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WORKER PARTICIPATION IN RHEUMATIC DISEASE

THE SOCIOECONOMIC PERSPECTIVE

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- **Worker participation is a continuum moving across normal participation at work, reduced participation, temporary absence and permanent absence from work**
- **Reduced worker participation can lead to reduced productivity of the worker, the workplace and society unless compensation mechanisms are in place**
- **Musculoskeletal diseases are the second major health reason for expenditure on work disability**
- **Within the musculoskeletal diseases chronic low back pain accounts for the highest productivity cost, per capita and at the aggregated national level**
- **In low back pain exercise and multidisciplinary rehabilitation can reduce the costs of sick leave but not of permanent absenteeism**
- **In rheumatoid arthritis improvement and maintenance of physical function predicts favourable worker productivity**
- **Awareness about worker participation is low among clinicians**

INTRODUCTION

The effect of illness on worker participation and productivity, more than any other consequence of disease, is of importance to a wide range of stakeholders both within and outside the healthcare sector. Rising expenditures in the social security system as a result of work disability are a concern in all Western countries. With the ageing of the population the pressure to keep people working and productive as long as possible is increasing. Public as well as private initiatives are emerging to maintain work participation of workers who become ill (work retention), to assist work-disabled persons to re-enter employment (return to work), and to prevent healthy workers from work-related disease. Policy-makers are greatly involved at the level of criteria for disability evaluations and the organisation of social security systems. In some countries the change in productivity costs is considered in cost-effectiveness evaluations and when deciding on reimbursement of new drugs or technologies.

Musculoskeletal diseases have a major impact on worker participation and worker productivity. Their high prevalence renders it inevitable that they will make up a significant part of the socioeconomic cost attributable to reduced worker productivity. This review begins by discussing the theoretical frameworks for

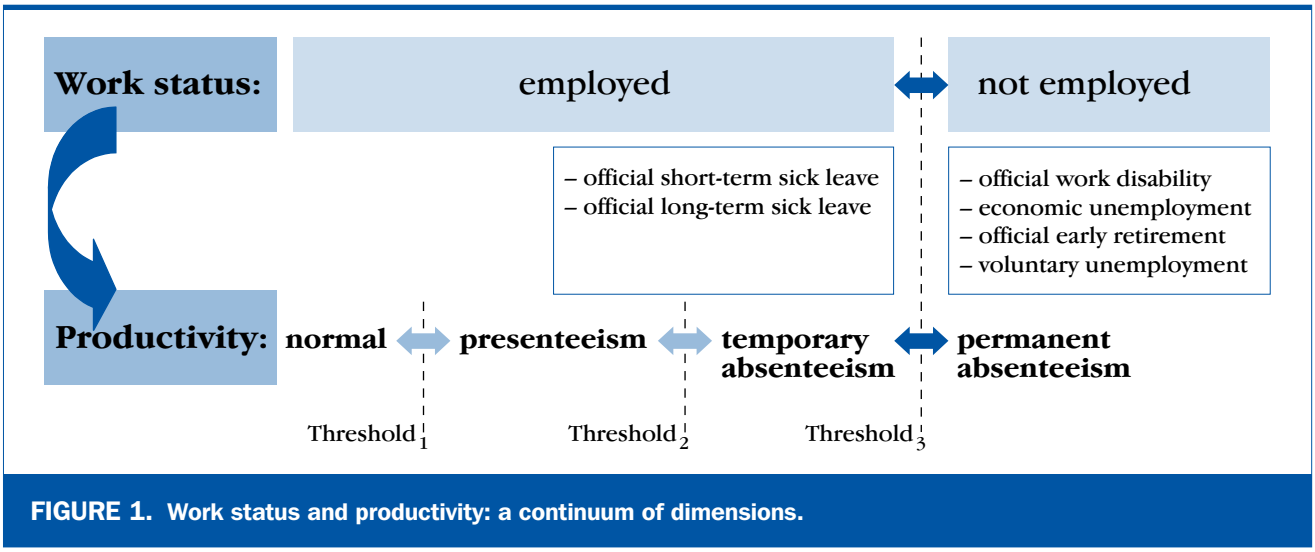

FIGURE 1. Work status and productivity: a continuum of dimensions.

understanding and appraising restrictions in worker participation and their socioeconomic impact. Next, data on the socioeconomic impact of musculoskeletal disease with an emphasis on chronic low back pain, osteoarthritis, rheumatoid arthritis and ankylosing spondylitis are presented.

