Understanding Functioning and Work Disability Is Essential to Disability Evaluation

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Abstract

Work disability is the inability or decreased ability of an individual to work due to illness or injury. It may be associated with personal suffering, decreased functioning, loss of income, increased medical costs, and strained relationships. In order to mitigate and resolve work disability, we must be able to better recognize and define the factors surrounding work. The International Classification of Functioning, Disability and Health (ICF) is a comprehensive classification system that utilizes a bio-psycho-social perspective to identify factors that affect human functioning and health. Integration of the ICF into vocational rehabilitation assessment and intervention will provide a conceptual framework to describe and quantify the impact of disease or injury on an individual. By implementing a standardized language and framework for researchers and clinicians, we can reduce variability of care currently pervasive in vocational rehabilitation practice. Integrating the ICF into vocational rehabilitation assessment and intervention will improve patient outcomes.

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T. Johansen and W. H. Dittrich (eds.), *Occupational Health and Rehabilitation*, FOM-Edition, https://doi.org/10.1007/978-3-658-33484-0_2

2.1 Introduction

Work disability is the inability or decreased ability of an individual to work due to illness or injury. It has been proposed that work disability may be associated with personal suffering, decreased functioning, loss of income, increased medical costs, and strained personal and social relationships (Escorpizo et al., 2015). Due to these factors, injuries that result in work disability have dire physical, economic, social, and psychological consequences (Baker et al., 2005). In the US, workers earn 15% less (average $31.000) in the ten years post-injury, and the burden of the injured workforce is approximately $74 billion in worker's compensation alone (OSHA, 2015; Seabury et al., 2014; Boden et al., 2005; CDC, 2009).

Work disability is multifactorial in nature. Current research indicates that a multidisciplinary approach is necessary to address a variety of bio-psycho-social factors inhibiting return to work. Li-Tsang et al. (2008) indicated the importance of addressing psycho-social aspects such as coping with stress when working with individuals with musculoskeletal injuries. Similar findings have been observed in patients with the following neurological conditions: traumatic brain injury, stroke, and multiple sclerosis (Escorpizo et al., 2015). Additionally, valid and reliable screening tools are currently lacking in vocational rehabilitation assessment.

In order to mitigate the negative consequences of work disability, we must recognize and define the contributing factors. The International Classification of Functioning, Disability and Health (ICF) is a comprehensive classification system that utilizes a bio-psycho-social perspective to identify factors that can impact human functioning and health. Integration of the ICF in vocational rehabilitation assessment and intervention will provide a conceptual framework to describe and quantify the impact of disease or injury ("vocational rehabilitation" is often used interchangeably with "work rehabilitation" and "occupational rehabilitation"). By implementing a standardized language for researchers and clinicians, we can serve our clients by reducing heterogeneity and variability in practice that is commonly observed in work rehabilitation settings.

2.2 Integrative Bio-Psycho-Social Framework

The ICF is a conceptual framework and classification system developed by the World Health Organization (WHO). The classification system aims to provide a common language for researchers and policy makers in describing and discussing health and disability worldwide (Fayed et al., 2011). The system encompasses many different health-related domains that together present a complete bio-psycho-social picture of health and functioning. The domains of the ICF can be descriptive of both capacity and performance. Capacity is what a person with a certain health condition is capable of doing in a standard environment, and performance is what that person actually does in his or her typical environment (WHO, 2002).

The domains of the ICF are divided into two major groups: those pertaining to body structure and function, and those pertaining to activity and participation. These main components are supported by contextual factors, or variables pertaining to the

environment (environmental factors), or one's person (personal factors) that may affect a health condition or outcome (WHO, 2001).

Within each of the components listed above is a hierarchy of different domains encompassing chapters and second-, third-, and fourth-level categories, each with its own specific alphanumeric code. The component of body functions contains eight chapters (b1–b8), body structure contains eight chapters (s1–s8), activity and participation contains nine chapters (d1–d9), and the environmental factors component contains five chapters (e1–e5) which can be seen in Table 2.1 (WHO, 2001). Each of these chapters can be further broken down into many second-level categories, which in turn are composed of third- and fourth-level categories. In its entirety, the ICF contains more than 1.400 categories that help to describe various components of human functioning and health.

