the entire study period, the number of hours actually worked was about half of what would be expected, based on the official working hours at baseline.

Health care and societal costs. Over the two-year follow-up period, no statistically significant differences in non-programme health-care costs or non-health care costs were found between both randomisation groups (table 4). Only during the initial quarter, usual care patients did significantly more often consult a rheumatologist than patients in the programme ($p < 0.001$, 1.6 versus 0.5, excluding consultations as part of the programme). Including programme costs, the difference between both

randomisation groups in total two-year health-care costs was estimated at € 847 (95% CI from € -698 to € 2727), non-significantly in favour of usual care.

About one in four patients reported purchasing aids and appliances at work, ranging from mouse pads and office furniture to car adaptations. During the first year, considerably less patients in the usual care group reported purchases (12% versus 23%), but the difference was not statistically significant and they partly made up for it in the second year. The difference between both randomisation groups in total societal costs was estimated at € 5868 (95% CI from € -3886 to € 15739), in favour of the vocational rehabilitation programme. This difference was mainly determined by the productivity costs and was not statistically significant.

Utility. No statistically significant differences in QALYs were found between both randomisation groups, on any of the utility measures (table 5).

Table 5. QALYs per patient (Average, SD)					
	Usual care (n = 59)	Vocational rehabilitation programme (n = 62)	Difference	P value*	
QALYs, EQ-5D	yr 1	0.621 (0.175)	0.623 (0.130)	0.002	0.93
	yr 2	0.627 (0.208)	0.653 (0.183)	0.026	0.48
	total	1.248 (0.348)	1.276 (0.264)	0.028	0.62
QALYs, SF-6D	yr 1	0.646 (0.099)	0.627 (0.078)	-0.019	0.24
	yr 2	0.667 (0.109)	0.662 (0.098)	-0.005	0.79
	total	1.313 (0.201)	1.288 (0.159)	-0.025	0.46
QALYs, TRS	yr 1	0.751 (0.158)	0.728 (0.137)	-0.023	0.41
	yr 2	0.772 (0.173)	0.779 (0.127)	0.007	0.81
	total	1.523 (0.305)	1.507 (0.230)	-0.016	0.75
QALYs, TTO	yr 1	0.818 (0.212)	0.784 (0.182)	-0.034	0.35
	yr 2	0.819 (0.215)	0.810 (0.192)	-0.009	0.81
	total	1.637 (0.412)	1.594 (0.352)	-0.043	0.54

* Two-sided non-parametric bootstrapping

Over the entire group, all four utility measures showed better utility during the second year than during the first year (Figure 2). This difference between both years was statistically significant according to the TRS ($p=0.002$) and the SF-6D ($p<0.001$).

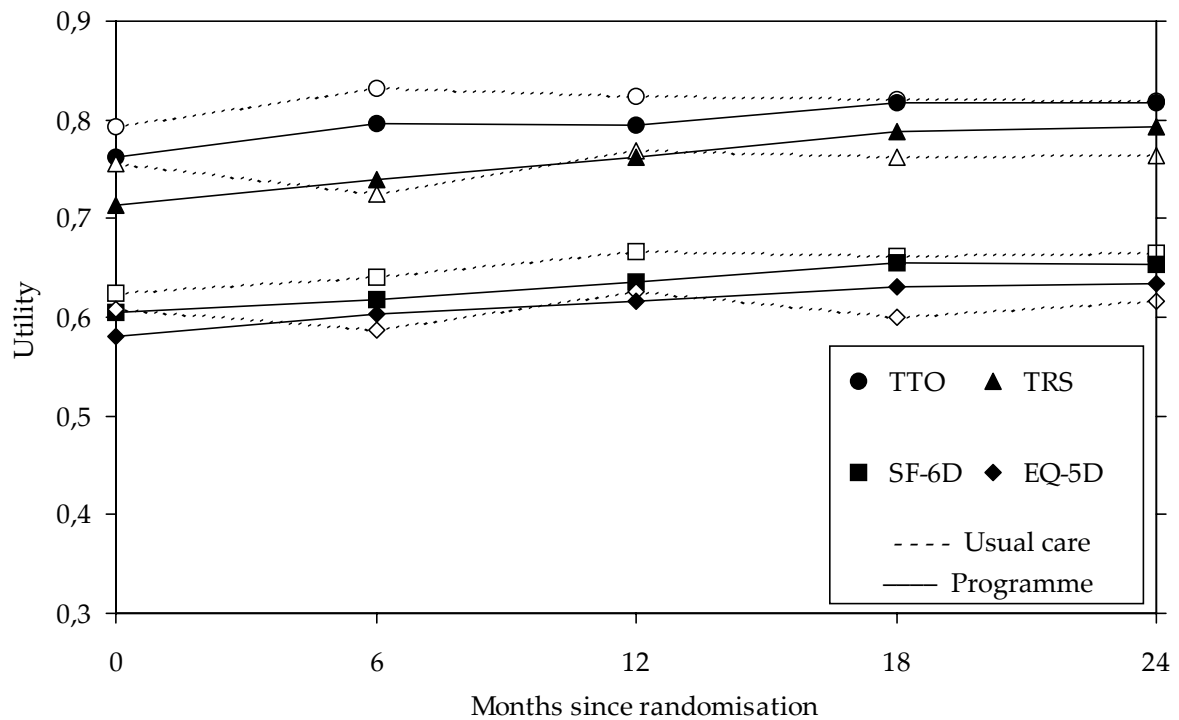


Figure 2. Average utility per patient

Discussion

Our randomised controlled trial compared a multidisciplinary job retention vocational rehabilitation programme to usual care, in patients with rheumatic diseases who were at risk of job loss. In a previous analysis, we showed that the programme led to a greater improvement of fatigue levels and mental health, but did not reduce job loss (50). In the economic evaluation reported here, we studied whether, from the societal perspective, effectiveness is attained with reasonable costs.

The costs of vocational rehabilitation programmes can vary considerably, depending on the content and setting. For our Dutch programme, the costs per patient were estimated at € 1426, of which about 20% were time and travel costs incurred by the patients. The increase in costs due to the programme is apparent, but it is not inconceivable that this increase is

compensated by savings on productivity costs. As in other studies, the productivity costs in our study were much larger than the health-care costs. If the programme would gain one fully productive year for only one out of sixteen patients, then this would make up for the programme costs of all sixteen. A study designed to show a difference of this size would have required far more patients and for that reason would not have been feasible. We did observe that the savings on productivity costs outweighed the programme costs, but non-significantly so. As it stands, the conclusion must be that, from a societal perspective, our study does not allow for a conclusion on whether our programme reduces or increases costs.

Although the vocational rehabilitation programme did not directly target quality of life, we did include utility measures to value the health of the patients, which may be influenced indirectly, for example, by the observed improvement of fatigue levels and mental health. For medical policy-making from a societal perspective, costs need to be weighed against an effectiveness measure that is applicable and comparable for a wide range of diseases and treatments. The four utility measures used in our study satisfy this requirement and, despite their conceptual differences, led to the same conclusion: the improvement of fatigue levels and mental health caused by the vocational rehabilitation programme did not translate into improved utility. As a result, the costs of the vocational rehabilitation programme cannot be justified by a gain in QALYs. The utility measures did show an improvement over time in both randomisation groups, which we found surprising since, in general, rheumatic diseases are progressive diseases. Initially we hypothesised that perhaps reduced working hours, reduced absenteeism, or even increased job loss could explain the increase in utility, but exploratory analyses did not support these hypotheses (data not shown). We therefore attribute the increase in utility values to the recruitment of patients at a moment when they perceived challenges in maintaining their jobs, which is likely to be associated with worse episodes of the rheumatic disease. Regression to the mean then explains the return to higher levels of utility.

Our study has a number of limitations. Firstly, our specific Dutch setting may differ from other settings. In the Netherlands, working part-time is greatly accepted, which reduces the value of paid labour per year. Also, legislation makes it relatively difficult to dismiss employees, which facilitates job retention. At the same time it may hinder return to work, because employers may be reluctant to hire an employee at risk of

absenteeism. Secondly, our sample size was relatively small, given the considerable variation in costs and utility compared to other measures. However, we also did not find a difference on the primary outcome measure of job retention, which suggests that a larger number of patients would not have changed our economic conclusions. Thirdly, patients receiving usual care, aware of the trial, may have received more than usual attention for their problems at work, which may have reduced the difference between the randomisation groups.

Contrary to our results, the randomised controlled trial on vocational rehabilitation by Allaire et al. did show a statistically significant delay and reduction of job loss (51). Like ours, their programme also targeted patients at risk of job loss and included attention to job accommodation and promotion of belief in capacity for employment. With two 1.5-hour sessions, the direct patient time of their programme was less than half the direct patient time of our programme, which would also roughly reduce costs by a half. Yet, combined with our estimated value of paid labour per year, their statistically significant 10% difference in job loss over a period of three years would render a similar gain on productivity costs of about € 4000, thus more than compensating the programme costs. Their larger and statistically significant difference in job retention may be due to differences in content or setting of the programme, which was delivered in connection with an ongoing state vocational rehabilitation programme. The health-care setting of our programme frequently hampered co-operation of the patient's occupational physician and employer (52). The difference between both studies could also be due to a difference in study populations. Our patients were younger, but had a worse functional status according to the HAQ measure and may therefore have been included in the programme at a later stage of their perceived problems at work. The differences between both trials have been discussed in more detail elsewhere (53).

In conclusion, our study has shown that, compared to usual care, our multidisciplinary job retention vocational rehabilitation programme provided greater improvement of fatigue levels and mental health, but did not reduce job loss. Also, no effect on health-care consumption or productivity was observed. Due to the large variability of the productivity costs, it remains unclear whether, from a societal perspective, the programme reduces or increases costs. Comparing our study to the study by Allaire et al (54). suggests that further research on effective vocational rehabilitation is warranted, with special attention to early detection of work

problems and the collaboration between health-care and vocational rehabilitation services.

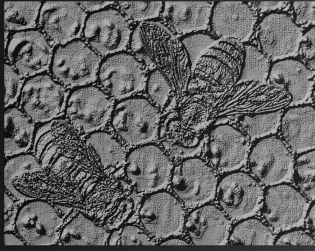
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6

Multidisciplinary job-retention vocational rehabilitation program for patients with chronic rheumatic diseases: patients and occupational physicians' satisfaction

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Abstract

Objectives: For the maintenance of work ability in patients with rheumatic diseases vocational rehabilitation (VR) programmes have been introduced. To improve the quality of such programmes in a health care setting, patients' and occupational physicians' (OPs') satisfaction was investigated.

Methods: The VR-programme was developed for patients with rheumatic diseases and consisted of a systematic assessment of the problems at work and the development of individual solutions. The programme was executed by a multidisciplinary team comprising a rheumatologist, a social worker, a physical and occupational therapist and a psychologist. Patients' and OPs' satisfaction was measured with a multidimensional questionnaire including comprising a rating scale (0-10) and a structured telephone interview, respectively.

Results: Fifty-nine of the 65 patients who participated in the VR-programme (91%) completed the questionnaire. Patients were most satisfied with the interpersonal approach and professional knowledge and least satisfied with waiting time for the final report and the elaboration of the given advice. Mean satisfaction score was 7.3 (SD 1.0). Twenty-eight of the OPs involved could be interviewed; they were overall satisfied with the programme. Twenty-one OPs (75%) stated that their role in the vocational rehabilitation process could be defined more clearly, and would appreciate more contact with the VR team members, preferably in the early phases.