RESTRICTIONS IN WORKER PARTICIPATION: A CONTINUUM

When considering the impact of ill health on participation in paid work, it is important to realise that worker participation is not an on-off phenomenon but a continuum in which several outcome domains are considered. As illustrated in Figure 1, reduced worker participation concerns not only absenteeism, which is the time missed from work (temporary such as sick leave or permanent such as work disability) but also presenteeism, defined as impaired performance while *at work*.[1,2]

Particularly in chronic illness, the degree of work participation of working patients may shift over time between normal participation, presenteeism and temporary absenteeism (sick leave) before permanent withdrawal from that specific job/employment occurs. What is particularly challenging is to understand the thresholds (T) at which patients with ill health conditions transit between normal participation and presenteeism (T_1), presenteeism and temporary absenteeism (T_2), and temporary and permanent absenteeism (T_3). The key to understanding the thresholds can be found in the biopsychosocial model of the International Classification of Functioning, Disability and Health (ICF).

THE ICF AS A FRAMEWORK FOR UNDERSTANDING PARTICIPATION

With the endorsement of the International Classification of Functioning, Disability and Health in 2001 by the Health Assembly of the World Health Organization, a universally accepted framework exists that is based on the biopsychosocial model of disease and helps better to understand participation, including worker participation.[3,4] The ICF framework, represented in Figure 2, comprises the following components: body functions and body structures, activities and participation, environmental factors and personal factors.[3]

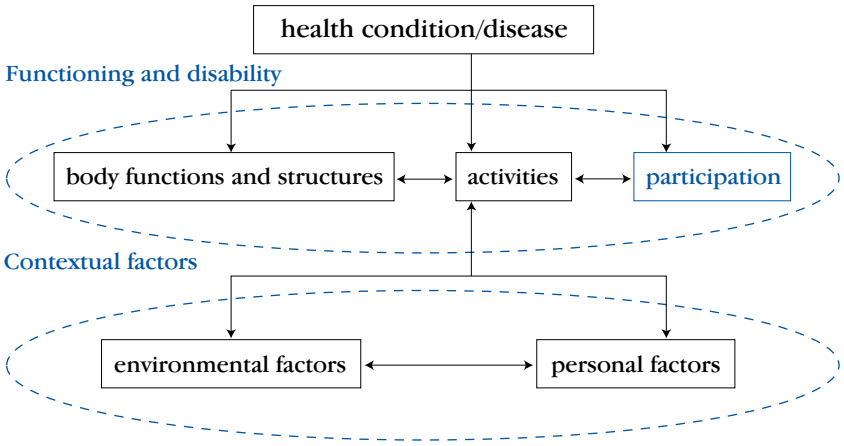

FIGURE 2. The framework of the WHO International Classification of Functioning, Disability and Health (ICF).[3]

Participation refers to an *involvement in a life situation*. It comprises not only paid work, but also unpaid work activities, education and engagement in social, religious and political life as well as recreation and leisure. The strength of the ICF when trying to understand worker participation is two-fold. First, it recognises that the different components of functioning and health have a bidirectional relationship. For example, while it is clear that impairments such as pain and fatigue can result in restrictions in worker participation, it is also evident that worker participation can increase pain or fatigue (a negative consequence) or can contribute to positive emotions (a positive consequence). Secondly, the ICF recognises the important role of the contextual factors. More than for any other participation domain, various contextual factors have been shown to be important facilitators of or barriers to worker participation.[5-8]

THE ECONOMIC CONSEQUENCE: DIFFERENT PERSPECTIVES AND DIFFERENT ECONOMIC CONSEQUENCES

The assumption when linking restrictions in worker participation or productivity (*input*) to its economic consequences is the likelihood that these restrictions result in a change in the goods or services the worker produces (*output*). Although this seems a simple assumption, this premise has hardly been studied.

