

Work Limitations in the Outcome Assessment of Rheumatoid Arthritis



The adverse consequences of rheumatoid arthritis (RA), particularly in clinical intervention studies, are traditionally assessed by measuring disease activity, radiographic damage, and loss of function. These outcome measures capture 2 of the 3 domains of the World Health Organization-International Classification of Functioning, Disability, and Health (WHO-ICF) framework, i.e., body functions and structures and activities (Figure 1)¹. The third domain, participation, is increasingly recognized as an important outcome of RA that should be assessed in all outcome and intervention studies in arthritis patients. In OMERACT 7 (Outcome Measures in Rheumatology Clinical Trials) the need for measurement of participation restrictions, in particular work participation, was recognized, although the lack of appropriate and well researched instruments prohibited work participation being included into the core set instruments for arthritis trials.

Various studies have shown that patients with RA are at increased risk to terminate paid employment and to become permanently work disabled². The article by Walker, *et al* in

this issue of *The Journal*³ adds to our understanding that employed patients with RA may already experience considerable work restrictions that will hamper their ability to perform their work in a productive fashion.

WORK PARTICIPATION AND COST OF ILLNESS

Restriction in work participation strongly represents (indirect) costs of illness, a domain not described in the ICF framework. With powerful but expensive new biological therapies and combination therapies with conventional disease modifying antirheumatic drugs (DMARD), cost-effectiveness outcomes in clinical trials have become mandatory. A recent study showed that patients receiving combination DMARD therapy had a significantly lower number of work disability days after 5 year followup than patients with single DMARD therapy⁴. Prompt induction of remission appeared to be the most important determinant for retaining work capacity⁵.

Work capacity is primarily assessed by absenteeism (days of sick leave) or work status (work disability). In particular, work status is a rather crude measure that is also dependent on many socioeconomic determinants. Moreover, RA patients who do go to work may experience decreased productivity due to their health problems. The phenomenon where workers turn up at work despite health problems is referred to as sickness presenteeism.

The article by Walker, *et al* in this issue shows that there are considerable work restrictions for those RA patients who work³, even though RA patients already make major adaptations to maintain employment⁶. The study lacks a control group, but earlier work by Lerner, *et al* provides control data showing a similar trend of work restrictions in a RA population⁷. These restrictions translate into loss of productivity, a measure that is often included in the cost-effectiveness analysis of new treatment regimes.

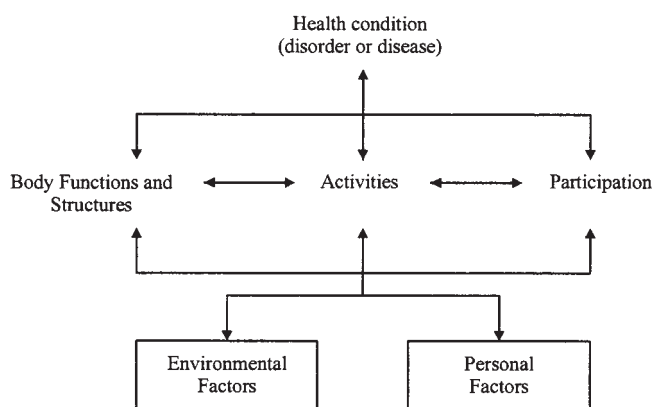


Figure 1. Framework of the International Classification of Functioning, Disability, and Health (ICF).

See Work limitations among working persons with RA, page 1006

MEASURING PRODUCTIVITY

Productivity losses can be looked at from the perspective of the patient, i.e., the employee with RA, and from that of the employer. The employee perspective mainly represents absence from work and reduced productivity due to RA. The costs incurred by the employer to maintain productivity also include compensation mechanisms, such as colleagues or temporary workers taking over, productivity losses due to loss in specific knowledge or team production, and extra effort concerning the logistics to replace the partially absent employee. Both perspectives need different instruments and serve different purposes⁸. The Work Limitation Questionnaire (WLQ) is intended to capture the patient's perspective, measuring the degree to which employed individuals experience limitations on the job due to health problems and the magnitude of the health related productivity loss. The WLQ includes several items that emphasize activities rather than participation. The overlap of activity limitations and participation restrictions can be confusing and has led to the conclusion by Walker, *et al*³ that the WLQ does not detect functional limitations in RA as well as the Health Assessment Questionnaire (HAQ) or the Medical Outcome Study Short Form-36 (SF-36)³. The WLQ measures both limitation of activities and restriction of participation; however, it is the restriction of participation that makes the WLQ a promising tool.

Participation is indeed strongly influenced by activity limitation and by body function and structure (Figure 1). It is therefore reassuring that good correlations were found between the WLQ and SF-36, HAQ, pain, and fatigue³. Since participation includes many activities, it was recently proposed to combine activities and participation in one comprehensive RA core set⁹. The combination of activities and participation in one core set prohibited the chance to identify work participation in a separate domain. This is particularly important because absenteeism and presenteeism have strong links to health related costs.

TOOLS FOR MEASURING PRODUCTIVITY

There are several instruments to measure presenteeism and productivity. The WLQ has been validated with objective work productivity data¹⁰, and work productivity was found to be impaired both in RA and in osteoarthritis¹¹. The study by Walker, *et al* in this issue³, however, shows that this instrument has some drawbacks. A considerable proportion of the respondents could not answer all questions because some items in the questionnaire did not apply to their job, for example items involving considerable physical activity on the job. This confirms that RA patients may actively seek out a job that is adapted to their physical limitations or a work situation that has been adapted to meet their capabilities. Job changes and adaptations are not taken into account in the scoring of the WLQ, and the real loss of productivity of RA patients may therefore be underestimated.