Table 2.1 Components and Chapters of the ICF. (*Source* WHO, 2001)

Body Functions (Chapters b1–b8)	
Chap. 1: Mental functions	Chap. 5: Functions of the digestive, metabolic, and endocrine systems
Chap. 2: Sensory functions and pain	Chap. 6: Genitourinary and reproductive systems
Chap. 3: Voice and speech functions	Chap. 7: Neuromusculoskeletal and movement-related functions
Chap. 4: Functions of the cardiovascular, haematological, immunological, and respiratory systems	Chap. 8: Functions of the skin and related structures
Body Structures (Chapters s1–s8)	
Chap. 1: Structures of the nervous system	Chap. 5: Structures related to the digestive, metabolic, and endocrine systems
Chap. 2: The eye, ear, and related structures	Chap. 6: Structures related to genitourinary and reproductive systems
Chap. 3: Structures involved in voice and speech	Chap. 7: Structures related to movement
Chap. 4: Structures of the cardiovascular, immunological, and respiratory systems	Chap. 8: Skin and related structures
Activities and Participation (Chapters d1–d9)	
Chap. 1: Learning and applying knowledge	Chap. 6: Domestic life
Chap. 2: General tasks and demands	Chap. 7: Interpersonal interactions and relationships
Chap. 3: Communication	Chap. 8: Major life areas
Chap. 4: Mobility	Chap. 9: Community, social, and civic life
Chap. 5: Self-care	
Environmental Factors (Chapters e1–e5)	
Chap. 1: Products and technology	Chap. 4: Attitudes
Chap. 2: Natural environment and human-made changes to environment	Chap. 5: Services, systems, and policies
Chap. 3: Support and relationships	

The ICF is not the only classification system of its kind. In fact, it is complementary to the more known *International Statistical Classification of Diseases and Related Health Problems, 10th Revision,* or ICD-10 (WHO, 2002). Whereas the ICD-10 presents a common "language" and coding for medical diagnoses, the ICF offers the same structure to describe the functioning of people with health conditions. Where the ICD-10 defines the disease or disorder, the ICF describes the ability or disability of a person with that diagnosis (WHO, 2002). Thus, the two classification systems can and should be used together to create a full picture not only of a person's diagnosis, but also of the health and functioning of the person with that diagnosis.

2.3 ICF in Vocational Rehabilitation

In the context of vocational rehabilitation, the ICF can play an important role in providing a common language to aid communication between employers, payers, and healthcare professionals (Finger et al., 2013). In an attempt to standardize work rehabilitation practices for researchers and clinicians, Escorpizo et al. (2011) proposed a conceptual definition based on the ICF: "Vocational rehabilitation is a multi-professional evidence-based approach that is provided in different settings, services, and activities to working age individuals with health-related impairments, limitations, or restrictions with work functioning, and whose primary aim is to optimize work participation." This definition highlights the complexity of vocational rehabilitation, and encompasses the ICF components of body functions and structure, as well as activity and participation.

The breadth of the ICF makes it challenging to practically administer in a research or clinical setting. In order to make the ICF more applicable, the need to create Core Sets became apparent. A Core Set is a short list of ICF categories relevant to a specific health condition or health-related event (including disease) (Stucki et al., 2002). In 2010, Escorpizo et al. developed an ICF-based Core Set to describe the level of functioning and health of participants in vocational rehabilitation programs (Escorpizo et al., 2010). The development of this Core Set gave clinicians the tools necessary to implement the ICF in patient care in a practical and consistent manner.

Both a Comprehensive and a Brief ICF Core Set have been established for work rehabilitation. A Comprehensive ICF Core Set is a condition specific list of ICF categories that is short enough to be practical, but comprehensive enough to be inclusive of typical problems regarding an individual's functioning and health that could potentially be encountered during a multidisciplinary assessment. A Brief ICF Core Set is a list of categories with as few categories as possible to be practical, but enough categories sufficiently comprehensive to describe problems in functioning associated with a specific condition (Cieza et al., 2004). The Comprehensive Core Set for Vocational Rehabilitation contains 90 categories while the Brief Core Set for Vocational Rehabilitation contains 13 categories (ICF). The comprehensive Core Set can be found in Table 2.2 (Escorpizo et al., 2010) (adapted from www.icf-research-branch.org). The Brief Core Set can be seen in Table 2.3 (Escorpizo et al., 2010) (adapted from www.icf-research-branch.org).