The economic consequence of reduced worker productivity differs for different perspectives. Overall, the *societal perspective* should be distinguished from the *perspective of a variety of other stakeholders* which comprise the worker/patient, the workplace and the payer (such as the social security system) and sometimes also the patient's caregiver or the healthcare provider (Table 1).

It is clear that the different perspectives can actually interrelate. Once reduced productivity at the level of the worker occurs, this can affect the productivity of a workplace (company/service) and finally also the productivity of society (Figure 3). It should be realised the 'societal perspective' refers to 'the society' as a whole and cannot be assigned to one identifiable person or institution.

TABLE 1. The different perspectives and value of the economic consequences for each perspective.

Perspective	(Economic) value
Societal perspective	Productivity cost Friction or human capital costs Society's QALYs
Stakeholders' perspective	
Payer	(Transfer) payments
Workplace	Profits Administration costs
Worker/patient	Income Worker/patient's QALYs
Caregiver	Income Caregiver's QALY's
Healthcare provider	Profits, administration QALY

QALY quality-adjusted life year

The perspective of the payer, usually the social security system, should be seen as distinct from the societal perspective. For the payer, the issue is not loss of productivity, but the provision of so-called transfer payments, such as social benefits or allowances. For the workplace and the payer other economic consequences can be important. In addition to the reduced production or transfer payments, there is the additional administration of these institutes, which can be considerable and incur substantial costs. Healthcare providers and healthcare-providing institutions, such as vocational rehabilitation centres, may also be important stakeholders. These have their own 'economy' that is largely independent of the societal perspective. Last but not least, and often neglected, is the potential influence of the reduced productivity of the patient on the productivity of family members or other caregivers.

One of the challenging questions is whether the reduced productivity of a single worker (input) will indeed result in reduced production (output). At the level of the workplace, it has been shown that compensation mechanisms occur when a single worker is absent for a short period of time (Figure 3). Possibly, the ill worker compensates him/herself by working harder or additional hours when he/she has recovered; alternatively, other workers of the team might compensate for lost production. Whether or not compensation mechanisms occur depends on the length of absenteeism and presenteeism, the size of the team in which the ill employee is working and the type of work.[9] In contrast to compensation, there can be situations where the reduced productivity of a single worker is amplified at the workplace if workers in the team are critically dependent on the productivity of that single individual.[10,11] When the reduced productivity of an ill worker at the workplace continues, it is likely that substitution occurs (Figure 3). In other words, the ill worker is replaced by someone looking for work. For the payer the unemployment benefit is simply substituted by the work disability or sickness benefit. For the payer there is no net change in expenditures and for society there is no net loss of production. In the next section we will see that issues relating to substitution are reflected in the methods of calculating productivity costs as proposed by the Washington Panel, the friction cost method or the human capital approach.[12]

VALUING ECONOMIC CONSEQUENCES: PRODUCTIVITY COSTS, INCOME LOSS, TRANSFER PAYMENTS, QALYS

For each of the perspectives identified the reduced productivity can, in principle, be valued in monetary terms (Table 1). As has already been mentioned, the

