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Work Disability Prevention Research: Current and Future Prospects

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Abstract Work disability prevention has evolved from being a component of disease outcomes studies, to a separate and growing research discipline. In part, this is due to recognition that work outcomes often do not correlate with other health outcomes; the causes of work disability are multiple, complex, and often distinct from associated health conditions or treatments; and that work disability creates an important personal, economic and social burden that is often preventable. Conceptual frameworks, measures, research methods and interventions specific to this area have been developed, many have been validated across different contexts, and an international community of researchers and trainees in work disability prevention has formed. The articles included in this special section exemplify the breadth of current research in this field, and future opportunities for greater cross- disciplinary collaboration and translation of research to practical implementation and policy interventions.

Keywords Work disability research · Return to work · Research development

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Introduction

This special section of the Journal of Occupational Rehabilitation represents an important milestone in the field of work disability prevention (WDP). In late summer 2010, the First Scientific Conference on Work Disability Prevention and Integration research was held in Angers, France, under the auspices of the International Commission on Occupational Health (ICOH) WDP Scientific Committee. Unlike prior scientific meetings with a WDP component, the primary focus was on research targeting work disability, regardless of medical condition. The meeting attracted 250 participants from 18 countries, and featured over 80 scientific presentations. Researchers working on different disease topics came together for the first time to explore common interests and challenges, and opportunities for exchange and collaboration. This issue of JOR features some of the leading presentations from the conference, representing some of the current breadth of research in this field. In this introductory article, we explore the evolution of work disability prevention (WDP) research, unique aspects of this field, and prospects for further growth in WDP research and practice.

The current focus of WDP research is on persons who have had (or are at risk of) loss of employment or

decreased work productivity due to a health condition. This focus is somewhat distinct from research and practice targeting persons with a disability who have never or rarely worked. Work disability prevention research includes studies of persons with various conditions or in specific work situations, some conducted primarily to evaluate a work outcome, others with a different focus, but including work as an outcome.

Historical Overview of WDP Research

The importance of participation in work, and the negative implications of work disability have been noted by writers and scholars for thousands of years. Ancient Greek laws provided income support for those incapable of working due to illness or infirmity [1]. As these efforts became institutionalized in the industrial revolution of the late nineteenth century, demands arose for objective measures of work ability as a criterion for receiving benefits in many countries. This coincided with the rise of medical practice based on science, rather than folklore; disease was now seen as a result of specific biologic or structural aberrations, not a result of mysterious forces or energies. These new views extended to early twentieth century thinking about work disability, with the assumption that medical diagnoses and determinations were synonymous with one's ability to work. Looking back, this view did produce some important successes—such as excluding recruits with active tuberculosis from serving in the First World War. However, the evidence used to link impairments or disease to work ability was usually not robust—for example, over 15% of US recruits were rejected from service at the same time due to "flat feet" and other conditions unrelated to their ability to serve effectively as a soldier [2].

Research in the first half of the twentieth century on work disability was primarily actuarial and proprietary, supplying the growing disability insurance industry with underwriting information. Few studies of medical treatments evaluated work-related outcomes, until the advent of rehabilitation medicine after the First World War. Case reports began to document how persons with severe war injuries were able to return to some form of gainful employment, with the help of medical and vocational interventions [3]. Success led to gains in employment of people with long-standing, often severe, physical or psychiatric conditions. As these groups developed an effective advocacy for their rights to employment, they challenged traditional views of the relationship between impairment and work ability as erroneous and discriminatory. Laws prohibiting workplace discrimination against persons with physical or mental impairments have since appeared in most developed countries [4].

