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Commentary: Prediction of Prognosis for People Off Sick with Upper Extremity Musculoskeletal Disorders

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Musculoskeletal disorders (MSDs) are the second most common cause of disability worldwide [1]. Among people of working age, musculoskeletal conditions, including back pain, neck pain, upper limb disorders and arthritis account for almost a quarter of all sickness absence. Furthermore, MSDs contribute even more significantly to presenteeism (the reduction in working performance while at work because of ill-health) and impaired in-work productivity (although these are more challenging to quantify accurately). Indeed, it is estimated that the total cost of lost productivity attributable to MSDs among people of working age in the EU might be as high as 2% of gross domestic product [2]. For these reasons, we urgently need to develop effective strategies to identify those individuals with recent-onset musculoskeletal pain or injury at greatest risk of long-term work disability and to develop effectual and cost-effective preventive and treatment interventions.

For these reasons, the paper by Armijo-Olivo and colleagues in this edition [3] reports an important development enhancing our understanding of those factors predictive of work disability from musculoskeletal conditions of the upper limb. The disability of the arm, shoulder and hand (DASH) questionnaire is a 30-item self-report tool validated and published in 1996 [4]. Together with its validated short version (the *quick*-DASH) [5], it has been widely used as an outcome measure for both research and clinical practice purposes [6]. Prior to this publication, few studies explored the predictors of disability from upper limb disorders and where available, the outcomes evaluated were not specifically focussed on work ability and return to work. This Canadian research team used a retrospective cohort study design to explore whether addition of the DASH enhanced the prediction of work disability over and above a model including other recognised generic risk factors (demographic factors, pain intensity, health-related quality of life, pain disability).

Using a comprehensive database of more than 8000 workers' compensation claimants (3036 with upper extremity disorders) in the province of Alberta, Canada, the researchers showed the expected prognostic importance of generic factors including: age, geographical region,

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educational attainment, having a job open to return to, comorbidities, prior claims for disability, healthcare utilisation, availability of modified work, and time between accident and injury on likelihood of needing wage replacement 90 days later. Also associated were: self-rated health (as measured by the short-form 36 (SF-36)), pain intensity (on a visual analogue scale), and pain disability index (PDI) score. However, the addition of the DASH score to a model including these factors significantly enhanced the predictive capability of identifying those at greatest risk of a poor work outcome. Critically in addition, use of the five response options of item 23 of the DASH, (“during the past week, were you limited in your work or other regular daily activities as a result of your arm, shoulder or hand problem?”) was an effective surrogate for the overall DASH score, in terms of enhancing the predictive capability of the model.

When a worker becomes injured, or develops a new musculoskeletal disorder, a complex range of physical, psychosocial and occupational factors interact and influence that individual’s response and subsequent rehabilitation and recovery. These may include: type of occupation, nature of the health condition, individual beliefs and expectations, financial status, availability of workers’ compensation, quality of line management, flexibility and availability of peer and managerial support, job satisfaction, mood, comorbidities, family circumstances and ultimately combine to determine both the short and long-term outcomes. However, there is considerable evidence that the greatest ‘opportunity’ for successful rehabilitation to work occurs early (best prognosis within 0-3 months of sickness absence). This paper elegantly shows how difficult it is to apply any simplistic model to identify all those at highest risk of disability for work after 3 months. However, the authors demonstrate that a model incorporating the SF-36 sub-scales (physical functioning, social functioning, role physical) and the DASH item 23 accurately identifies as many as three-quarters of workers at the highest risk of a poor outcome. For those of us trying to reduce the burden of work disability from musculoskeletal disorders, therefore, this is an important step forward. Clinical trials such as the STarT back trial [7,8] have highlighted the cost-effectiveness of a triaged approach to acute musculoskeletal disorders (in STarT back it was low back pain) whereby using a risk factor-based algorithm, more complex and expensive healthcare interventions are aimed at those at highest risk of poor outcomes. The work of Armijo-Olivo and colleagues suggest that we are making progress towards being able to identify those with upper limb disorders at highest risk of longer term work disability and consequently target healthcare resources appropriately at this higher-risk group. This is positive progress in addressing the substantial challenge of cost-effectively reducing the considerable burden of work disability caused by upper extremity musculoskeletal disorders.

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