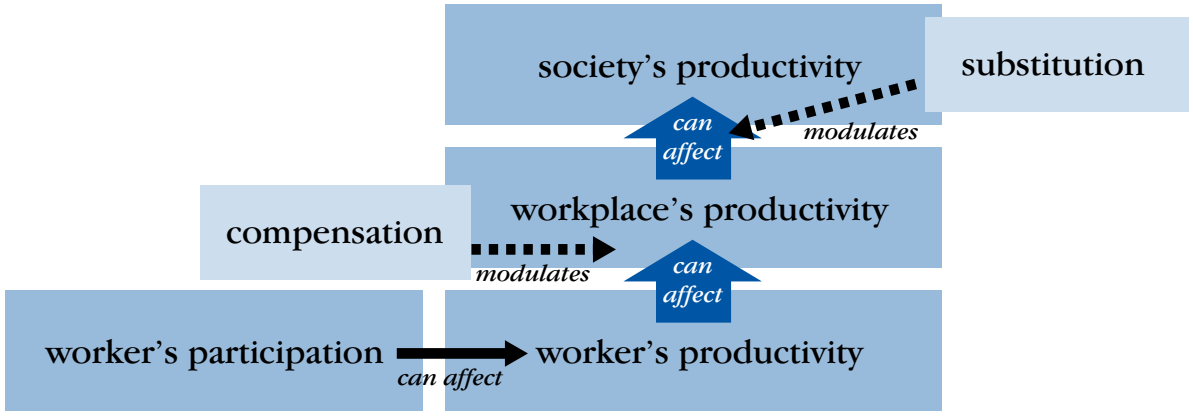

FIGURE 3. **Relationship between worker productivity and productivity of the workplace and society.**

societal perspective is quite different from the payer's perspective, which reflects the system in a society that distributes wealth among individuals by taking care of the transfer payments. In estimating societal costs associated with loss of productivity it is not clear whether reduced worker productivity should actually be expressed in monetary terms. The Washington Panel, an expert group of health economists, favours valuing the loss of work productivity exclusively in terms of quality-adjusted life years (QALYs), arguing that monetary effects on society are actually fully compensated by replacing the costs of an unemployed individual with those pertaining to a work-disabled person.[13,14] However, few empirical studies have been done to explore whether or not reduced productivity is indeed reflected in a reduced QALY on this issue.[15,16] Those who favour valuing loss of productivity for society in monetary terms adhere to different methods: the human capital approach and the friction cost method.[17] In the *human capital approach*, the basic assumption is that every individual's potential work ability is important and therefore the productivity loss until death or retirement is considered. The *friction cost method* takes into account that the ill worker will be replaced by an unemployed person and includes only the costs of production loss for the period the ill worker is not replaced (the friction period). In neither of these methods is it clear whether and how reduced productivity due to presenteeism should be included in the productivity costs.

When comparing country-specific guidelines on cost-effectiveness evaluations, almost all countries, including Canada, Australia, Sweden and the Netherlands, recommend incorporating change in productivity explicitly in the 'costs'. In the face of this unanimity, the UK (National Institute for Health and Clinical Excellence) is a well-known and much-discussed exception. Those countries explicitly including productivity costs often do not specify the methodology, despite large differences when using the friction cost as opposed to the human capital approach.

HOW TO MEASURE AND VALUE: WORK STATUS, WORK(ER) PRODUCTIVITY AND PRODUCTIVITY COSTS

Having outlined the processes that are important for understanding worker and work productivity and its economic value, the next issue is how to measure these outcomes.

Outcomes and instruments

It is important to distinguish 'work status' from 'productivity'. Work status classifies a person into his (usually official) employment-related situation which remains more or less stable over time; productivity represents (fluctuating) units of productivity over time.

The kind of work statuses and their definitions depend on the country-specific social security system and this can result in confusion when comparing results across countries. Most systems distinguish, under varying terminology, those with an employment contract as opposed to those without one whether due to economic unemployment, full or partial official work disability, retirement (because of age), or voluntary unemployment (including housewives and students). Some unofficial 'statuses' are increasingly used in the literature. First, there are the lost career perspectives that are usually neglected but can be important for patients and society. Next, there are new concepts such as employability (yes/no), imminent work loss or predicted job loss that have been used in recent biologics trials.[18-22] Although interesting concepts, neither the patient's judgement of his/her ability to work (employability) nor imminent work loss has direct economic impact since there is no official change in work status or productivity. The extent to which these concepts of employability and predicted job loss actually predict future changes in work status or productivity is an important issue and requires further prospective studies.