Distinct research focusing on work outcomes and work rehabilitation began after the Second World War, starting with veterans who suffered severe injuries. Early investigators noted that persons with similar clinical conditions and severity often had very different work outcomes, in part due to psychosocial factors. The initial focus was primarily on individual factors that affected work outcomes, and similar studies appeared in the literature on occupational injury, arthritis, and serious mental disorders. A major turning point in the 1980's was the recognition and categorization of factors outside of the individual that were often at least as important in determining work outcomes—including workplace, insurance, family, social, and other systemic influences [5]. These factors were summarized in a bio-psychosocial model of work disability, articulated by Feuerstein et al. in 1991, as part of the inaugural issue of this Journal [6].

Current Perspectives

There are many stakeholders who have a strong interest in the problem of work disability—including affected workers, supervisors, co-workers, unions, employers, health care providers, insurers, governments, and society at large [7]. Preventable work disability has become an important public health problem (health, social and economic) in many societies, despite scientific advances in this area [8]. Although none of these stakeholders advocates unnecessary disability or delayed return to work after illness, variations in their priorities and span of control can often lead to different perspectives on the most important outcomes, and how best to achieve them [9]. Various incentives may have a negative or positive effect, delaying or stimulating RTW; these impacts on outcomes must be accounted for when investigating the effects of a specific intervention or program [10, 11]. Despite ample research demonstrating at best a weak link between clinical severity measures and work ability, clinical evaluations often dominate in compensation systems that attempt to establish a physical, objective basis for work disability compensation. The impairment-based model of work disability persists, as clinical measures are key criteria for benefits eligibility in many compensation schemes [12]. However, there are increasing efforts to investigate new eligibility measures that are more closely linked to actual work ability [13].

It is in this context that WDP research is funded, results interpreted and implemented. Most clinical studies that include an occupational outcome component have had a different primary focus, and thus are often unable to offer in-depth insight into the key factors affecting work status after a particular treatment. Now, qualitative and

quantitative investigations of persons with work-related injuries or focusing on work disability due to a health condition are growing in number and quality. Active researchers in this area now include psychologists, vocational rehabilitation experts, epidemiologists, physicians, nurses, occupational and physical therapists, health economists and health policy experts. Work outcomes have become a key priority for some funders of low back pain, mental health, and rehabilitation medicine studies. Health technology economic assessments more often include the value of enhanced return to work outcomes. The recent proliferation of systematic reviews and scientific summaries in RTW are receiving more interest by stakeholders who are seeking to make well-informed decisions about policy and practice [14].

Recently, there has been increased interest in WDP regardless of the underlying health condition. WDP researchers who began with studies on factors affecting RTW in one condition (such as low back pain) have expanded the scope of their work to other conditions. WDP intervention approaches have similarly been tested across several conditions and situations. These studies have identified some consistent results about work disability risk factors and interventions, which appear to be generalizable across different conditions. The main conceptual views of work disability converge on a multifactorial etiology for the problem that includes individual, environmental, and societal causes [15, 16]. Although there is convergence on the understanding that the problem of work disability is essentially multifactorial, there has not yet been a consensus or synthesis of the various theories and models of work disability and return to work [17]. Work-related outcomes have become a routine part of longitudinal investigations and treatment studies in low back pain, cardiovascular disorders, and mental health care. Recommendations for measuring several dimensions of work-related outcomes have been developed, as there is now considerable evidence on the strengths and weaknesses of various outcome measures, and their validity and reliability, in musculoskeletal disorders [18–20].

Interventions directed at a specific clinical state do not appear to have a large impact on the associated work disability, unless there is an additional specific component to address the work disability issue [21]. Studies have underscored the weak relationship between an illness state and work ability or participation—emphasizing the importance of nonmedical factors [22]. Although most persons with an injury or illness leading to work disability go back to work quickly after recovery, a small percentage have prolonged work absence. These complex situations have led to development of multidisciplinary intervention programs, targeting the range of factors that contribute to the work disability problem [23]. The most effective interventions are tailored to the unique cultural, social, physical and interpersonal aspects of each worker, involving the workplace, as well as addressing the larger societal context [17]. These findings underscore the importance of work disability as a distinct, separate concept, with its own factors, measures, and specific interventions [24].