Conclusion: Patients' and OPs' satisfaction with a multidisciplinary VR-programme was good. Areas for improvement mainly concerned the speed of the process and the communication between team members and OPs. To further determine the place of VR-programmes comparisons among various programmes and additional knowledge on their effectiveness is needed.

Introduction

The large impact of work disability in patients with rheumatic diseases is generally acknowledged and more and more attention is being paid to the question how work disability can be prevented or return to work can be promoted (1-6). To optimise vocational guidance, specific vocational rehabilitation (VR) programmes have been introduced both in the community and in health care. VR-programmes in a health care setting are usually executed on an out-clinic basis and integrated in rehabilitation clinics or hospitals (7-9). The organisation and availability of these facilities vary largely among countries (10;11).

In the Dutch health care system occupational physicians (OPs) play an important role in the process of vocational rehabilitation. OPs are linked to occupational health services, with which all companies are legally obliged to have a contract since January 1998. The co-operation between OPs and other health professionals is an important but often troublesome element in the vocational guidance of patients with a health related problem at work (12-16). Apart from giving treatment and advice, enhancement of communication between the patient and the OP and between health care professionals and the OP is therefore part of any VR-programme in a health care setting. Until now, evaluations of interventions aimed at the reduction of work disability are rare (17) and only include the number of patients maintaining or returning to a paid job as single outcome measure. From the perspective of quality management however, patients' and health professionals' satisfaction with complex health care processes is increasingly being recognised as an important aspect of health care (18;19).

To further improve the content and organisation of VR-programmes in a health care setting, not only data on clinical effectiveness, but also additional knowledge on areas of satisfaction and dissatisfaction within the complex process of vocational guidance is needed.

The purpose of the present study was therefore to describe patients' as well as OPs' satisfaction with a multidisciplinary job retention VR-programme for patients with chronic rheumatic diseases. In this study, satisfaction with the organisation and contents of the VR-programme was measured shortly after the intervention had been completed. Data on clinical effectiveness were gathered over a much longer period (2 years), as the individual elaboration of advices in the actual working situation is a long-term process, and will be published in a later stage.

Patients and Methods

Study participants. The current study was undertaken between March 1999 and June 2001. Patients participated in a multicentre, randomised-controlled trial in which the cost-effectiveness of a multidisciplinary VR-programme was compared to usual outpatient care initiated by the treating rheumatologist.

Study protocol: The current satisfaction study involved only the patients attending the Multidisciplinary Job Retention Vocational Rehabilitation programme (VR-programme) of the Department of Rheumatology of the Leiden University Medical Center in this period. This VR-programme was a routine facility already functioning for a year before the trial started. At the time the study was conducted, the VR-programme was only available for patients participating in the trial, as the capacity of the programme was limited,

The satisfaction study comprised the completion of a single questionnaire concerning various aspects of the VR-programme by the patients and a structured telephone interview with the OPs involved in their vocational guidance.

The Medical Ethics Committees of the hospitals involved approved the randomised clinical trial (including the satisfaction study).

Patients were eligible for enrolment in the randomised clinical trial if they had a chronic rheumatic disease with arthritis of one or more joints (rheumatoid arthritis (RA), or systemic lupus erythematosus (SLE), according to the ARA classification criteria (20;21), ankylosing spondylitis according to the modified New York classification criteria (22), or reactive arthritis, psoriatic arthritis or scleroderma). All patients perceived challenges in maintaining work and were highly motivated to maintain in or return to the workforce. Patients were either still working or only recently (less than one year) on sick leave. Allocation to either the VR-programme or the usual care was determined by randomisation. Patients were referred for screening for eligibility for the trial by their treating rheumatologist.

The multidisciplinary vocational rehabilitation team. A multidisciplinary team, involving a rheumatologist, a social worker, a physical therapist, an occupational therapist and a psychologist, executed the VR-programme. Moreover, an OP who was linked to the occupational health service of the

Leiden University Medical Center was connected to the team. This OP was not involved in the guidance of individual patients in connection with the VR-programme, but had a general advisory role. This advisory OP was present only at the multidisciplinary team conferences. The organisation of the programme was in the hands of a co-ordinator (a social worker, JB or a physical therapist, FvdG). All patients made at least two visits to the VR-programme.

After enrolment in the programme, a standardised letter confirming the patient's participation and an information leaflet on the VR-programme was sent to the OPs involved in the guidance of the patient by mail. All OPs were invited to contact the co-ordinator of the team to exchange information or to join the multidisciplinary team conference concerning their patient. These OPs were, dependent on the company where patients worked, linked to various occupational health services. However, according to Dutch law, OPs were informed about their patient's participation in the VR-programme only if the patient had given written informed consent (23).

First, the rheumatologist and the co-ordinator did a systematic assessment. The assessment by the rheumatologist consisted of history taking and a physical examination and included an evaluation of disease activity and joint destruction, the presence of extra-articular manifestations or comorbidity. The assessment by the co-ordinator comprised a structured interview concerning the patient's education and previous jobs, and a systematic registration of the problems encountered in the current working situation, using a list of potential challenges. Moreover, the patient's psychosocial situation was recorded.

Within 2 weeks after the first assessment a multidisciplinary team conference was held, at which all members of the team and the advisory OP were present. During the conference, the patients' health problems, the challenges in maintaining work and the development of individualised solutions were discussed (24;25). If necessary, additional team members were asked to see the patient in order to gather more information about specific aspects of the working situation. Dependent on the specific problems of the individual patient, the intervention further consisted of counselling, guidance or treatment (e.g. the identification of resources for adapting the working environment or working hours, promotion of work self-efficacy, referral to other health professionals or adaptation of the medical treatment in consultation with the treating (referring)

rheumatologist, exercise therapy, occupational therapy, functional training of relevant activities or mental restoration).

All information concerning the current disease characteristics and prognosis of the diseases, the working situation, description of the working problem and the counselling or treatment options given by team members were listed in a final report, which was discussed with the patient by the co-ordinator of the team.

The final report was then sent to the rheumatologist who referred the patient, but was only sent to the OP if the patient had given written informed consent. The total number of visits in connection with the VR-programme was at least two (assessments by rheumatologist and co-ordinator and discussion of final report with the co-ordinator). The total duration of the intervention varied depending on the contents of the individual guidance and treatment process, and lasted on average between 4-12 weeks.

Assessments

Clinical characteristics. The following patient data were recorded before entering the VR-programme: age, sex, diagnosis, disease duration and education level (divided into three categories based on the Dutch school system, primary education 0-8 years, secondary education 9-16 years, and higher vocational education/university 17+ years). Work history and current working situation were recorded using parts of a Dutch generic structured instrument, the vocational handicap questionnaire (VHQ), which has previously been validated in Dutch chronically ill people (26-28). Current occupation was grouped into four categories, each representing different levels and types of objective physical and mental demands at work (29). For the description of problems encountered in the current working situation, the record of the co-ordinator of the team was used. Finally, overall satisfaction with the current job was scored on a Visual Analogue Scale (VAS, range 0-10; anchor on the left was not at all satisfied and anchor on the right was fully satisfied with the job). The VAS was only to be filled in by those patients who had worked at least a few days in the last month.

Patient satisfaction. The patient satisfaction questionnaire comprised 22 questions and was based on two multidimensional questionnaires. One

questionnaire that was used aimed to describe satisfaction with occupational rehabilitation in employees with low-back problems (30), the other questionnaire was developed and validated to measure satisfaction with multidisciplinary care in patients with rheumatoid arthritis (31). The final questionnaire comprised those domains of health care that have previously been found to be the most important according to RA patients' perception of quality of care (32). The 7 different domains in the final questionnaire comprised 22 statements on: usefulness of given advice (n= 2), interpersonal approach (n= 3), communication (n= 2), professional knowledge (n= 5), effectiveness (n= 2), quality of information (n=3), co-ordination of care among team members (n=2) and the quality of the final report (n=3). The domains communication, interpersonal approach, professional knowledge and usefulness of given advice were derived from the back pain questionnaire. The domains effectiveness, quality of information and co-ordination of care among team members were derived from the multidisciplinary care questionnaire. The questions on the quality of the final report were designed specifically for the present study. With each statement the patient was asked to agree or disagree using a 5-point Likert scale (1= totally agree, to five = totally disagree). Patients had the opportunity to give a written comment with each assertion of the questionnaire. In addition overall satisfaction with the VR-programme was measured with a rating scale (0-10 points, 0= not satisfied and 10= very satisfied). Furthermore, patients were asked if they would recommend the job retention VR- programme to other patients (yes or no). Patients received the satisfaction questionnaire 4 - 6 weeks after termination of the VR-programme. To prevent response bias, the satisfaction questionnaire was filled in anonymously and sent back by mail to the principal investigator (PdB), who was not personally involved in the VR-programme.

Occupational physicians' satisfaction. OP's satisfaction was measured six to 12 weeks after a patient had ended the VR-programme, the OP of the occupational health service that was linked to the patient's company was contacted by telephone for a structured interview by the principal investigator (PdB). This was done only if the patient had given written informed consent concerning the exchange of information. The interview comprised 28 questions concerning: occupational physicians' sociodemographic data (sex, in training or not), overall satisfaction with the

written information concerning the VR-programme (n=7), whether they had received and read the final report (n=2), familiarity with the patients problem(s) at work (n=1), satisfaction with the specific information provided concerning diagnosis, prognosis, working and psychosocial situation, and satisfaction with the advices/suggestions given by the team to address these problem(s) (n=15).

Furthermore, the OPs were asked if they would have wanted to join the team meetings (n=1). Moreover, their general opinion of the initiative of actively passing on information by a hospital based team concerning the working situation to the OP was listed (n=1), and they were asked about any suggestions to optimise the VR-programme (n=2). The average duration of the interview was 20 minutes.

Data management. Data management was performed using the Project Manager Software package version 6.1 based on the Knowledge Man relational database system (33). Data were automatically and integrally converted to SPSS 10 for Windows for statistical analysis. Measures with a Gaussian distribution are expressed as means and SD, otherwise, medians and ranges are presented.

Results

Patients. In total, 140 patients were enrolled in the randomised controlled trial. Using stratified randomisation by rheumatic disease and hospital, 75 patients were assigned to the VR programme. Sixty-five of them paid at least one visit to the hospital in connection with the VR programme and were included in the satisfaction study.

In table 1 sociodemographic characteristics of the 65 participants in the job retention VR-programme are presented. Their median age was 45 years (range 21-57 years), thirty-seven (57%) of the patients were female. The median disease duration was 16 months (range 0-158) and half of the patients had RA. Fifty (77%) of the patients had secondary education or less which appeared to be a representative sample given the distribution in a nation-wide sample of Dutch RA patients and the Dutch population (34;35). About thirty-one (48%) of the patients reported mentally or mixed mentally-physically demanding work, eighteen (28%) reported light physical demands and sixteen (24%) reported heavy physical demands at

work. Thirty-four patients (52%) were on sick leave because of their rheumatic disease. In these patients the mean duration of sick leave was 16 weeks (range 1-52). Mean job satisfaction before participation in the VR-programme as measured with a VAS was 5.4 (SD 2.5) (n =51).