Productivity is a characteristic of a worker, the workplace or society and reflects the input of production in

'units over time'. As mentioned, the true outcome of productivity is a change in outputs, preferably expressed in monetary values such as the worker's income, the workplace's profits, the payer's expenditures (according to the perspective) but possibly also in terms of changes in natural output units such as throughputs or output targets. Since outputs of a worker or a workplace or society are in general difficult to measure, these are often substituted by the change in input of the worker. Examples of input at the patient level are hours worked inefficiently per week or days' sick leave per month. To value the units of input (days or hours working) in monetary terms, a variety of possibilities have been suggested, including individual gross or net wage, the national wages adjusted for age, gender or profession, and the added value of productivity (the ratio of society's production in money to input in hours).[23] For each approach arguments for and against have been raised, taking into account not only economic but also ethical considerations.

For clinical research, only a few instruments have been developed to estimate change in productivity-associated costs; most assess the reduction in input due to absenteeism (reduced quantity of time worked) or presenteeism (reduced quantity and quality of time worked). However, none of these instruments has been fully validated and large differences in productivity costs, depending on the instrument used, have been reported.[24] It should be noted that the vast majority of worker participation instruments do not allow calculation of costs but aim to assess factors that influence worker participation, such as 'My pain is so bad that I have difficulties performing my work as well as usual', or 'My illness makes it difficult for me to concentrate'. The effects of worker participation on the worker's health, as in 'My work causes me to get more fatigued', may also be addressed.

Design of studies

Two main approaches can be distinguished: top-down and bottom-up. In the top-down approach aggregated data of expenditures or of provisions in kind are supplied. Several sources are available, including national statistics on employment and social expenditures and workplace statistics. It requires some skill to interpret such data correctly. In the bottom-up approach questionnaires completed by the patients are the bases for estimating productivity or productivity loss, which are then converted into monetary value. Data can be presented at the per patient/capita level or at the aggregated level of all patients/subjects within the company or country/society. Usually the yearly prevalence costs are provided, but the incidence costs (cost for the new cases) and the lifetime costs (from diagnosis until death) are also informative. It is evident that the source and type of data collected will determine the perspective for which the data are informative and it is also evident that each method has strengths and weaknesses. In clinical research, patient-completed questionnaires often serve as a surrogate for estimating the societal costs.

PRODUCTIVITY COSTS IN MUSCULOSKELETAL DISEASE: THE LITERATURE

National data on payments for musculoskeletal disease

In 1990, the Organisation for Economic Co-operation and Development (OECD) initiated the development of a Social Expenditure Database aiming to collect and compile figures on social expenditures in order to improve social policy analyses.[25] A few countries have already contributed and reports appear under the title 'Sickness, Disability and Work: Breaking the Barriers'.[26-28] Despite its current incompleteness, several interesting conclusions can already be drawn:

- Employment is markedly lower among persons with a disability (RR between 0.28 and 0.66).
- There is a higher risk of poverty among the work-disabled.
- Disability benefit inflows among countries differ but the average for OECD countries has decreased from 7.3% in 1990 to 6.1% in 2000.
- Spending on disability is high in all countries (1.3% for OECD countries but up to 3.9% in Poland).
- Disability benefit inflow differs by health reason and age but musculoskeletal diseases in most countries are the second major health reason after mental disorders.
- Outflow to jobs is low in all countries.
- Disability benefits are increasingly being rejected.

A study in 1994 in the Netherlands confirmed that 50% of all disability payments were for musculoskeletal disease.[29] Another study in 1994, from Sweden, attributed 47% of work disability expenditures in musculoskeletal disease to back pain, 14% to osteoarthritis and 6% to rheumatoid arthritis.[30] A survey in the UK in 1995–6 reported that 9.5 million work days were lost as a consequence of musculoskeletal disease, with an average of 17.3 days per musculoskeletal disease patient per year; back pain was the major cause of work days lost, and was most pronounced in those undertaking manual work.[31]

