Work Disability and the Cost Effectiveness of Drugs to Treat Rheumatic Diseases - Time for a New Dialogue?

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Iragorri *et al*, in this edition of *The Journal,* report a systematic review of the effect of Biologics and Targeted Synthetic drugs on work outcomes in Psoriatic Arthritis. The paper raises several points of interest on the challenges facing investigators in the assessment of work disability and the current methods of judging the cost effectiveness of treatments for Psoriatic Arthritis.

Patient reported work disability has gained increasing traction as an important outcome in rheumatic disease in recent years. Work is important to individuals (both financially and emotionally) and the economy as a whole. Access to appropriate healthcare is just one of the factors that can determine the health of a society (see Figure 1). The ability to work can affect an individual's living conditions, social interactions and have spill over effects on future generations (including educational attainment), and therefore ensuring that patients can remain in work when suffering chronic disease, or return to work as soon as possible after periods of ill health should be a high priority for those concerned with the health of the nation.

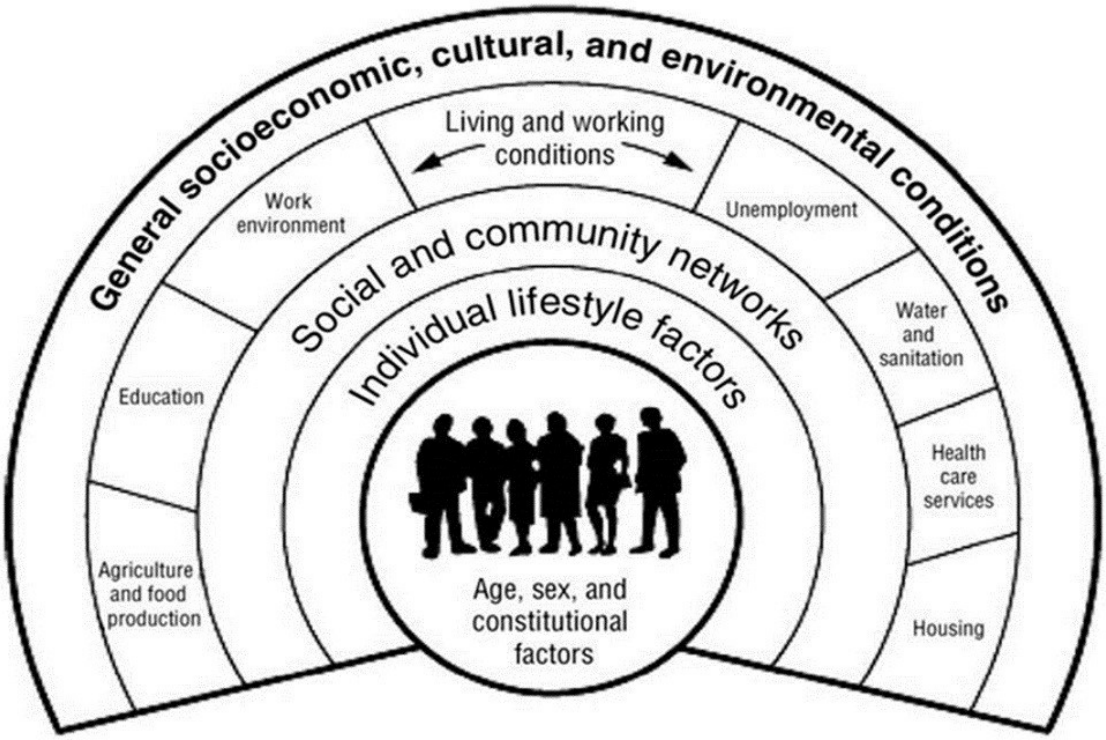

Figure 1: The Dahlgren-Whitehead model

Dahlgren and Whitehead (1991). Used with permission of the Institute for Futures Studies, Stockholm, Sweden.

In the context of long term health conditions such as Psoriatic Arthritis (PsA), work disability may be significant and treatments to improve functional capability can have an impact not only on health related outcomes but also on a patient's ability to undertake productive work. The importance of work for an individual's health and happiness is not a new concept. Galen of Pergamon (AD 172) is attributed with the quote 'employment is nature's physician, and is essential for human happiness' reflecting the central role work plays in the health and well-being of most people. Studies of treatment outcomes important to patients consistently rank the ability to work highly, demonstrating that the sentiment is as relevant today as it was in Galen's time.[1, 2] As treating clinicians we have never been better placed to control disease and prevent disability with the advent of many more effective treatments. On a societal level the advent and rapid uptake of highly effective, but expensive, biologic and targeted synthetic Disease Modifying Anti-Rheumatic Drugs (b/tsDMARDS) illustrates the need to provide an economic case for the provision of treatments.[3] Such assessments are made through cost-effectiveness analysis and there have been calls to also include work disability in an assessment of cost-effectiveness.[4] [5]

Iragorri *et al*, identified placebo Randomised Controlled Trials (RCT's) of adults with PsA that reported a measure of work disability. In total only five trials were judged to be at low risk of bias and were included for analysis (treatments were: Infliximab, Golimumab, Certolizumab pegol, Ustekinumab and Apremilast). All the treatments assessed improved patient reported work disability, but the heterogeneity of outcomes used prevented a pooled analysis. The data available for reporting was limited and, of the five studies included, only two reported the percentage of patients who were employed and two studies did not report on the statistical significance of work productivity.[6, 7] The authors conclude that treatment with Infliximab, Golimumab, Certolizumab pegol, Ustekinumab and Apremilast improves self-reported work disability and can help inform decisions about which treatments should be reimbursed by quantifying how each treatment reduced productivity costs.