Table 1. Characteristics of patients with chronic rheumatic diseases (n=65) participating in a Multidisciplinary Vocational Rehabilitation Programme.	
Sociodemographic characteristics	
Age (yrs); median (range)	45 (21-57)
Disease duration (months); median (range)	16 (0-158)
Female patients; no. of patients (%)	37 (57%)
Diagnosis; no. of patients (%)	
Rheumatoid arthritis	30 (46%)
Ankylosing Spondylitis or other spondylarthropathies	15 (23%)
"Other" #	20 (31%)
Educational level; no. of patients (%)	
Low	19 (29%)
Medium	31 (48%)
High	15 (23%)
Occupational category; no. of patients (%)	
1. Mental demands	18 (28%)
2. Mixed mental/physical demands	13 (20%)
3. Light physical demands	18 (28%)
4. Heavy physical demands	16 (24%)
Vocational status; no. of patients (%)	
Sick leave	34 (52%)
Duration of sickleave (wks);median (range)	16 (1-52)
Maintaining employment	31 (48%)
Work satisfaction (0-10); mean (sd)	
VAS work satisfaction (n= 51)	5.4 (2.5)
# Other: Chronic rheumatic diseases like systemic lupus erythematosus, chronic gout, mixed connective tissue disease.	

Table 2. Number of self-reported challenges in maintaining at work in 65 patients with chronic rheumatic diseases participating in a VR-programme.

Complaints	Number of patients reporting this problem (%)	
Tiredness during work	6	(10%)
Tiredness after work	8	(12%)
Tiredness general	15	(23%)
Pain	23	(35%)
Morning stiffness	10	(15%)
Swollen joints	-	(0%)
<i>Labour conditions in general:</i>		
Time pressure	9	(14%)
Working hours starting early in the morning	10	(15%)
Rigid schedule	2	(3%)
Shift work	2	(3%)
<i>Specific labour conditions lower extremities:</i>		
Sitting	17	(26%)
Standing	22	(34%)
Kneeling	13	(20%)
Bending	12	(19%)
Walking	15	(23%)
Climbing stairs	7	(11%)
Repetitive movements legs	1	(2%)
<i>Specific labour activities upper extremities:</i>		
Repetitive movements arms	13	(20%)
Reaching	-	(0%)
Carrying	21	(32%)
Overhead work	10	(15%)
Manual precision work or writing	17	(26%)
Using grip force	29	(45%)
<i>Transportation's to and from work:</i>		
Walking	-	(0%)
Cycling	2	(3%)
Car or motor	9	(14%)
Public transport	3	(5%)
Parking	3	(5%)
<i>Accessibility workplace:</i>		
Stairs	1	(2%)
Doors	1	(2%)
Toilet	1	(2%)
<i>Exposure to cold, heat or moist:</i>		
<i>Workplace inventory:</i>		
Desk	8	(12%)
Chair	11	(16%)
Computer / mouse	1	(2%)
Tools	8	(12%)
<i>Psycho-social:</i>		
Relationship with supervisor or colleagues	13	(20%)
<i>Situation at home:</i>		
Acceptance of disease by patient	2	(3%)
Acceptance of disease by family or friends	3	(5%)
Social activities with kids, family or friends	4	(6%)

The median number of visits in connection with the VR-programme was 3 (range 1-6). The median number of health professionals involved was 5 (range 2-6). After the initial assessment by the rheumatologist and the coordinator, the social worker was involved in 41 patients (63%), the occupational therapist in 50 (77%), the physical therapist in 48 (74%) and the psychologist in 4 patients (6%).

The self-reported challenges in maintaining work are presented in table 2. The mean number of problems reported per patient was 5 (SD 3). Pain and fatigue were the most cited disease related challenges. Overall, more than 30% of the patients reported challenges which were associated with specific labour conditions like using grip force, carrying loads, standing and exposure to climatological circumstances like cold, heat and moist.

Patient satisfaction. Fifty-nine (91%) of the 65 patients returned the satisfaction questionnaire. The results show that the aspects of care most highly rated were the interpersonal approach and the professional knowledge of the health professionals involved in the VR-programme (table 3). Patients were least satisfied with the waiting time for the final report and the elaboration of the given advice in the actual working situation. The mean satisfaction score was 7.3 (SD 1.0). Eighty-five patients (98%) said they would recommend the programme to other patients. Most additional written comments were confirmations of the answers on the Likert scales, with none of the comments pertaining to a lack of understanding of a question. These findings substantiate the feasibility of the questionnaire.

Occupational physicians' satisfaction. Fifty-three patients (82%) gave permission to contact their OP. We were able to interview 28 (53%) of these 53 OPs. Twenty-five (47%) OPs could not be interviewed for the following reasons: six changed jobs, 8 OPs stated they did not know the patient well enough to answer the questions, 6 OPs did not respond to our repeated telephone calls, 1 OP required a reimbursement for participating in the interview, 2 OPs found the patients' files were missing and another two OPs could not be reached at all. Fifty percent (n=14) of the OPs were officially trained and working as an OP for a median duration of 6.2 years (range 1-22 years). Ten physicians were in training to become an OP, 4 respondents were general physicians working as an OP, however they were not in training.

Table 3. Patient satisfaction with a vocational rehabilitation team. Total number of patients is 59.

	Median (range)
<i>Usefulness</i>	
Contact with the VR-team in general was good	2 (1-3)
Contact with the VR-team has been very useful	2 (1-4)
<i>Interpersonal approach</i>	
Health professionals had respect for me	2 (1-4)
Health professionals were interested in me	2 (1-3)
Health professionals were very friendly	2 (1-4)
<i>Communication</i>	
A lot of verbal information was provided concerning possibilities to maintain in the workforce	2 (1-5)
Health professionals listened to my wishes and ideas concerning care	2 (1-3)
<i>Professional knowledge</i>	
Health professionals had experience with my problems	2 (1-4)
Health professionals gave good explanations and advises	2 (1-4)
Health professionals had good technical skills	2 (1-4)
Health professionals knew what they were talking about	2 (1-4)
Health professionals gave impossible advice	2 (1-5)
<i>Effectiveness</i>	
The VR-program had a positive effect on working situation	3 (1-5)
The given advice was very useful	2 (1-4)
<i>Quality of information general</i>	
<i>Written information concerning goal and methods was good</i>	2 (1-5)
<i>Quality of information individual</i>	
Given advice was clear cut, practical to handle	2 (1-5)
The first meeting was very informative	2 (1-5)
<i>Co-ordination</i>	
The team members did know from each other what they were doing	2 (1-5)
Collaboration among the care providers was good	3 (1-5)
<i>Final report</i>	
The result of the VR-program was well summarised	2 (1-5)
The final visit was very useful	2 (1-5)
The final report was written very promptly in time after the guidance had ended	3 (1-5)

* 1= excellent, 2 = very good, 3= good, 4= fair, 5= poor

Occupational physicians' satisfaction is presented in table 4. Overall satisfaction with the information provided was good. Almost all OPs stated they thought it was a good initiative to actively pass on information from a hospital based VR-programme to occupational health services. However, they found that the role of the OP, as a potential participant in the vocational rehabilitation programme, should be explained more clearly in the information leaflet and letter provided at the start of the intervention. Moreover, they thought that communication should take place in even earlier phases of guidance in case of working problems.

All but one of the OPs was familiar with the patient's problems at work. Most (n= 23, 82%) of the OPs received the final report. The number of OPs agreeing with the statement that the final report contained sufficient information concerning the disease and prognosis was 16 (57%), the working situation and the challenges in maintaining work 11 (39%), and the psychosocial situation of the patient 12 (43%).

Information on disease characteristics and prognosis was helpful in the guidance according to 21 (75%) of the OPs. Information concerning the working and psychosocial situation was found to be sufficiently written (n= 16, 57%), but was considered to have additional value in the guidance by only a small number of OPs. Furthermore they thought that if it would be possible for the team-members to visit the workplace, the practical applicability of the advice given could improve.

Table 4. Occupational physicians (OPs) satisfaction with a VR-program. Total number of occupational physicians is 28.

	Number of OPs (%) agreeing with statement	
The OP was satisfied with information concerning:		
- VR-program in general	22	(79%)
- Goals of VR-program	19	(68%)
- Methods of VR-program	17	(61%)
- Role of OP in relation to the VR-program	10	(36%)
- OP received final report	23/28	(82%)
- OP read final report	22/23	(96%)
- OP was familiar with patients' problem	22/28	(79%)
There was sufficient information concerning:		
- Disease and prognosis	16	(57%)
- <i>Helpful in guidance</i>	12/16	(75%)
- Working situation, and working problem	11	(39%)
- <i>Helpful in guidance</i>	4 /11	(36%)
- Psychosocial problems	12	(43%)
- <i>Helpful in guidance</i>	5/12	(42%)
- The given advice was clearly formulated	16	(57%)
- Measures were taken to keep patient at work	22	(79%)
- There was a relation between the measures taken and the advice of the VR-team	13	(46%)
- There was a positive effect of the measures taken on the working situation	20	(71%)
- There was a change in job description	12	(43%)
- The patient was still working	18	(64%)
- OP felt involved in the VR-program	7	(25%)
- OP would personally have wanted to attended the team meetings	16	(57%)
- It is a good initiative too start a VR-program	27	(96%)

Discussion

This study revealed a number of areas of patients' and OPs' satisfaction and dissatisfaction with a job retention VR-programme for patients with chronic rheumatic diseases in a health care setting. This information may be helpful to improve the contents and organisation of similar programmes that are

executed in the complex context of vocational guidance. Overall, satisfaction with the VR-programme was good. Points that needed attention as indicated by patients were: the waiting time for the final report and the elaboration of the given advice or potential solutions in the actual working situation. According to the OPs, their role as potential participant in the vocational rehabilitation process should be explained more clearly and more communication should take place in earlier phases of vocational guidance.

This study is unique in the fact that we were the first to study satisfaction of patients as well as their occupational physicians with a multidisciplinary job retention vocational rehabilitation programme in a health care setting.

A limitation of the present study is the lack of measuring patients' expectations prior to the intervention, so that we cannot relate the satisfaction scores to individual levels or needs (36). Moreover, selection bias may play a role in the interpretation of the levels of satisfaction. Patients described in this study were a highly motivated group of patients who had high hopes to remain in or return to the workforce. It is not clear whether this selection bias influences satisfaction levels positively or negatively, but nevertheless the results cannot be generalized to the total population of rheumatic patients taking part in job retention programmes as a whole.

Selection bias might have played a role in the results concerning the OPs' satisfaction, as we were able to interview only 53% of the OPs involved. This relatively low response rate did however appear to be mainly related to the organisation of occupational health care services rather than to be connected with the quality of the VR-programme.

The patient satisfaction results obtained in the present study are in general slightly less positive than those obtained in a recent study by Allaire et al. In that study patients' satisfaction with and perceived helpfulness of a VR-programme executed in a community setting in the United States (US) was measured (37). In that study 242 employed patients with RA, osteoarthritis or SLE, who perceived they were at risk for work disability, were enrolled in a trial. Using stratified randomisation by age, type of rheumatic disease and locale, 122 subjects were assigned to the experimental group. They received job retention VR services e.g. the assessment of work-related problems and development of solutions, during 2 meetings with a rehabilitation counselor, each lasting 1.5 hours. Satisfaction and perceived

helpfulness were measured using 1-10 scales (10 = very helpful or satisfied). Median satisfaction score was 10 (interquartile range 1.0) and median helpfulness was scored 9 (interquartile range 2.0).

As the setting of the interventions and the process of vocational guidance vary largely between the US and the Netherlands (mostly due to differences in the (occupational) health care and social security system), a direct comparison of the results of the study by Allaire and the present study is difficult.