Disease-specific productivity costs

Low back pain

A systematic review identified 18 studies on productivity costs in low back pain. All except two were top-down studies, representing the payer's perspective.[32] The prevalence of low back pain, if reported, varied between 5% and 10% in five studies, between 10% and 15% in

nine studies and was 36% in one study (others not reported). Costs per capita of the general population were low in Japan and New Jersey but ranged between €37 and €355 per inhabitant in the other countries. Two bottom-up studies, one Dutch and one Swedish, presented the societal perspective. In the Dutch study friction costs were €2939 per patient per year. This was comparable with fibromyalgia but €1739 per patient per year higher than in ankylosing spondylitis.[33] Friction costs were 34% of the total costs of illness. In the Swedish bottom-up study, cost of sick leave, withdrawal from paid work and presenteeism were €9563, €2774 and €3212 per patient per year respectively. Productivity costs were five times higher than the direct costs.[34]

Osteoarthritis

Five cost-of-illness studies from four countries (one European) calculated the indirect or productivity costs in osteoarthritis and all studies were bottom-up.[35] A large variation was reported: the lowest costs for lost wages were in Hong Kong (US$864 per patient per year) and the highest costs for loss in paid and unpaid productivity were in Canada (US$6235). All other studies reported productivity costs between US$1200 and US$2040. The productivity costs were between 8% and 57% of the total costs of illness. In a survey among 1811 Belgian administrative employees, 34% reported osteoarthritis. The payers' costs for absence at work were estimated at €774 per osteoarthritis patient per year as opposed to €534 for the direct costs of illness.[36] In a large US top-down claims-based database from patients with osteoarthritis receiving drug treatment for osteoarthritis, productivity costs were US$4603 which was 54% of the total costs of illness.[37]

Rheumatoid arthritis

Fifteen bottom-up studies on productivity costs in rheumatoid arthritis, mainly from the period before the introduction of the biologics, showed that the costs of sick leave (n=4) were €2770 per patient per year, friction costs (n=4) €1441 and human capital costs (n=14) €8452 [€4144-11566] (*authors' unpublished observations*). A particularly interesting study showed that in early rheumatoid arthritis the costs of sick leave were higher in the first year, while in the third year the cost of work-disability became more important.[38] This confirms that those with sick leave are likely to transit to work disability. While the friction costs were 10% of the total costs, the human capital costs were 56% of the total costs of illness.

Ankylosing spondylitis

Five bottom-up studies on productivity costs in ankylosing spondylitis showed that the costs of sick leave (n=4) were €913 [388-1079] per patient per year, friction costs (n=2) €2271 [€1672-2970] and human capital costs (n=5) €6278 [€5111-7725] (*authors' unpublished observations*). While the friction costs were 24% of the total costs, the human capital costs were 66% of the total costs of illness. One study reported that the average income loss for patients in three European countries varied between €595 and €1663 per patient per year.[39] Although ankylosing spondylitis is less prevalent than rheumatoid arthritis the disease starts at an earlier age, suggesting the lifetime productivity costs might exceed those of rheumatoid arthritis.

Presenteeism in musculoskeletal disease

Two studies estimated presenteeism in musculoskeletal disease. The first study concluded that in the USA, impairments at work in patients with self-reported chronic conditions (including joint pain/stiffness and back/neck disorders) resulted in a 17.8–36.4% reduction in ability to function at work and accounted for 6.8% of the total labour costs.[40] Another study showed that 49% of patients with rheumatoid arthritis, psoriatic arthritis or osteoarthritis experienced reduced productivity while at work, amounting to Can$4724 per patient per year, which was 41% of the costs of sick leave and work disability.[41] As mentioned before, while it is accepted that presenteeism will result in reduced well-being at work from the point of view of the worker (and perhaps his/her colleagues), it is not clear whether there will be true loss of production resulting in monetary loss.

Interventions with worker participation as outcome

Table 2 summarises the effects of drug and non-drug intervention studies on worker participation for the main musculoskeletal diseases.

Low back pain

A Cochrane review found only two studies on multidisciplinary rehabilitation in subacute low back pain in working patients and reported moderate effect on sick leave.[42,43] A meta-analysis of physical exercise treatment for low back pain showed a reduction in episodes of sick leave but the effect on prevention of work disability was small and non-significant.[44-46] A limited number of randomised controlled trials (RCTs) performed full economic evaluations of a back pain intervention programme. Four of six studies showed significant reductions in costs of sick leave or disability days. However, this did not always outweigh the additional costs of the intervention and did not always result in a cost-effective intervention.[64-70]

Osteoarthritis

No drug or non-drug intervention studies could be found that specifically reported the effect on work-related outcomes.