The review highlights the need to improve consistency in outcome measures collected in PsA RCT's, including secondary endpoints such as work disability, to aid quantitative comparisons such as meta analyses. The updated core set of outcome measures to be assessed in PsA RCT's now includes work as an outcome (under the

umbrella term of Participation).[8] A variety of measures are used to assess worker productivity in RCTs and five have been endorsed by Outcome Measures in Rheumatology (OMERACT); The Workplace Activity Limitations Scale (WALS), the Work Limitations Questionnaire with modified physical demands scale (WLQ PDmod), the Work Ability Index (WAI), the Arthritis-specific Work Productivity Survey (WPS), and the Work Productivity and Activity Impairment Questionnaire (WPAI).[9] Work is currently underway to evaluate the validity of all outcome measures used for the assessment of psoriatic arthritis against the OMERACT filter, to derive a 'core set' of measurement instruments for use in trials. Over time agreement on instruments will result in more consistency across trials and greater facility for comparison between drugs.

In the review by Iragorri *et al* only five studies were identified for inclusion from fully published articles. Quality of life measures are often secondary end points and are often only reported in conference abstract form, as a result relevant studies reporting work data may have been missed introducing reporting bias. By example the Work Productivity Activity Index (WPAI) was collected as a measure of work productivity in the Secukinumab trails in PsA and demonstrated improvement in productivity loss. [10, 11] The WPAI is one of the few work outcomes with a PsA specific estimate of the Minimal Important Difference (MID)[12]. Observational cohort and registry studies were also excluded in the review by Iragorri *et al*. Non-randomised studies can provide important data over longer time frames, in a more 'real world' setting complimenting RCT data. Data from the British Society of Rheumatology Biologics Registry (BSRBR)[13], Danish Biologics Registry DANBIO[14] and a two year, UK multicentre study of work disability in PsA[15] each support the view that work disability is prevalent amongst patients with PsA and is improved with better disease control, particularly with bDMARDS.

There seems little debate that we should supplement our understanding of the cost effectiveness of drugs with data on work disability. To not do so underestimates the societal benefit of long term effective disease control and prevention of damage and irreversible disability. So the question for clinicians, health economists and health care commissioners is how we reflect work employment in an assessment of the cost effectiveness of competing alternatives and how we can use the data reported by

Iragorri *et al* in this edition of *The Journal* to inform such assessments? Does the data support reimbursement decisions, where healthcare resources are scare, in the absence of any quantitative comparisons of work disability between alternative treatments? The data presented does not compare one bDMARD or tsDMARD to another therefore it is not suitable for making judgements on which agent should be reimbursed, when considering any differences in work productivity, however the paper raises a number of issues which are relevant to the broader discussion on how we can potentially incorporate work productivity (and disability prevention) into the assessment of high cost drugs in chronic diseases like PsA.

Iragorri and colleges raise an important point regarding the challenge of including work in assessments of cost-effectiveness without indirectly penalising those who do not work (or are not in paid employment). So how can we move forward without indirectly exacerbating inequalities? Perhaps clinicians, as patient advocates and those who most clearly see the how effective amelioration of chronic inflammatory disease enables patients to work, should promote employment to be considered in health care. How incorporating work in cost-effectiveness assessments can be achieved without penalising those in non-paid work (such as childcare) and those who are not in work remains to be determined, perhaps by taking an population level view of disease cost and work disability factoring work disability inform country specific cost effectiveness valuations?

Iragorri *et al* also emphasise the important issue of perspective for economic analyses. For some national health care decision makers the perspective is restricted to costs pertaining to the health care service and outcomes are strictly health outcomes. Work disability has implications for an individual's health related quality of life but also contributes towards a broader sense of well-being. Many of the costs of work disability also fall outside of the health care sector. Inclusion of these wider societal effects of treatment raises poses challenges, not only in terms of how to include these, but also how the implications for reimbursement on budgets are consolidated across sectors.

The systematic review by Iragorri *et al* in this edition of The Journal may not tell is which drug is most effective at reducing work disability in PsA but, taking a broader view, should accelerate the dialogue on cost effectiveness valuations in chronic disease

in countries with nationalised heal care systems. Local payers may not see the pay-off of long term high cost drugs preventing work disability, but prevention of disability may resonate with payers in health and social care at government level, particularly those taking a broader perspective.

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