In our study, satisfaction of OPs, who may in the Dutch situation, apart from the patients, be considered as an additional group of clients of the VR-programme, was measured. Almost all OPs stated it was a good initiative to actively pass on information from within a hospital based VR-programme to occupational health services. However, according to the OPs their role as potential participant in the vocational rehabilitation process should be explained more clearly. In our study, OPs were not a part of the VR-team but were asked to collaborate with the team by keeping in contact by mail or telephone. Most of the OPs did however not feel to be sufficiently involved with the process or appeared not to be aware of the VR-programme's working methods. This study substantiates the results of earlier studies, in which it was demonstrated that there is a need for a better job delineation and improvement of co-operation and communication between the health professionals within the process of vocational rehabilitation (38;39). Within the field of rheumatology, the perceived lack of clarity about mutual tasks has been presented before as a major obstacle in the communication between Dutch rheumatologists and Ops (40). This finding points at a limitation of the intervention employed in the present study. Due to the limitations connected with the setting of the intervention (hospital-based), communication with OPs was confined where OPs might have been able to provide additional information. The intervention as described in the present study was therefore predominantly concerned with the one-sided perspective of the patient perceived challenges of maintaining at work. Extended co-operation with OPs might improve the analysis of the working problems and the subsequent practical applicability of advices and solutions provided by the team members. However, the results of our study indicate that contacting OPs might be difficult or is considered undesirable by patients in a substantial number of cases. The fact that a considerable number of OPs wish a more active role is nevertheless a positive starting point for the improvement of the vocational

guidance process.

In contrast to most of the literature on VR-programmes, which focused on patients with permanent work disability or job loss, the focus of the VR-programme in our study was on employed patients and the identification of challenges in their current workplace. Only a few prior studies addressed these issues and our results parallel their findings (41-44). General disease related challenges that were most often cited in our study were pain and fatigue. Moreover, more than 30% of the patients reported challenges which were associated with specific labour conditions like using grip force, carrying loads, standing and exposure to climatological circumstances like cold, heat and moist.

Now that we are aware of the challenges faced by patients with chronic rheumatic diseases in the workplace and a number of perceived bottlenecks in the process of vocational rehabilitation, the results of this study will help us to improve our own and similar VR-programmes for patients with rheumatic diseases. To determine the exact place in the management of patients with rheumatic diseases more knowledge on the effectiveness of various VR-programmes in different settings is needed. Apart from the results of some uncontrolled studies (17) the preliminary results of a randomised controlled trial (45) describing the efficacy of a job-retention VR-service show promise for the future.

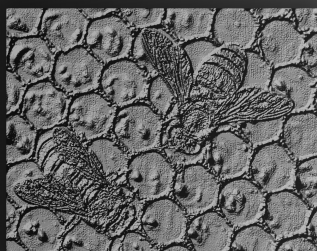
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7

Communication between Dutch rheumatologists and occupational physicians in the occupational rehabilitation of patients with rheumatic diseases

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Abstract

Objective: Rheumatic diseases are a major cause of permanent work disability. In the process of occupational rehabilitation several health professionals may play a role. The aim of the study was to assess both the quality and the quantity of communication and co-operation between Dutch rheumatologists and occupational physicians.

Methods: A postal survey among 187 Dutch rheumatologists.

Results: 153/187 rheumatologists (82%) returned the questionnaire. Diminishing pain and fatigue was being considered as their major responsibility in the process of occupational rehabilitation, followed by improving work participation (46%) and quality of work (37%). Although 73% of the rheumatologists judged the communication and co-operation with occupational physicians as reasonable to good, 78% of them stated to be willing to improve the collaboration. Perceived bottlenecks mentioned were a lack of clarity about the occupational physicians position and activities and the absence of practice guidelines. The most important prerequisites for improvement were found to be guarantees about the occupational physician's professional independence and more clarity about the competence of the occupational physicians and the use of information provided.

Conclusion: Dutch rheumatologists are willing to improve co-operation and communication with occupational physicians. The perceived lack of clarity about their mutual tasks appears to be a major obstacle. In that view, the development of a joined education programme and a guideline for occupational rehabilitation in rheumatic diseases may be appropriate first steps on the way to improvement.

Introduction

Rheumatic diseases are a major cause of work disability and place a huge financial burden on the individual as well as on society (1;2). In addition, the non-economic impact of work disability on the individual and his or her family is substantial (3;4). With respect to the guidance of patients with a rheumatic disease who have a health-related problem in the performance at work, the organisation and availability of care vary among countries (5;6). This diversity concerns the role and availability of individual health professionals as well as multidisciplinary facilities such as occupational rehabilitation teams (7;8)

In the Dutch occupational health care system, both occupational physicians and general practitioners or medical specialists are involved in the guidance of patients with a health-related problem in the performance at work. Occupational physicians are linked to Occupational Health Services with which all companies are legally obliged to have a contract with since January 1998. At this time, 96% of all companies have met this requirement. The guidance offered by occupational physicians is mainly aimed at preventing and diminishing sick leave and improving return to work (9;10).

Successful occupational rehabilitation in rheumatic diseases requires a working partnership between the patient, the occupational physician, the rheumatologist, other health professionals and the employer. Recent studies have shown that co-operation and communication between the different physicians involved in occupational rehabilitation need to be improved (11;12).

The objective of this study was to assess both the quality and the quantity of communication and co-operation between Dutch rheumatologists and occupational physicians and to list suggestions for improvement.

Methods

All 187 Dutch rheumatologists and rheumatologists in training (further referred to as: rheumatologists) who were a member of the Dutch Society for Rheumatology on September the 1st 1999, received a postal survey in October 1999. The survey used was based on a questionnaire developed by TNO Work and Employment, Hoofddorp, The Netherlands. This questionnaire was designed to list among general practitioners, medical specialists and occupational physicians the frequency and reasons for contacts and the perceived bottlenecks in and prerequisites for

improvement of co-operation (13). The adjusted survey for rheumatologists comprised a total of 29 questions. The first 7 questions were designed specifically for rheumatologists. In the survey the following definition of a working problem was used: The experience of limitations in the performance of a paid job due to a rheumatic disease, which may lead or may have led to absenteeism from work.

Results

153 out of 187 (82%) rheumatologists returned the survey. Mean age of the responders was 44.4 years (SD: 7.7 years), 65% was male and 35% worked in an academic hospital.

Actual rheumatological practice and collaboration with occupational physicians in case of working problems. Overall, the majority of the rheumatologists ask their patients about their working situation regularly (77% often, 22% sometimes and 1% never). Most rheumatologists indicated that they would actually refer their patients with a working problem to the rheumatology nurse practitioner (65%), the occupational therapist (44%), the physical therapist (34%), the social worker (22%) or a vocational rehabilitation team (25%). In contrast with the availability of the mentioned health professionals (89-100%) vocational rehabilitation teams were available to only 28% of the rheumatologists.

With respect to the interpretation of their task the rheumatologists indicated that lessening pain and fatigue was considered to be fully (66%) or partially (32%) part of their task. Improving work participation and quality of work, shortening and giving guidance on ill health retirement were indicated as fully part of their task by less than 46% of the rheumatologists.

Table 1 presents the frequency of the contacts between rheumatologists and occupational physicians, the way contact is made and by whom and the overall judgement of the contacts and the reasons for contacting the rheumatologist by the occupational physician. Concerning the use of guidelines, only 18% of the rheumatologists were familiar with the contents of the guidelines of the Royal Dutch Medical Association (KNMG) regarding the exchange of socio-medical information,(14) 42% had heard about them and 40% were not familiar with them. Of the 18% of the rheumatologists who were familiar with the guidelines, 57% said they worked well in daily practice.

Table 1. Contact between rheumatologists and occupational physicians				
Contacts between rheumatologists and occupational physicians	Responders			
Frequency of contacts over the last 4 weeks, median (range)(n=153)	2 (1-25)			
Initiative for making contact by the rheumatologists (n=153):				
- Never	41			
- Seldom	51			
- Often	8			
- Always	0			
Contact is made by rheumatologists (n=85) by:				
- Telephone only	15			
- Mail only	15			
- More by telephone than by mail	40			
- More by mail than by telephone	20			
- Both in equal proportions	9			
Reasons given by rheumatologists for occupational physicians to contact them (n=153):	often	some-times	seldom	never
- To get more information about patients complaints	90	8	1	1
- To get a prognosis concerning the duration of work incapacity	78	15	6	1
- To get more information concerning current treatment	75	17	5	3
- To get information concerning disabilities of the patient related to return to work	54	31	11	5
-To get additional information needed for a medical examination	9	31	25	34
- To plan a joint strategy for treatment and vocational rehabilitation	6	17	37	40
- To get additional information needed for filling in a report	4	7	16	73
- To make a annotation concerning current treatment by the rheumatologist	1	4	18	78
- To shorten the waiting list	0	10	11	79
- To suggest a second opinion	0	4	2	68
Overall judgement of the contacts with occupational physicians (n=140):				
- Good	34			
- Reasonable	39			
- Fair	22			
- Bad	5			

In Figure 1. four out of eleven probable bottlenecks are presented which were mentioned as an important bottleneck by more than half of the responders. The other seven bottlenecks presented which were considered to be important bottlenecks by less then 35% of the rheumatologists were: not knowing the occupational physicians personally, the fear of a patient pressing charges when information is provided orally without prior consent or when the occupational physician is passing on the provided information to a third party, a lack of financial compensation for written information, the occupational physician’s only goal is to get the patient back to work as soon as possible, rheumatologists have a general lack of knowledge with respect to work related disorders, commercialisation of Occupational Health Services and lack of a relationship based on mutual trust between occupational physicians and their patients.

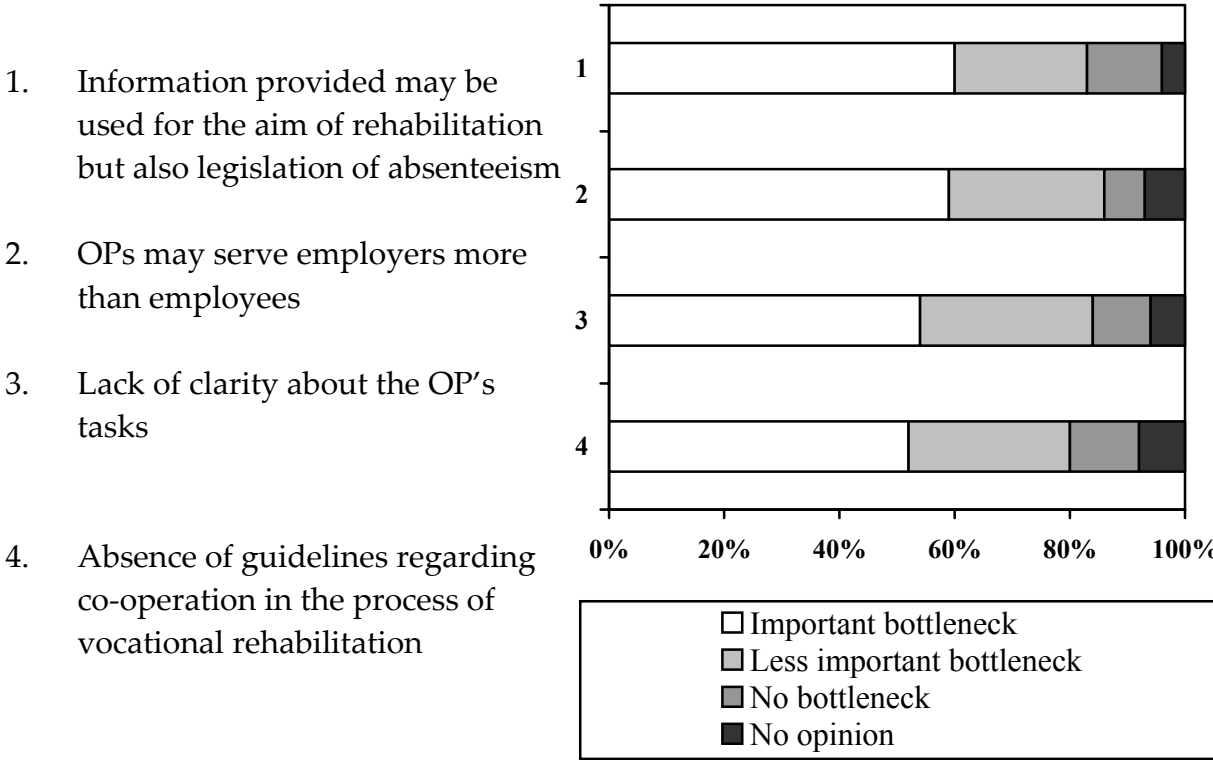


Figure 1. Perceived bottlenecks in the communication. Eleven probable bottlenecks were listed. Four bottlenecks mentioned by more than half of the responders to be an important bottleneck are presented in this figure. Occupational physician (OPs).