Rheumatoid arthritis

A review of vocational rehabilitation in inflammatory arthritides, complemented by three later studies, revealed only retrospective and uncontrolled prospective data. These studies suggested either no effect on return to work or a reduction of disability rate of 14–69%.[47-50] The

TABLE 2. Overview of effect of drug and non-drug intervention studies on worker productivity.

	Type of intervention and design	Result
Low back pain	Multidisciplinary rehabilitation	Moderate effect on sick leave but not on disability in subacute backpain. Contradictory results in chronic back pain[42,43]
	Physical exercise	Reduction in episodes of sick leave but no effect on work disability[44-46]
Rheumatoid arthritis	Vocational or multidisciplinary rehabilitation	Uncontrolled or retrospective studies suggest a positive influence on return to work[47-50] but one RCT did not show this and was therefore not cost-effective[47,51]
	DMARDs (RCT or CCT)	HAQ improvement is associated with maintenance of work.[52] When directly comparing combination with monotherapy no difference in paid work productivity costs was seen[53]
	Biologics RCTs (with or without open label extension)	
	Infliximab combi vs MTX monotherapy	HAQ improvement predicts employability but not employment. This is more pronounced in early RA[18-20]
	Etanercept combi vs MTX monotherapy	Episodes of work cessation 9% in etanercept-MTX combination as opposed to 24% in MTX monotherapy[54]
	Adalimumab combi vs MTX monotherapy	Clear reductions in sick leave days, presenteeism and 'imminent job loss' but no clear effect on work disability[21,55,56]
	Abatacept vs MTX monotherapy	Improvement in 'risk for job loss'[22]
	Biologics: observational cohort	
	Biologics register	No deterioration in employment outcome[57]
	Compared to historic controls	Etanercept or adalimumab trial patients had better employment at 5-year and 2-year follow-up respectively compared to matched historic controls[58,59]
	Nested case control	RA severity and functioning but not TNFα inhibition predicted RA-attributed employment loss. Only in early RA was there a trend to an independent effect of biologics[60,72]
Ankylosing spondylitis	Infliximab RCT	Improvement in sick leave and presenteeism[61]
	Open label or retrospective cohorts	- Infliximab patients who remained on treatment after 1 year had important reduction in episodes compared to those dropping out[62]
		- Biologics patients had less sick leave and improved presenteeism after 1 year compared to baseline and 4 of 19 patients who were previously unable to work returned to employment[63]

CCT controlled clinical trial; DMARD disease-modifying anti-rheumatic drug; HAQ Health Assessment Questionnaire; MTX methotrexate; RA rheumatoid arthritis; RCT randomised controlled trial; TNF tumour necrosis factor

only RCT of cost-effectiveness of vocational rehabilitation in patients at risk for job loss (n=140) could not show a difference in job loss after 2 years (24% and 23% in vocational rehabilitation and usual care respectively) and there were no gains in QALYs in the intervention group.[51,71]

Increasingly, the effect of drug interventions on worker participation in rheumatoid arthritis has received attention. Puolakka showed that for non-biologic disease-modifying anti-rheumatic drugs (DMARDs) in the FINRACo trial withdrawal from work was least in patients who achieved the best ACR response.[52] However, the COBRA (Combination Treatment in Rheumatoid Arthritis) study could not show a difference in productivity (and costs) for paid work between the intensive and usual treatment arm after 1 year, despite differences in clinical outcome.[53] Several RCTs studied the effect of TNFα inhibition on worker participation. While change in work status could not be shown, several studies showed improvement in 'employability' or 'imminent job loss'[56-60] and that was more pronounced in early than late rheumatoid arthritis.[20] Also, treatment with abatacept showed improvement in 'risk for job loss' after 1 year.[22] In patients with paid employment, there is substantial evidence that combination therapy with TNFα inhibition reduces episodes or days' sick leave compared to monotherapy.[18-21,54,55,73] When strategies with TNF-inhibition are compared with intensive combination

treatment, however, no differences in sick leave and friction costs were seen.[74] Long-term observational studies suggest a positive effect of TNFα inhibition on work status but it is likely that this is mediated by the effect on improved function and not of TNF as such, except perhaps in early rheumatoid arthritis where an independent effect was seen.[72]