Other instruments for work productivity include the

Health and Labor Questionnaire (HLQ) on output performance; this instrument queries the number of hours needed to compensate for lost work due to health problems¹². The Quality and Quantity Questionnaire reports the quality and quantity of work performed on the last working day on a 10-point numerical rating scale¹³. The Work Instability Scale (WIS) measures the extent of mismatch between an individual's functional abilities and demands of the job in order to assess the risk of work disability¹⁴. The validity and effectiveness of these instruments in measuring reduced performance at work due to arthritis has scarcely been investigated and should be high on the research agenda.

The Institute for Work and Health in Toronto, Canada, is currently engaged in studies directly comparing measures of work productivity in arthritis patients, including the WLQ and the WIS.

HOW CAN WE USE PRODUCTIVITY ASSESSMENT?

Participation, particularly work participation, not only depends on health related problems, but is also strongly associated with socioeconomic and work related factors. Education and personal background as well as the disease itself determine the patient's decision whether to engage in paid employment with a particular job. Presenteeism may therefore not be a good primary health related outcome measure in longterm inception cohorts. For intervention studies, however, reduced productivity due to RA is a very useful tool to show important changes for the patient as well its consequences for health related cost. In particular, the good correlation of the WLQ with fatigue³ raises the hope that an instrument measuring work performance can show extra benefits of, for example, biological therapies, with respect to their cost-effectiveness. The WLQ may also be an effective assessment tool in psychoeducational interventions, which are not very effective when measured with the conventional outcome measures such as disease activity, damage, and the HAQ. In addition to interventions to alter the disease process, adaptations to change the workplace can positively influence the capabilities of patients with RA to perform their work effectively. Thus, an outcome measure for presenteeism and productivity should be sensitive for both medical and workplace intervention trials. Hopefully, research in the near future will guide us to choose an instrument that will enable us to comprehensively assess (cost-) effectiveness of arthritis management.

JOHANNA M.W. HAZES, MD PhD,

Professor of Rheumatology,
Department of Rheumatology;

GOEDELE A. GEUSKENS, PhD Student,

Department of Rheumatology and Department of Public Health;

ALEX BURDORF, PhD,

Associate Professor in Occupational Health,

Department of Public Health,

Erasmus MC, University Medical Center,

Rotterdam, The Netherlands.

Address reprint requests to Prof. J.M.W. Hazes, Department of Rheumatology, Erasmus MC, University Medical Center, PO Box 2040, Z-712, 3000 CA Rotterdam, The Netherlands.
E-mail: g.kool@erasmusmc.nl

REFERENCES

1. World Health Organization. International classification of functioning, disability and health: ICF. Geneva: WHO; 2001.
2. Verstappen SM, Bijlsma JW, Verkleij H, et al. Overview of work disability in rheumatoid arthritis patients as observed in cross-sectional and longitudinal surveys. *Arthritis Rheum* 2004;51:488-97.
3. Walker N, Michaud K, Wolfe F. Work limitations among working persons with RA: results, reliability and validity of the Work Limitations Questionnaire in 836 patients. *J Rheumatol* 2005;32:xxxx.
4. Puolakka K, Kautiainen H, Mottonen T, et al. Impact of initial aggressive drug treatment with a combination of disease-modifying antirheumatic drugs on the development of work disability in early rheumatoid arthritis: a five-year randomized followup trial. *Arthritis Rheum* 2004;50:55-62.
5. Puolakka K, Kautiainen H, Mottonen T, et al. Early suppression of disease activity is essential for maintenance of work capacity in patients with recent-onset rheumatoid arthritis: five-year experience from the FIN-RACo trial. *Arthritis Rheum* 2005;52:36-41.
6. Mancuso CA, Paget SA, Charlson ME. Adaptations made by rheumatoid arthritis patients to continue working: a pilot study of workplace challenges and successful adaptations. *Arthritis Care Res* 2000;13:89-99.
7. Lerner D, Adler DA, Chang H, et al. Unemployment, job retention, and productivity loss among employees with depression. *Psychiatr Serv* 2004;55:1371-8.
8. Koopmanschap M, Burdorf A, Jacob K, Meerding WJ, Brouwer W, Severens H. Measuring productivity changes in economic evaluation: setting the research agenda. *Pharmacoeconomics* 2005;23:47-54.
9. Stucki G, Cieza A, Geyh S, et al. ICF core sets for rheumatoid arthritis. *J Rehabil Med* 2004;87-93.
10. Lerner D, Amick BC 3rd, Lee JC, et al. Relationship of employee-reported work limitations to work productivity. *Med Care* 2003;41:649-59.
11. Lerner D, Reed JI, Massarotti E, Wester LM, Burke TA. The Work Limitations Questionnaire's validity and reliability among patients with osteoarthritis. *J Clin Epidemiol* 2002;55:197-208.
12. van Roijen L, Essink-Bot ML, Koopmanschap MA, Bonsel G, Rutten FF. Labor and health status in economic evaluation of health care. *The Health and Labor Questionnaire*. *Int J Technol Assess Health Care* 1996;12:405-15.
13. Brouwer WB, Koopmanschap MA, Rutten FF. Productivity losses without absence: measurement validation and empirical evidence. *Health Policy* 1999;48:13-27.
14. Gilworth G, Chamberlain MA, Harvey A, et al. Development of a work instability scale for rheumatoid arthritis. *Arthritis Rheum* 2003;49:349-54.