Prerequisites for improvement of collaboration with occupational physicians. The majority of the rheumatologists stated that it was important to improve the co-operation with occupational physicians (78%). Co-operation is already satisfying enough according to 6% of the responders, 7% said they did not need better co-operation because all the information could be provided by the patients themselves and 9% of the rheumatologists mentioned that better co-operation is only needed in the early stages of rheumatic diseases. In the survey 10 prerequisites for improvement of the co-operation with occupational physicians were listed. In Figure 2 the 6 conditions for improvement which were mentioned as important by most of the rheumatologists are presented. The four prerequisites for improvement, which were mentioned by less than 43% of the rheumatologists were: the possibility for communication between rheumatologists and occupational physicians without the patient's prior consent, a financial compensation for providing written information, a special budget to pay emergency consultation on request of the occupational physician and the organisation of special meetings to get to know each other.

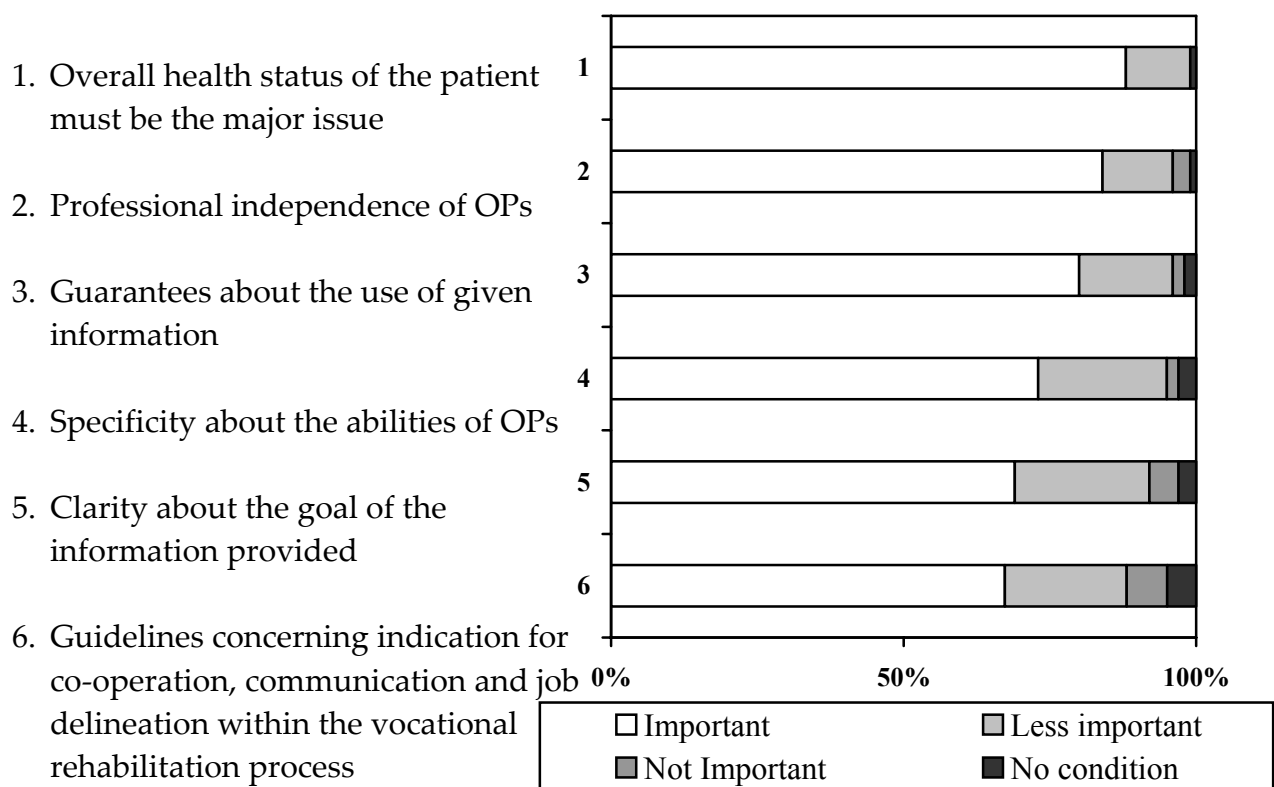


Figure 2. Ten prerequisites for improvement were listed. Six prerequisites for improvement mentioned to be important by more than half of the responders are presented in the figure. Occupational physician (OPs).

Discussion

This study indicates that Dutch rheumatologists feel it is necessary to improve the co-operation and communication with occupational physicians. However, the perceived lack of clarity about their mutual tasks appears to be a major obstacle.

This study was limited to the views of rheumatologists, as the opinions of occupational physicians have already been examined in a previous study (11). In that study, more than 80% out of 232 occupational physicians indicated also to be willing to improve co-operation with other physicians.

Apart from lessening the burden of disease by treating pain and fatigue, rheumatologists see it also as part of their task to improve the quality of work, to decrease the duration of sick leave and to prevent permanent work disability. In the light of this willingness to contribute actively to the occupational rehabilitation process, it is striking that co-operation between rheumatologists and occupational physicians is currently rather one-sided. It appeared that for the majority of contacts information is provided by rheumatologists on request of the occupational physician only. These findings are in accordance with the results of a previous study among other medical specialists. Whereas rheumatologists and other specialists (neurologists, orthopaedic surgeons and psychiatrists) seldom or never take the initiative to contact an occupational physician, rehabilitation specialists appeared to take the initiative for contact far more often (11;13).

The rather passive role of rheumatologists so far may probably be explained by a number of obstacles. Rheumatologists all mention the lack of information about the occupational physician's position and activities and the absence of guidelines or protocols regarding the co-operation and communication, whereas existing guidelines appear to be known to only a few rheumatologists. The bottlenecks in the communication as perceived by rheumatologists are largely similar to the obstacles mentioned by other medical specialists (11;13) Occupational physicians on the other hand have indicated in a previous study that medical specialists: have too little knowledge of Occupational Health Services and relevant legislation, do not know what they can expect from occupational physicians and do not take into account their patients' jobs.

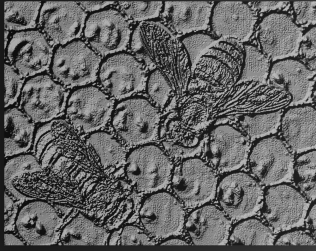
In the Netherlands, the problem of insufficient co-operation and communication between occupational physicians, general practitioners and medical specialists has been acknowledged by several parties including health policy makers. General practitioners and occupational physicians

subscribed a consensus statement to improve the co-operation and communication. The Dutch Government gave a financial grant for post-graduate courses, regional projects and implementation of guidelines. The results of the present and previous studies underscore the need to develop common concepts and guidelines between medical specialists and occupational physicians also. A study group has been formed existing of chairmen of the Society of Medical Specialists and the Dutch Organisation of Occupational Physicians. They have agreed to develop specific education programmes, common guidelines and local experiments. The results of the present study emphasise the need for rheumatologists to join in actively with the initiatives already taken.

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8

Summary & Discussion

Working gainfully is a major activity of adult life, providing income, structure, social interaction and an opportunity to learn and practice skills, and a source of self-esteem. In people with chronic arthritis work disability is common, having a major impact upon individuals as well as society. In the Netherlands, rheumatic diseases account for about 15% of the costs due to work disability payments.

Given this significance, work retention issues have been identified as one of the aims of the management of chronic arthritis. Apart from the optimization of medical treatment, in many countries structured vocational rehabilitation programs are being offered to patients with chronic arthritis, with the aim of preventing the loss of paid employment or enhancing return to work.

The aim of the present thesis was to describe the evidence regarding the effectiveness of vocational rehabilitation programs in patients with chronic arthritis. Moreover, this thesis includes an evaluation of a multidisciplinary job retention vocational rehabilitation program aimed at the prevention of work disability in patients with chronic arthritis who were at risk for job loss. In addition, the co-operation between rheumatologists and occupational physicians in the process of vocational rehabilitation was evaluated.

Chapter one describes the epidemiology of work disability (including job loss, sick leave and the problems encountered at work) in patients with chronic arthritis. It is concluded that the burden of work disability in chronic arthritis is substantial to both individuals and society, and commences early in the course of the disease. Several studies over the past decades have identified risk factors for permanent work disability, and over the last years the number of papers on the significance of sick leave is growing. Despite the general recognition of the importance of work disability in chronic arthritis, evidence for the effectiveness of vocational rehabilitation is lacking.

Chapter two describes the results of a systematic literature review concerning the effectiveness of vocational rehabilitation programs in patients with chronic arthritis. Data were obtained by a computer-aided and manual search of the literature from 1980 until May 2001. Six studies were selected for the review, all of them were uncontrolled. In five out of six studies a positive short-term effect of vocational rehabilitation, defined

as return to paid employment, was suggested. It was concluded that the proof of the benefit of vocational rehabilitation in chronic arthritis is slim, and it was recommended that more controlled studies, with adequate follow-up periods and including an economic analysis, should be performed.

Chapter three describes the significance of sick leave as a predictor of work disability among individuals with chronic arthritis. All data were collected in connection with the randomized controlled trial comparing the effectiveness and costs of a multidisciplinary vocational rehabilitation program in patients with chronic arthritis who were in paid employment but at risk for job loss with usual outpatient care (chapters 4, 5 and 6). Data from 112 of the 140 patients included in the trial were available for analysis. At baseline, 60 of the 112 subjects (54%) were on sick leave, with a mean duration of 18.7 weeks. After 24 months, 26 patients (23%) had lost their job, all of them receiving a full disability pension and none of them being unemployed. The depression scale of the Hospital Anxiety and Depression Scale (HADS) and the presence of complete sick leave were significantly and independently associated with job loss after two years of follow-up. These results underscore the need for the recognition of sick leave, especially if this is complete, and mental health status as major predictors of permanent work disability by rheumatologists and health professionals involved in the management of patients with chronic arthritis.

Chapter four reports the results of a randomized comparison of the effectiveness of a multidisciplinary job retention vocational rehabilitation program with usual out-patient care in patients with chronic arthritis who were in paid employment but at risk for job loss. In that trial, 74 patients were randomly assigned to a multidisciplinary job retention vocational rehabilitation program and 66 patients to usual outpatient care. Patients in the vocational rehabilitation group were assessed and guided by a team comprising a rheumatologist, a social worker, a physical therapist, an occupational therapist, a psychologist and a consultant occupational physician, whereas subjects in the usual group received care as initiated by their rheumatologist, supplemented with written information about rheumatic conditions and work. After 24 months of follow-up there was no difference between the two groups regarding the proportion of patients losing their jobs at any time point, however over the total period of 24

months, patients in the vocational rehabilitation group had a greater improvement of fatigue, mental health as measured with the RAND-36 and the HADS as compared to the usual care group. It was concluded that a job retention vocational rehabilitation program did not reduce the risk of job loss but improved fatigue and mental health in patients with chronic arthritis at risk for job loss.