Ankylosing spondylitis

In ankylosing spondylitis the number of patients with sick leave decreased by 20% compared to baseline in those who continued infliximab for 1 year and increased by 20% in those who had to stop infliximab.[62] In an RCT infliximab was able to reduce, after 24 weeks, sick leave in those with paid work (n=122), by 0.5 days over the past 6 weeks in the placebo group and by 1 day in the infliximab group.[61] In a retrospective study of 65 patients on TNFα inhibitors of which 46 worked at baseline, 4 of 19 who were work-disabled started in paid employment and 2 of 46 working patients increased their work participation from part-time to full-time after an average of 19 months. In those with paid work, self-reported impact of ankylosing spondylitis on work capacity (visual analog scale (VAS) 0–10) decreased from 7 to 3 and days' sick leave decreased from 15 to 0.1 in the year before and after start of infliximab.[63]

CLINICAL PERSPECTIVE

As long as there is no cure for musculoskeletal disease, participation in work will remain relevant. It is important to realise that clinicians have a dual responsibility with regard to this issue, one towards the patient's health and well-being and one towards the society's costs and equity principles. Notwithstanding, a survey among rheumatologists found that worker participation was considered as a responsibility by 44% and quality of work by 36% of rheumatologists. Although 73% of rheumatologists found cooperation with occupational physicians moderate to good, 78% considered collaboration could be improved. To improve collaboration rheumatologists desired clarity about the professional independence of the occupational physician and the use to which the information provided about patients would be put.[75] This statement clearly points to the conflict between responsibilities towards the patient versus society. Also, a survey among disability organisations revealed that rehabilitation suffers from lack of awareness within the healthcare system and is not well integrated in mainstream clinical medicine.[76]

Despite this lack of attention to work participation, previous evidence suggests a role for early diagnosis and interventions. In rheumatoid arthritis specifically, the relation between disease activity and worker participation suggests that early referral and intervention aiming to suppress disease activity is important for maintaining employment.[20,52,72] For low back pain, increasing evidence suggests that the focus of treatment should be on the early return towards the highest level of desired activity.[46,77] For all conditions, the identification of psychosocial factors that would delay return to or maintenance of work is a role for clinicians.[78] It is important to realise that while at the group level there is some evidence that worker participation contributes to quality of life (QoL) or well-being,[79] at the level of the individual patient there are no tools to judge whether for this individual continuation of paid work will enhance or actually compromise short- and long-term physical and psychological health or well-being.

WHAT IS NOT KNOWN

Although the economic impact on worker participation and the associated productivity costs of musculoskeletal disease are huge, it is surprising that there is no consensus on the way to measure and value loss of productivity. Such a consensus would serve as a basis to further study the transferability of changes in productivity costs across countries. This would largely facilitate the interpretation of cost-effectiveness evaluations of multidisciplinary programmes and biologics. In particular, claims that the additional costs of biologic drugs or other expensive interventions can be outweighed by savings in productivity costs could effectively be evaluated.

Specifically with regard to clinical research, (1) identification of questionnaires for the unambiguous assessment of work status as well as volumes of absenteeism and presenteeism and (2) methodological guidelines to value these in monetary value or QALYs would be of great help.[80] Within the OMERACT initiative, a group of interested rheumatologists has embarked on such a challenging and ambitious initiative.[24]

To resolve the conflict of responsibility clinicians feel towards the individual patient on the one hand and the equity and societal affordability of healthcare on the other, tools that help to decide on the desirability of continued work participation for the individual patient would be worthwhile. Further, more research is necessary on the precise role of physicians in maintaining and improving worker participation.

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