Table 2.2 Comprehensive Core Set for Vocational Rehabilitation. (*Source* Escorpizo et al., 2010; adapted from www.icf-research-branch.org)

ICF Code	ICF Category Title	ICF Code	ICF Category Title
Activities and Participation (40)			
d155	Acquiring skills	d445	Hand and arm use
d160	Focusing attention	d450	Walking
d163	Thinking	d455	Moving around
d166	Reading	d465	Moving around using equipment
d170	Writing	d470	Using transportation
d172	Calculating	d475	Driving
d175	Solving problems	d530	Toileting
d177	Making decisions	d540	Dressing
d210	Undertaking a single task	d570	Looking after one's health
d220	Undertaking multiple tasks	d710	Basic interpersonal interactions
d230	Carrying out daily routine	d720	Complex interpersonal interactions
d240	Handling stress and other psychological demands	d740	Formal relationships
d310	Communicating with - receiving - spoken messages	d820	School education
d315	Communicating with - receiving - nonverbal messages	d825	Vocational training
d350	Conversation	d830	Higher education
d360	Using communication devices and techniques	d840	Apprenticeship (work preparation)
d410	Changing basic body position	d845	Acquiring, keeping and terminating a job
d415	Maintaining a body position	d850	Remunerative employment
d430	Lifting and carrying objects	d855	Non-remunerative employment
d440	Fine hand use	d870	Economic self-sufficiency
Environmental Factors (33)			
e11001	Drugs	e340	Personal care providers and personal assistants
e115	Products and technology for personal use in daily living	e355	Health professionals
e120	Products and technology for personal indoor and outdoor mobility and transportation	e360	Other professionals
e125	Products and technology for communication	e430	Individual attitudes of people in positions of authority

(continued)

Table 2.2 (continued)

ICF Code	ICF Category Title	ICF Code	ICF Category Title
e130	Products and technology for education	e450	Individual attitudes of health professionals
e135	Products and technology for employment	e460	Societal attitudes
e150	Design, construction and building products and technology of buildings for public use	e465	Social norms, practices and ideologies
e155	Design, construction and building products and technology of buildings for private use	e525	Housing services, systems and policies
e225	Climate	e535	Communication services, systems and policies
e240	Light	e540	Transportation services, systems and policies
e250	Sound	e550	Legal services, systems and policies
e260	Air quality	e555	Associations and organizational services, systems and policies
e310	Immediate family	e565	Economic services, systems and policies
e320	Friends	e570	Social security services, systems and policies
e325	Acquaintances, peers, colleagues, neighbors and community members	e580	Health services, systems and policies
e330	People in positions of authority	e585	Education and training services, systems and policies
		e590	Labor and employment services, systems and policies
Body Functions (17)			
b117	Intellectual functions	b164	Higher-level cognitive functions
b126	Temperament and personality functions	b210	Seeing functions
b130	Energy and drive functions	b230	Hearing functions
b134	Sleep functions	b235	Vestibular functions
b140	Attention functions	b280	Sensation of pain
b144	Memory functions	b455	Exercise tolerance functions
b152	Emotional functions	b730	Muscle power functions
b160	Thought functions	b740	Muscle endurance functions
		b810	Protective functions of the skin

Table 2.3 Brief Core Set for Vocational Rehabilitation. (*Source* Escorpizo et al., 2010; adapted from www.icf-research-branch.org)

ICF Code	ICF Category Title
Activities and Participation (6)	
d155	Acquiring skills
d240	Handling stress and other psychological demands
d720	Complex interpersonal interactions
d845	Acquiring, keeping and terminating a job
d850	Remunerative employment
d855	Non-remunerative employment
Environmental Factors (4)	
e310	Immediate family
e330	People in positions of authority
e580	Health services, systems and policies
e590	Labor and employment services, systems and policies
Body Functions (3)	
b130	Energy and drive functions
b164	Higher-level cognitive functions
b455	Exercise tolerance functions

2.4 WORQ

A prime example of how the ICF has been put to use in the field of vocational rehabilitation is the Work Rehabilitation Questionnaire (WORQ) (Finger et al., 2013). Citing discrepancies in the implementation of the ICF due to lack of a standardized measurement tool, Finger et al. developed an instrument that would address the complex nature and multi-aspects of vocational rehabilitation by utilizing the bio-psycho-social model of the ICF.