Chapter five reports the result of the economic analysis in conjunction with the randomized controlled trial. To investigate the economic consequences of the program we performed a cost-utility analysis, from the societal perspective. Program costs were estimated at € 1426, of which about 20% were time and travel costs incurred by the patients. These costs were outweighed by savings on productivity costs, but non-significantly so. Except for the program costs, no significant differences were observed in health-care consumption, productivity, costs or quality-adjusted life years. As a result, it remains unclear whether the vocational rehabilitation programme in its current form reduces or increases costs. Moreover, programme costs cannot be justified by a gain in quality-adjusted life years.

Chapter six describes the satisfaction of patients and occupational physicians with the multidisciplinary job retention vocational rehabilitation program as employed in the randomised controlled trial (chapters 4 and 5). Patients' and occupational physicians' satisfaction was measured with a multidimensional questionnaire including comprising a rating scale (0-10) and a structured telephone interview, respectively. Fifty-nine of the 65 patients who had completed the VR-programme responded to the questionnaire. The patients' mean satisfaction score was 7.3 (SD 1.0), where they were most satisfied with the interpersonal approach and professional knowledge and least satisfied with waiting time for the final report and the elaboration of the given advice. Twenty-eight of the occupational physicians involved could be interviewed. They were overall satisfied with the programme, but 21 (75%) stated that their role in the vocational rehabilitation process could be defined more clearly, and they would appreciate more contact with the members of the multidisciplinary team.

Chapter seven describes the communication between Dutch rheumatologists and occupational physicians in the process of occupational rehabilitation of patients with chronic rheumatic diseases. A postal survey

was sent among 187 Dutch rheumatologists, with 82% of them responding. Diminishing pain and fatigue was being considered as their major responsibility in the process of occupational rehabilitation, followed by improving work participation (46%) and quality of work (37%). Although 73% of the rheumatologists judged the communication and co-operation with occupational physicians as reasonable to good, 78% of them stated to be willing to improve the collaboration. Perceived bottlenecks mentioned were a lack of clarity about the occupational physicians' position and activities and the absence of practice guidelines. The most important prerequisites for improvement were found to be guarantees about the occupational physician's professional independence and more clarity about the competence of the occupational physicians and the use of information provided to occupational physicians by rheumatologists.

General discussion

Participation in paid employment is a major life role for most adults. People with chronic arthritis face many challenges at work(1) and can expect to be substantially more days on sick leave and to be employed significantly fewer years than the general population. Given the large impact of work disability in chronic arthritis to individuals as well as society, the interest in work retention issues is increasing. Apart from a review on studies in which vocational rehabilitation interventions are evaluated, this thesis describes the effectiveness and costs of a multidisciplinary job retention vocational rehabilitation program for patients with chronic arthritis at risk for job loss and the communication among rheumatologists and occupational physicians regarding the process of vocational rehabilitation.

From the review of the literature included in this thesis, it can be concluded that the evidence regarding the effectiveness of vocational rehabilitation interventions is scanty, and that there is a need for controlled clinical trials with an adequate follow-up period. After the publication of this review, two randomized controlled trials have been conducted, one in the United States and the other being the trial described in this thesis. In contrast with the study from the United States, the multidisciplinary job retention vocational rehabilitation program evaluated in this thesis did not reduce the risk of job loss. As the extent and components of the interventions employed in the two trials appear to be fairly similar (2-4 visits, comprising

identification of work limitations, education, counseling, guidance and treatment), other factors than the intervention per se could have contributed to this lack of effect.

In our study, a considerable number of patients were already on sick leave for quite a long time at the start of the intervention. Therefore, it could be that the entitlement of a full work disability pension, which had to be settled after 12 months of continuous sick leave at the time the study was conducted, was virtually unpreventable. This inevitability may be related to the Dutch society's relatively weak emphasis on putting disabled people back to work at that time. For employees with chronic arthritis to maintain in the work force, an active role of the patient, the employer, the occupational physician, the rheumatologist and other health care providers is needed. It is conceivable that too often a working problem, even if this had resulted in sick leave, was seen as a logical consequence of the disease, and not as a red flag for an impending work disability pension.

Since the time the study was conducted, the Dutch legislation concerning sickness and work disability benefits has changed. Nowadays, more emphasis is placed on the planning and execution of reintegration measures beginning at six weeks of sick leave (Wet Verbetering Poortwachter). This policy requires a joint action of the patient, the employer, and the occupational physician. In this process, the rheumatologist and other health professionals are often demanded for information about the rheumatic disease, its treatment and prognosis.

For an appropriate execution of this law it is first of all important that patients/employees themselves are aware of the Dutch legislation regarding sickness and disability pensions and acknowledge the need for exchange of information between the rheumatologist or other health professionals and the occupational physician. For that purpose, the provision of information and education of patients regarding this topic is needed. Preferably, this information and education should be provided to all patients who are recently diagnosed with chronic arthritis and have a paid job. The rheumatology clinical nurse specialist could, in conjunction with the care provided in early arthritis clinics, play an important role in the provision of information and education about rheumatic conditions and work.

With respect to the role of the rheumatologist and other health professionals, it is until now not very common that they take the lead in the early recognition of working problems and the realization of vocational rehabilitation or other reintegration measures. Asking all patients with

chronic arthritis who have a paid job whether they are on sick leave is a way to identify patients with seriously threatened work ability. The recent availability of easy to use tools for assessing work-related problems could help rheumatologists and health professionals with identifying patients in earlier stages and making appropriate referrals or select interventions. Examples of these tools are the RA-Work Instability Scale (2) and the Work Limitations Questionnaire (3). As it was found that a great part of work disability occurs early in the disease course, the implementation of such a tool in the sets of systematic assessments employed in early arthritis clinics needs to be considered.

With respect to the role of employer, the concept of "disability management" is now advocated to be the global basis of the solution of disability in the workplace (4). Disability management is an employer-directed process, defined as: "A workplace prevention and remediation strategy that seeks to prevent disability from occurring or, lacking that, to intervene early following the onset of disability, using coordinated, cost-conscious, quality rehabilitation service that reflects an organizational commitment to continued employment of those experiencing functional work limitations. The remediation goal of disability management is successful job maintenance or optimum timing for return to work, for persons with a disability". An active approach to work disability, moves away from the outdated notion that disability costs are unavoidable outcomes of doing business, to one where managers are committed to tracking and controlling costs of disability through prevention and rehabilitation strategies. To employ such strategies, an active cooperation between the employer and the occupational physician is needed. Occupational physicians may however in general have too little information about chronic arthritis, its treatment and prognosis, as they will only see a limited number of patients with this condition per year. This relative underexposure could result in a too pessimistic view on the future work ability of employees with chronic arthritis, and makes the timely provision of adequate information by the rheumatologist all the more important. In addition, special training courses on rheumatic diseases could increase occupational physicians' knowledge and skills regarding the guidance of employees with chronic arthritis. To address this issue, the project group involved in the research projects described in this thesis was engaged in the development and execution of two training courses for occupational physicians concerning the topic of rheumatic conditions in the

region of Leiden, The Netherlands, between 2002 and 2004 (5,6). Apart from educational bottlenecks, there may be other barriers limiting the potentialities of occupational physicians, such as budgetary and time constraints imposed upon occupational physicians by employers and the relatively high job turn-over, threatening the continuity of care.

To reduce the numbers of recipients of work disability pensions in general, future policy reforms should concern a re-definition of work disability making disability less equated with inability to work; a stronger emphasis on putting disabled people back to work; removal of disincentives to work while participating in rehabilitation programs; reassessment of disability benefits at regular intervals; a greater involvement of employers in the integration process through anti discrimination legislation and employment quota; design active disability programs; the promotion of early interventions; and the making of benefit reciprocity dependent on active participation in vocational rehabilitation or other integration measures (7).

Especially from the perspective of the latter three suggestions, and the fact that the vocational rehabilitation intervention described in this thesis although not preventing job loss had a positive effect on mental health, a further development of the intervention, with subsequent evaluation, is warranted. With that further development, not only the pace and the communication with occupational physicians have to be taken into account. It should also be noted that the intervention described in this thesis did not include work site visits, where in the literature the importance of a work site visit to observe workplace issues first hand is emphasized. More research is needed to identify appropriate content for work site visits and their role in interventions aimed at retaining employment or facilitating return to work. In addition, it should be evaluated whether offering the intervention in a more early stage than the trial described in this thesis, where sick leave has not yet occurred, has an impact on its effectiveness.

Regarding future research on the epidemiology of work disability and chronic arthritis, and evaluations on the effectiveness of vocational rehabilitation interventions, a uniform definition and description of work disability is required. Although a definition as "complete work cessation (at least in part) caused by chronic arthritis prior to the normal age of retirement" is advocated, this does not take into account various other forms of work limitations encountered by patients with chronic arthritis. Examples of these are: partial work disability, being on complete or partial

sick leave, or still working but experiencing problems at work or with commuting. The use of a uniform set of parameters describing work status is recommended.

To conclude with, given the large burden of work disability in chronic arthritis, early identification of patients with threatened work ability is needed. Regarding vocational rehabilitation, there are various opportunities for the improvement of the interventions that are currently available. In connection with this improvement, enforcement of the role of employees with chronic arthritis and employers in the prevention of work disability and occupational rehabilitation, the early recognition of working problems and subsequent timely provision of interventions, and the communication between the rheumatologist or health professionals and the occupational physician are major topics to be addressed. General disability policy reforms having economic and social integration of the disabled as their key objective could enhance the realization of the above mentioned areas for improvement.

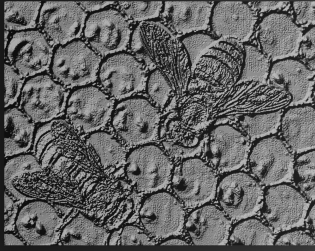
In future evaluations of vocational rehabilitation interventions as well as in epidemiological studies regarding work disability, the use of a uniform set of parameters to describe work status is recommended.

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9

Samenvatting & Discussie

In Nederland hebben naar schatting 200.000 mensen in de werkzame leeftijd (20-65 jaar) een chronische reumatische aandoening. Dit getal omvat ongeveer 79.000 personen met reumatoïde artritis (RA), 8.000 mensen met ankyloserende spondylitis (AS; ziekte van Bechterew), 4.000 met een andere vorm van spondylarthropathie, 99.000 met een polyartritis en 10.000 met systeem-aandoeningen zoals systemische lupus erythematosus (SLE). Daarnaast zijn er nog ongeveer 200.000 personen in de werkzame leeftijd met perifere artrose.

Chronische aandoeningen van het bewegingsapparaat, met name die aandoeningen die gepaard gaan met chronische gewrichtsontstekingen, vormen in Europa en de Verenigde Staten één van de belangrijkste redenen van tijdelijke of blijvende arbeidsongeschiktheid.

Van de patiënten met RA blijkt 10% na één jaar en 90% na 30 jaar ziekte duur blijvend arbeidsongeschikt te worden. Een groot deel van de patiënten met RA wordt al in de eerste ziekte jaren blijvend arbeidsongeschikt. De percentages patiënten met SA en SLE die blijvend arbeidsongeschikt worden zijn eveneens aanzienlijk.

Het al dan niet arbeidsongeschikt worden is afhankelijk van verschillende factoren. Zwaar fysiek werk, veel ziekteactiviteit en functionele beperkingen, hogere leeftijd en een laag opleidingsniveau zijn factoren die in verband worden gebracht met een grotere kans op arbeidsongeschiktheid bij mensen met RA. Daarnaast kunnen bij werknemers met RA ook persoonlijke factoren (bijvoorbeeld copingstijl en motivatie), de sociale omgeving (bijvoorbeeld steun van leidinggevende, collega's en familie) en overige kenmerken van het werk (bijvoorbeeld mate van autonomie, aanwezigheid van aanpassingen) invloed hebben op het ontstaan van arbeidsongeschiktheid.