The First International Conference on Work Disability Prevention and Integration

As consequence of the foundations of work disability described above, researchers in this field recognized the unique nature of their work and results. There was increasing demand for a scientific venue specifically devoted to work disability prevention research—leading to establishment of the WDP section of ICOH, and the scientific conference that featured the studies in this special section of JOR. The articles included in this section were chosen to represent some of this breadth and depth of WDP research. They include a range of research questions, settings, conditions, outcomes, and global involvement as examples of the expanding scope of this field.

Results of the longitudinal study by Corbiere and colleagues reinforce the importance of environmental factors, individual job search activities, and the relatively small impact of clinical measures, in determining work outcomes. They provide support for the Theory of Planned Behavior as a useful conceptual model in the area of work disability. The model was used to identify those factors and processes most important in seeking and achieving employment, in a population with serious mental disorders. This theory relates information on attitudes, social norms, self-efficacy and perceived control to these outcomes. This presents an interesting challenge to researchers; if this theory is generalizable to other conditions and RTW interventions, it may provide new opportunities to better understand and improve WDP outcomes in a number of health problems.

Prior studies have shown that workers' expectations of ability to return to work are highly predictive of eventual work outcome, yet little is known about the factors that lead to these expectations. Ekberg et al. studied workers with musculoskeletal and mental health-related disability, and explored the factors related to long-term expectations of ability to stay in the same profession, and intention to stay in the same job after returning to work. Based on these two different types of expectations, four distinct groups were identified, each with a unique set of risk factors and potential strategies to achieve a return to work. This study illustrates another way in which interventions may need to

be tailored to individual factors and circumstances in order to achieve optimal outcomes.

Recent studies have focused on specific workplace factors that impact work outcomes. Supervisor responses have consistently been shown to be an important determinant of return to work outcomes. Lemieux and colleagues explored supervisors' challenges in work disability caused by mental health problems. They identified 24 worker, workplace and RTW process factors, including opportunities and constraints, with both similarities and differences compared to prior findings in musculoskeletal disorders.

Lötters and colleagues continue a recent theme in WDP research, investigating the relationship between health care delivery after several weeks of disability and RTW outcomes in persons with work-disabling musculoskeletal disorders. Their prospective study found a significant association between type of provider and length of disability. This result was consistent with a qualitative investigation, suggesting that inattention to work disability issues as a separate and important problem was related to poorer outcomes.

Vermeulen and colleagues successfully implemented a model of combined clinical treatment and participatory work re-integration for a challenging group of work-disabled individuals: temporary workers in unsecure, flexible work arrangements, without a job to return to after the disability occurred. Unique features of the intervention included a consensus—based RTW plan, and use of a therapeutic workplace, leading to significant work disability reduction. This represents a major advancement of WDP intervention research, further extending the principles of success in prior trials in other types of work environments. Due to greater uncertainty and flexibility in the global labor market, this is an increasingly prevalent work disability problem [25]. Results suggest that policy interventions are urgently needed to offer (temporary) therapeutic workplaces for this growing vulnerable group of workers which represent 15–20% of the workforce in the European Union.

One of the newer areas where WDP research is starting to emerge is in organ transplantation. Return to work is being recognized as a potentially important benefit of these interventions, but this outcome might be limited by factors surrounding the underlying disease and treatment, such as frequent medical visits, anti-rejection drug side-effects, and suboptimal transplanted organ function. Van der Mei and colleagues provide a unique, longitudinal view of work disability during the course of renal failure and successful transplantation, identifying important factors that affect this outcome and how they vary during the course of the condition.

Finally, the article by Roelen et al. provides a population-level description of the impact of different types of cancer, and how this changed over a six-year period. The findings illustrate how changes in treatment and social context can affect work outcomes. This study is an example of how large, longitudinal samples of work disability data can provide valuable information on the societal impact of cancer on work.