WORQ was developed based on the ICF Core Set for vocational rehabilitation (Finger et al., 2013). Questions were either drawn from other, previously validated questionnaires such as the WHO Disability Assessment Schedule 2.0 (WHODAS 2.0) and World Health Survey (WHS), or derived based on technical definitions of ICF categories from the ICF handbook (Finger et al., 2013; WHO, 2001). WORQ contains all 13 categories from the Brief Core Set for Vocational Rehabilitation, as well as 31 additional categories from the Comprehensive Core Set for Vocational Rehabilitation (Finger et al., 2013).

WORQ consists of two sections and is designed to be self-reported. The first section consists of 17 items, including sociodemographics, work-related questions, and environmental support and service. The second section consists of 36 items that specifically address work-related functioning. For each of these items, the respondent is asked to rate

their difficulty over the past week on a scale of 0–10, with 0 being "no problem" and 10 being "complete problem".

The initial English questionnaire was first translated into German for psychometric testing at a vocational rehabilitation centre in Switzerland (Finger et al., 2013). In addition to English and German, WORQ is now available in French, Russian, Mandarin Chinese (Taiwan), Turkish, Icelandic, Danish, Japanese, Portuguese-Brazil, and Flemish (www.myworq.org). Self-reported and interviewer-administered versions of the survey are free and can be downloaded at www.myworq.org. A study is currently underway to validate a short form of WORQ for use in the United States. This short form would have a second section with 13 items instead of the current 36.

Implementing WORQ in the vocational rehabilitation setting will help provide a clear picture of the worker's functional performance and capacity, aiding in a common understanding between health professionals involved in interdisciplinary care. It will provide uniformity in reporting in the clinic, at the work site, and in research. Furthermore, this uniformity in reporting will extend across systems and countries that utilize WORQ, which may contribute to the cross-national understanding of vocational rehabilitation outcomes.

2.5 Clinical Practice Appraisal for Work Rehabilitation

The Occupational Health Special Interest Group (OHSIG) of the American Physical Therapy Association is set to release a Clinical Practice Guideline (CPG) on vocational (work) rehabilitation assessment and intervention. This CPG is comprised of guidance statements that will provide stakeholders with valuable information regarding best evidence and best practice in vocational rehabilitation. Guidance statements were developed that encompass a variety of work-related and bio-psycho-social factors. Many of the developed guidance statements follow the bio-psycho-social model set forth by the ICF, and showcase that numerous factors must be taken into account when helping individuals return to work. Along with the bio-psycho-social perspective considered by the CPG is the emphasis on multidisciplinary approach to facilitate early and sustained return to work.

2.6 Moving Forward: The Next Steps

Implementing WORQ and findings from the CPG into clinical care will be the important next steps to enhance communication between employers, payers, and healthcare professionals so return to work can be facilitated for individuals with work disability. The ICF-based CPG will provide clinicians with best-evidence vocational rehabilitation assessment and intervention that examines the multifactorial nature of return to work by way of a holistic and comprehensive perspective.

The 11th revision of the ICD (ICD-11) was released on 18 June 2018 (WHO, 2016). ICD-11 will integrate the ICF in the form of "functioning properties" in order to capture the impact of disease or health on functioning (Escorpizo et al., 2013). The linking of the ICD and ICF will provide a standard language that will aid communication between clinicians, payers, employers, and other stakeholders. This could also provide a common language for a standardized electronic health record system that is consistent with ICF (Escorpizo et al., 2013).

Moving forward, it will be of utmost importance to develop tools for clinicians and researchers alike. Utilizing the ICF framework to create an implementation toolkit or process-oriented algorithm for decision-making for occupational health in general is necessary. This toolkit will provide clinicians with a list of best practices in terms of vocational rehabilitation, encompassing intervention techniques and appropriate outcome measures utilized in an attempt to standardize work rehabilitation practices. The implementation of such a toolkit will address the heterogeneity in vocational rehabilitation process, thereby improving quality of care and the worker experience.

2.7 Conclusion

The ability to achieve and maintain meaningful employment is of the utmost importance for working-age adults due to the severe social, economic, and psychological consequences of work disability. Work disability is complex in nature, and a comprehensive framework like the ICF is ideal to highlight the factors affecting return to work with consideration to the workplace and environment in which the worker operates and the relevant individual personal factors. Integrating the ICF into vocational rehabilitation assessment and intervention will thereby improve worker outcomes by providing a standardized language for healthcare professionals, employers, employees, and payers.

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