Bij AS en SLE zijn de fysieke zwaarte van het werk, leeftijd, opleidingsniveau, ziekteactiviteit en fysiek functioneren ook geassocieerd met het ontstaan van arbeidsongeschiktheid.

Tot nu toe heeft het meeste wetenschappelijk onderzoek bij chronische artritis zich vooral gericht op blijvende arbeidsongeschiktheid. In de laatste jaren neemt de belangstelling voor het vóórkomen van ziekteverzuim, een toestand die altijd aan blijvende ongeschiktheid vooraf moet gaan, bij deze aandoening toe. In dwarsdoorsnede onderzoek variëren de percentages patiënten met RA die ten gevolgen van de aandoening in de ziekte wet zitten tussen 13 en 55%. Bij mensen met AS en SLE blijkt ziekteverzuim ten gevolge van de ziekte ook relatief vaak voor te komen.

Omdat de gevolgen van chronische artritis voor het behoud van betaald werk zowel op individueel als op maatschappelijk niveau aanzienlijk zijn, wordt er, naast effectieve medische behandelmethoden, gezocht naar andere interventies die ziekteverzuim en blijvende arbeidsongeschiktheid kunnen verminderen of voorkómen.

Het doel van de onderzoeken beschreven in dit proefschrift was:

1. Het presenteren van een overzicht van de effectiviteit van de tot nu toe beschikbare vormen van interventies gericht op behoud van of de terugkeer naar betaald werk bij mensen met chronische artritis.
2. Het vaststellen van de effectiviteit en de kosten van een multidisciplinaire interventie gericht op behoud van betaald werk voor patiënten met chronische artritis en een arbeidsprobleem en van de tevredenheid van patiënten en bedrijfsartsen met deze interventie.
3. Het beschrijven van de samenwerking tussen reumatologen en bedrijfsartsen bij arbeidsproblematiek bij mensen met reumatische aandoeningen.

Hoofdstuk twee beschrijft de effectiviteit van interventies gericht op behoud van of terugkeer naar betaald werk voor patiënten met chronische reumatische aandoeningen. Hiertoe werd een systematisch literatuuronderzoek verricht naar artikelen gepubliceerd tussen 1980 en 2001, gebruikmakend van diverse elektronische databases. Er werden 6 studies voor de review geselecteerd, allen met een ongecontroleerde opzet. In 5 van de 6 studies werd een positief effect van de interventie op de werksituatie beschreven, in geen van de studies was een economische analyse opgenomen. Ondanks de overwegend positieve bevindingen was de overtuigingskracht van de studies gering, met name door methodologische tekortkomingen in bijna alle studies. Geconcludeerd werd dat ten aanzien van de effectiviteit van interventies gericht op behoud van of terugkeer naar betaald werk bij mensen met chronische artritis meer gecontroleerde studies, met adequate follow-up en een economische analyse, moeten plaatsvinden.

Hoofdstuk drie beschrijft de waarde van ziekteverzuim als voorspeller voor blijvende en volledige uitval uit het arbeidsproces na twee jaar. De data voor dit onderzoek werden verzameld in het kader van een gerandomiseerde trial waarin de effectiviteit van een multidisciplinaire

interventie gericht op behoud van betaald werk bij mensen met chronische artritis en een arbeidsprobleem werd onderzocht (hoofdstuk 4, 5 en 6). Data van 112 van de 140 in de trial geïnccludeerde patiënten waren beschikbaar voor analyse. Bij baseline waren 60 van de 112 personen (54%) met ziekteverlof, de gemiddelde duur van het ziekteverlof was 18.7 weken, bij 30 personen was het ziekteverzuim volledig. Na 2 jaar hadden 26 van de 112 personen (23%) een volledige arbeidsongeschiktheidsuitkering, geen van de patiënten was werkloos geworden. Volledig ziekteverzuim en een depressievere stemming, zoals gemeten met de Hospital Anxiety and Depression Scale (HADS), bij baseline waren significant en onafhankelijk geassocieerd met volledige uitval uit het arbeidsproces na 2 jaar follow-up. De resultaten benadrukken de noodzaak voor het vroegtijdig herkennen van en inspelen op ziekteverzuim en problemen in het mentaal functioneren, als belangrijke voorspellers van blijvende arbeidsongeschiktheid, door reumatologen en andere zorgverleners betrokken bij de sociaal medische begeleiding van werknemers met chronische artritis.

Hoofdstuk vier beschrijft de resultaten van een gerandomiseerde, multicenter studie naar de effectiviteit van begeleiding door een multidisciplinair team in vergelijking met de gebruikelijke poliklinische zorg voor mensen met chronische artritis en een arbeidsprobleem.

Onder een arbeidsprobleem werd verstaan: een door de patiënt zelf ervaren bedreiging van het behoud van betaald werk.

Aan dit onderzoek namen 140 mensen met chronische artritis deel, waarvan er 74 werden gerandomiseerd in de interventiegroep, die werd verwezen naar een multidisciplinair arbeidsbegeleidingsteam, en 66 personen in de controlegroep, die de gebruikelijke zorg van de behandelend reumatoloog kreeg, aangevuld met schriftelijke informatie over reuma en werk. De multidisciplinaire arbeidsbegeleiding werd geboden op de afdeling Reumatologie van het Leids Universitair Medisch Centrum. Het multidisciplinaire team dat de begeleiding bood, bestond uit een reumatoloog, een maatschappelijk werkster, een fysiotherapeut, een ergotherapeut, een psycholoog en een bedrijfsarts. De bedrijfsarts was als consulent aan het team verbonden. De begeleiding bestond uit het verhelderen van de (dreigende) arbeidshandicap, inzicht geven in de individuele arbeidsmogelijkheden, adviseren over en begeleiden bij de te nemen maatregelen om de arbeidsmogelijkheden te vergroten en het verwijzen van de patiënt naar de juiste zorgverlener of zorgverlenende

instantie. Gemiddeld genomen brachten de patiënten 2-3 bezoeken aan het ziekenhuis in het kader van de arbeidsbegeleiding.

Na 24 maanden follow-up was er geen verschil tussen de 2 groepen betreffende het aantal patiënten dat volledig arbeidsongeschikt was geworden (24% in de interventiegroep en 23% in de controlegroep). Op het tijdstip 24 maanden én over de gehele periode van 24 maanden was de verbetering van de vermoeidheid en van de mentale gezondheid gemeten met de RAND-36 en de HADS significant groter in de interventiegroep dan in de controlegroep. Geconcludeerd werd dat multidisciplinaire arbeidsbegeleiding in vergelijking met de gebruikelijke zorg aangevuld met schriftelijke informatie geen effect had op het behoud van betaald werk, maar wel een gunstig effect had op vermoeidheid en de mentale gezondheid.

Hoofdstuk vijf beschrijft de resultaten van de kosten-utiliteits analyse, vanuit maatschappelijk oogpunt. De kosten van het programma worden geschat op 1426 euro, 20% hiervan bestaat uit tijd en reiskosten gedeclareerd door de patiënten. Deze kosten werden overtroffen door de besparingen op de productiviteits kosten maar deze besparing was niet significant. Met uitzondering van de programma kosten, werden er geen significante verschillen gevonden tussen de twee groepen ten aanzien van gebruik van de gezondheidszorg, productiviteit, kosten of quality-adjusted life years. Concluderend blijft het onduidelijk of het arbeidsbegeleidings-team in zijn huidige vorm kosten, utiliteits-effectief is.

Hoofdstuk zes beschrijft de tevredenheid van patiënten en bedrijfsartsen met de multidisciplinaire arbeidsbegeleiding zoals beschreven in de eerdere hoofdstukken. De tevredenheid van de patiënten die hadden deelgenomen aan de multidisciplinaire arbeidsbegeleiding werd gemeten met behulp van een multi-dimensionele vragenlijst inclusief een rating scale (0-10; 0=geheel niet te tevreden, 10=maximaal tevreden) en van de bedrijfsartsen met een gestructureerd telefonisch interview. Negenvijftig (91%) van de 65 patiënten die tenminste één bezoek brachten aan het team stuurden de vragenlijst terug. De gemiddelde tevredenheidsscore was 7.3 (SD 1.0). Patiënten waren het meest tevreden over de bejegening, de persoonlijke contacten en de professionele kennis van de teamleden. Minder tevreden waren de patiënten over de wachttijd voor de eindrapportage, en de uitwerking van de gegeven adviezen in de eigen werksituatie.

Achtentwintig van de in totaal 53 (53%) betrokken bedrijfsartsen konden worden geïnterviewd. In het algemeen waren bedrijfsartsen zeer tevreden over de begeleiding door het multidisciplinaire team. Tien van de 28 bedrijfsartsen (36%) wensten meer duidelijkheid over de rol van de bedrijfsarts bij deze specifieke vorm van begeleiding en een intensievere communicatie met de teamleden, bij voorkeur al in een vroeg stadium van ziekteverzuim.

Hoofdstuk zeven beschrijft de communicatie tussen Nederlandse reumatologen en bedrijfsartsen bij sociaal-medische begeleiding van patiënten met een reumatische aandoening en een arbeidsprobleem. Alle Nederlandse reumatologen en reumatologen in opleiding ontvingen een schriftelijke enquête, in totaal stuurden 153 van de 187 aangeschreven personen (82%) de vragenlijst terug. Door de reumatologen werd het verminderen van pijn en vermoeidheid als hun belangrijkste taak gezien (66%), gevolgd door het verbeteren van de arbeidsparticipatie (46%) en de kwaliteit van het werk (37%). De communicatie en samenwerking met bedrijfsartsen werd door 73% van de reumatologen als redelijk tot goed beoordeeld, 78% van de reumatologen was bereid de samenwerking te verbeteren. De meest belangrijke voorwaarden voor verbetering van de communicatie met bedrijfsartsen die door de reumatologen werden genoemd waren: meer duidelijkheid over de taken en doelstellingen van de bedrijfsarts (65%), meer nadruk op preventie en reïntegratie dan op legitimering van ziekteverzuim (60%), meer terugkoppeling van de bereikte resultaten van de begeleiding door de bedrijfsarts (58%) en meer duidelijkheid over wat een bedrijfsarts daadwerkelijk kan doen voor een patiënt (53%). Daarnaast werd de afwezigheid van richtlijnen voor beide partijen betreffende het handelen in situaties waarin samenwerking gewenst is, als knelpunt gezien (52%). Bovenstaande resultaten onderstrepen de behoefte aan professionele richtlijnen voor zowel de reumatoloog als de bedrijfsarts met betrekking tot het proces van sociaal-medische begeleiding.

Discussie

Deelname aan het arbeidsproces vervult voor de meeste mensen een zeer belangrijke rol in het leven. Mensen met chronische artritis ervaren ten gevolge van hun aandoening relatief vaker problemen bij het uitvoeren van hun werkzaamheden (1), zitten vaker in de ziektewet en nemen minder lang deel aan het arbeidproces dan gezonde personen. Door de grote

impact van arbeidsproblematiek op het leven van personen met chronische artritis alsook de belangrijke gevolgen voor de maatschappij als geheel krijgen interventies gericht op behoud van en terugkeer naar betaald werk voor mensen met chronische artritis de laatste jaren steeds meer aandacht. Naast een systematische review betreffende de effectiviteit van interventies gericht op behoud van of de terugkeer naar betaald werk voor mensen met chronische reumatische aandoeningen, worden in dit proefschrift de effectiviteit en de kosten van multidisciplinaire arbeidsbegeleiding voor mensen met chronische artritis en een arbeidsprobleem beschreven. Een beschrijving van de samenwerking tussen reumatologen en bedrijfsartsen bij sociaal-medische begeleiding is eveneens onderdeel van dit proefschrift.