Future Opportunities and Challenges

Discussions at the Conference, and follow up among participants has identified promising new directions for research, as well as persistent barriers to progress in preventing work disability. Key opportunities include cross–disciplinary learning and resulting application of innovative research methods, increased emphasis on conceptualizing and operationally defining work disability in a consistent way, and finding solutions that are common across conditions and work situations. However, the evidence indicates that these solutions require a tailored approach that recognizes the unique impact of specific cultures, economic and insurance systems, workplaces and work arrangements, as well as the unique characteristics of the affected worker. The studies presented in this issue exemplify the increasing breadth of inquiry and application of WDP research into new areas; identify principles that appear to be common across conditions, as well as the importance of individual influences in relation to RTW. Given the diversity of nations where this research originates from, and the importance of context, additional research on the unique impact of different sociopolitical systems can be helpful in designing programs that are more effective. Articulating generalizable links between existing policy and social features and constraints, and successful interventions will be especially important [8].

One promising development in the area of WDP is the gradual expansion of specific postgraduate training and research in this area. Academic programs in work disability have traditionally had a labor economics or vocational rehabilitation concentration, and were often closely linked to social security systems—and their focus on long-term disabled persons. More recently, the academic base for WDP research has expanded. For the past 8 years, a postgraduate program in Canada and Quebec has focused on work disability prevention as the primary focus of training and research [26]. Programs and concentrations in research on work disability prevention affiliated with the VU University in Amsterdam, Monash University in Melbourne, University of Oslo, and other institutions have grown in size and scope. Several research institutes have substantial WDP-related research and dissemination programs. Some examples include the Institute for Work and Health in Toronto, the Liberty Mutual Research Institute

for Safety in Hopkinton, MA, the Institute for Safety, Compensation and Recovery Research in Melbourne, the EMGO Institute for Health and Care Research in Amsterdam, and the Arthritis Research Primary Care Center at Keele University. Although research funding relevant to WDP has traditionally been directed towards disease-specific studies, funding for research on RTW regardless of condition has recently expanded in the Netherlands, Canada and Australia.

The primary difficulty at a societal level is not a lack of good research or evidence-based interventions, but an inability to broadly translate existing solutions into practice by insurers, employers, health care providers, and other stakeholders [27]. There is adequate evidence to support early identification of risk factors for prolonged disability, interventions directed specifically towards work issues, and the positive impact of multidisciplinary, workplace-oriented programs and return to work coordination for those with more prolonged disability, yet these strategies are scarcely implemented [28–31] The reasons for these failures are complex, and include legislative inertia, other funding priorities, fear of changing entitlement programs, and complex inter-relationships of various factors [10]. Disentangling these many influences in practice is a daunting challenge, despite ample scientific evidence to support potential solutions [32].

The rapidly changing global economic scene will provide new challenges and opportunities for WDP research. In developed countries, there are significant concerns about maintaining the work ability of an aging workforce, including preventing work disability and enhancing return to work after injury or illness. Many aging workers with chronic health conditions appear to be at particularly high risk for forced early retirement, unless effective strategies can be implemented to extend their working lives [33]. Non-traditional work arrangements (temporary work, mobile work, lone workers, and remote supervision), and increasing job insecurity due to globalization all present new challenges and opportunities for work disability prevention. WDP is becoming a more important issue in developing countries, as the loss of an increasingly skilled workforce is creating a specific economic and societal burden [34]. As indicated by this special issue, this Journal is very interested in dissemination of evidence based research that addresses both knowledge building and application of this information to facilitate the implementation of such efforts.

Conclusion

Work disability prevention research has reached an important milestone, with its own international organization, network of researchers, and a growing academic and funding base. As the problem of work disability in both the developed and the developing world is increasing, there are ample opportunities for global collaboration, related to research and practical application of such information to reduce the impact of work disability around the world.

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