Uit de in dit proefschrift beschreven systematische review kan worden geconcludeerd dat de effectiviteit van op arbeidsreïntegratie gerichte interventies niet overtuigend is vastgesteld, en dat er behoefte is aan methodologisch verantwoorde studies met een adequate follow-up duur. Na publicatie van deze review werden twee gerandomiseerde studies uitgevoerd. Eén studie werd verricht in de Verenigde Staten en de andere is de Nederlandse studie die in dit proefschrift wordt beschreven. In tegenstelling tot de Amerikaanse studie werd in de in dit proefschrift beschreven studie géén effect van de interventie op het behoud van betaald werk aangetoond. Omdat de interventies qua inhoud, omvang en werkwijze goed vergelijkbaar waren is het aannemelijk dat er andere factoren een rol hebben gespeeld.

Een mogelijke factor die het verschil in effectiviteit kan verklaren, is het aanzienlijke percentage personen dat bij het begin van de studie met ziekteverlof was en de gemiddeld lange duur van het ziekteverzuim in deze groep. Het is mogelijk dat bij langer bestaand ziekteverzuim definitieve uitval uit het arbeidsproces relatief onvermijdelijk wordt, ondanks het feit dat definitieve arbeidsongeschiktheid pas 12 maanden na het begin van het ziekteverzuim kan worden vastgesteld. Bij langer bestaand ziekteverzuim, zeker als dit volledig is, kan bij de patiënt/werknemer, de werkgever, de bedrijfsarts en bij andere zorgverleners de indruk ontstaan dat gezien de aard van de ziekte en de daarmee gepaard gaande beperkingen terugkeer naar het werk niet mogelijk is, met als gevolg acceptatie van de situatie van ziekteverzuim en de daaropvolgende blijvende arbeidsongeschiktheid. Het is aannemelijk

dat in de periode dat het onderzoek werd uitgevoerd, ziekteverzuim door verschillende betrokken partijen in een aantal gevallen beschouwd werd als een niet te vermijden gevolg van de ziekte en niet als een uitdaging om door middel van gezamenlijke inspanningen volledig uitval uit het arbeidsproces te voorkomen.

Nadat de studie beschreven in dit proefschrift was afgerond, is de Nederlandse wet- en regelgeving rond ziekteverzuim en arbeidsongeschiktheid gewijzigd, waarbij er meer nadruk is gekomen op de planning en uitvoering van maatregelen gericht op reïntegratie voor elke werknemer die 6 weken of langer verzuimt (Wet Verbetering Poortwachter). Voor een adequate uitvoering van deze wet is een actieve houding van de patiënt/werknemer zelf, de werkgever, de bedrijfsarts, de reumatoloog en andere zorgverleners noodzakelijk. Tijdens dit proces wordt er regelmatig door bedrijfsartsen aan reumatologen om informatie gevraagd betreffende de reumatische aandoening en de behandeling en de prognose daarvan.

Om de uitvoering van het traject van arbeidsreïntegratie en de informatie-uitwisseling tussen reumatoloog of andere zorgverleners en de bedrijfsarts adequaat te laten verlopen is het belangrijk dat de patiënten/werknemers zelf goed op de hoogte zijn van het belang van een goede samenwerking en hun eigen rol in dit proces. Hiertoe is een goede voorlichting over de wet- en regelgeving rond ziekteverzuim en arbeidsongeschiktheid voor alle werkende patiënten met chronische artritis noodzakelijk. Bij voorkeur zou deze informatie moeten worden verstrekt aan alle werknemers bij wie recent een vorm van chronische artritis is vastgesteld, zodat patiënten/werknemers bij het ontstaan van problemen op het werk ten gevolge van de ziekte op de hoogte zijn van de mogelijke gevolgen, hun rechten en hun plichten. Reumaconsulenten zouden in dit voorlichtingsproces, bijvoorbeeld in het kader van de behandeling en begeleiding in early arthritis clinics (EAC's), een belangrijke rol kunnen spelen.

Op dit moment spelen reumatologen en andere zorgverleners bij de vroegtijdige herkenning van arbeidsproblematiek en het in gang zetten van reïntegratiemaatregelen een ondergeschikte rol. Ten aanzien van de herkenning van (dreigende) arbeidsproblematiek zou de regelmatig terugkerende vraag aan alle werkende patiënten met chronische artritis of er sprake is van ziekteverzuim een manier kunnen zijn om

patiënten/werknemers met een verhoogd risico op uitval uit het arbeidsproces te indentificeren. Daarnaast zijn er recent vragenlijsten ontwikkeld waarmee arbeidsproblematiek in een vroeger stadium kan worden vastgesteld, namelijk de Work Limitations Questionnaire (2) en de ziektespecifieke RA-Work Instability Scale(3). Omdat uit de literatuur is gebleken dat uitval uit het arbeidsproces vaak al in de eerste ziektejaren optreedt lijkt het zinvol om dergelijke vragenlijsten in de reeks van systematische assessments zoals toegepast in EAC's te integreren.

Naast de patiënt/werknemer en de reumatoloog en andere zorgverleners speelt ook de werkgever een belangrijke rol bij arbeidsproblematiek bij mensen met chronische artritis. Ten aanzien van de rol van de werkgever is sinds enkele jaren het concept 'Disability management' geïntroduceerd (4). Disability management heeft betrekking op de door werkgevers toe te passen strategieën en maatregelen om ziekteverzuim en definitieve uitval uit het arbeidsproces te voorkomen of te verminderen. Concreet gaat het om zaken als: het werk aanpassen zodat arbeidsgehandicapte werknemers weer aan de slag kunnen; gedeeltelijk arbeidsongeschikten in dienst nemen en hen zo een nieuwe kans bieden; investeren in de inzetbaarheid van personeel en in een gezond en prettig werkklimaat zodat ziekte en arbeidsongeschiktheid voorkomen kunnen worden, met als uiteindelijk resultaat het verminderen van ziekteverzuim en WAO-instroom.

Disability management vereist een actieve samenwerking tussen de werkgever en de bedrijfsarts. Ten aanzien van disability ten gevolge van chronische artritis lijkt de kennis van bedrijfsartsen betreffende chronische reumatische aandoeningen te kort te schieten. Het per bedrijfsarts relatief kleine aantal werknemers met chronische artritis kan hierbij een rol spelen. Dit gebrek aan kennis kan leiden tot een te pessimistische kijk op de mogelijkheden van deze groep patiënten/werknemers om aan het werk te blijven.

Actieve informatie uitwisseling met de reumatoloog ten aanzien van de begeleiding van individuele patiënten/werknemers en meer in het algemeen het organiseren van bij- en nascholing is dan ook erg belangrijk. De projectgroep die de studies beschreven in dit proefschrift geïnitieerd heeft was betrokken bij de ontwikkeling en uitvoering van twee nascholingsactiviteiten voor bedrijfsartsen, gericht op het vergroten van de kennis betreffende reumatische aandoeningen en de behandeling daarvan

en op het verbeteren van de samenwerking tussen bedrijfsartsen en reumatologen. Deze nascholingen vond plaats tussen 2002 en 2004 in de regio Leiden (5,6).

Behalve kennis betreffende reumatische aandoeningen kunnen ook algemene factoren als de tijd en middelen die bedrijfsartsen ter beschikking hebben voor de begeleiding en het tempo waarin bedrijfsartsen van baan wisselen belangrijke obstakels vormen in de sociaal-medische begeleiding van mensen met chronische artritis en arbeidsproblematiek.

Maatschappelijk gezien dienen al de bovengenoemde strategieën en interventies te passen in een sociaal klimaat waarin bijvoorbeeld een arbeidshandicap niet teveel wordt gelijkgesteld aan het onvermogen om betaald werk te verrichten, er veel nadruk ligt op de (re)integratie van arbeidsgehandicapte werknemers, er met regelmaat wordt vastgesteld of en in hoeverre de gezondheidstoestand de uitvoering van betaald werk mogelijk maakt en deelname aan reïntegratieprogramma's voor alle arbeidsgehandicapte werknemers mogelijk is en als voorwaarde voor het verwerven van een uitkering gesteld kan worden. Met betrekking tot reïntegratieprogramma's vormen de positieve resultaten van de interventie beschreven in dit proefschrift op de mentale gezondheid, ondanks het ontbreken van een effect op het behoud van betaald werk, een indicatie dat het verder ontwikkelen en evalueren van dergelijke interventies voor patienten/werknemers met chronische artritis zinvol is (7). De toepassing van deze interventies in een vroege fase van het ontstaan van arbeidsproblematiek, bij voorkeur wanneer er nog geen ziekteverzuim is opgetreden, en een actieve samenwerking tussen bedrijfsarts en reumatoloog zijn hierbij erg belangrijk. Daarnaast zou kunnen worden overwogen in het kader van een op reïntegratie gerichte interventie werkplekbezoeken uit te voeren, hetgeen in het kader van de interventie zoals beschreven in dit proefschrift niet heeft plaatsgevonden.

Ten aanzien van toekomstig onderzoek op het gebied van arbeidsproblematiek bij mensen met chronische artritis is het van belang een eenduidige definitie/omschrijving van het begrip arbeidsongeschiktheid te hanteren. Tot dusver wordt arbeidsongeschiktheid bij chronische artritis meestal gedefinieerd als "Volledige uitval uit betaald werk vóór de pensioengerechtigde leeftijd, geheel of gedeeltelijk samenhangend met de reumatische aandoening". Andere vormen van arbeidsongeschiktheid,

zoals bijvoorbeeld gedeeltelijke arbeidsongeschiktheid, geheel of gedeeltelijk ziekteverzuim en het ondervinden van beperkingen bij de uitvoering van betaald werk of bij vervoer van en naar het werk vallen buiten deze definitie. Het verdient daarom aanbeveling een internationale core set van parameters en definities voor het weergeven van verschillende vormen van arbeidsproblematiek te ontwikkelen.

Samenvattend is, gezien de grote individuele en maatschappelijke impact van arbeidsongeschiktheid bij mensen met chronische artritis, vroege identificatie van patiënten/werknemers met chronisch artritis en arbeidsgerelateerde problematiek noodzakelijk. De op dit moment beschikbare interventies gericht op reïntegratie van mensen met chronische artritis en arbeidsproblematiek kunnen ten aanzien van timing, inhoud, uitvoering en toegankelijkheid worden verbeterd. Daarnaast is het belangrijk dat de rol van de patiënten/werknemers met chronisch artritis zelf bij het voorkomen en verminderen van ziekteverzuim en arbeidsongeschiktheid wordt versterkt, zorgverleners een actieve rol gaan spelen in de vroege herkenning van arbeidsproblematiek bij mensen met chronische artritis, de kennis over arbeidsproblematiek bij mensen met chronische artritis bij bedrijfsartsen toeneemt en er in het proces van arbeidsreïntegratie actieve communicatie en samenwerking plaatsvindt tussen de patiënt/werknemer, de bedrijfsarts, de reumatoloog en andere zorgverleners en de werkgever. Een maatschappelijk klimaat dat gericht is op het voorkomen en verminderen van ziekteverzuim en blijvende arbeidsongeschiktheid is een voorwaarde om bovengenoemde verbeterpunten te kunnen verwezenlijken.

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