**CONCEPTUAL MODELS OF DISABILITY**

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**1. Overview and description**

**Introduction**

Concepts of health are intricately intertwined with concepts of disability. For every function, an opposing lack of function is possible. The word “disability” has had various definitions depending on the medical and social climate surrounding it. Whereas it was once simply equated to any pathology of the human body, it now encompasses a complex mix of personal and environmental factors. In order to understand disability and disablement, a multitude of conceptual models have been formulated.

These conceptual models can be used not only to define disability, but also to understand the impact of the disability and other factors on function. The models can then be used to quantitatively and qualitatively assess disability and functioning, identify needs so that appropriate resources can be obtained, monitor costs, and direct social policy.

**Conceptual Models of Disability**

There are three general categories of models of disability: the “medical” models, where disability is seen as an attribute of an individual; the “social” models, where disability is a product of environment; and the models in which disability is the result of the individual-environment interaction.[1](https://now.aapmr.org/conceptual-models-of-disability/#references)Over past decades, there has been a movement toward the latter, and most current models fall into this category.

*The Medical Model of Disability*

Medical models of disability equate pathology with inherent disability. For example, a person with hearing loss is considered disabled, just as a person with cancer is considered disabled. In these models, the disability is viewed as a defect that the field of medicine and healthcare professionals must fix. This implies that disabilities and disablement can be “cured” by medicine. A solely medical model of disability consequently leads to any individual with pathology, however severe it may be, qualifying for social aid and accommodations regardless of level of function. This resulted in the stigmatization, impoverishment, and institutionalization of many individuals with pathologies.[1](https://now.aapmr.org/conceptual-models-of-disability/#references)

*The Social Model of Disability*

Social models of disability frame disability in an environmental context. For example, a person with hearing loss is not disabled by the hearing loss itself, but by the environment not providing the appropriate resources for that person. This type of model was pioneered mostly by individuals who had been labeled as disabled by the medical models of disability. Through their self-advocacy, social models were conceived in order to defend autonomy and personal freedoms despite level of functioning.[1](https://now.aapmr.org/conceptual-models-of-disability/#references)

Mike Oliver, a pioneer of the social model in the 1980s, based the model on his belief that it is not individual limitations that are the cause of the problem. Rather, it is society’s failure to provide appropriate services and adequately ensure that the needs of disabled people are taken into account in societal organization.[2](https://now.aapmr.org/conceptual-models-of-disability/#references)

*The Individual-Environment Model of Disability*

As it became clear that disability was not a strictly medical concept nor a strictly social concept, there was a movement toward biopsychosocial models. In 1980, the World Health Organization (WHO) released the first internationally shared conceptual model of disability, known as the International Classification of Impairments, Disabilities, and Handicaps (ICIDH). As its title suggests, the ICIDH focused on classification within three domains: impairment, disability, and handicap. Impairments are defined as abnormalities of body structure, appearance, and/or organ system and function. Disabilities are defined as the consequences of impairments in terms of functional performance and activity of the individual. Handicaps are the disadvantages experienced by the individual as a result of impairments and disabilities.[3](https://now.aapmr.org/conceptual-models-of-disability/#references)

The ICIDH was revised several times, resulting in the current model, the International Classification of Functioning, Disability, and Health (ICF). The ICF aims to classify health and health-related domains in order to describe changes in body function and structure, level of individual capacity, and level of individual performance. In this model, the term functioning refers to all body functions, activities, and participation. The term disability refers to impairments, activity limitations, and participation restrictions. The ICF puts emphasis on health and functioning rather than disability, and is formulated to complement the International Statistical Classification of Diseases and Health Related Problems (ICD-10).[4](https://now.aapmr.org/conceptual-models-of-disability/#references)

In the ICF, disability and functioning are viewed as outcomes of interactions between health conditions and contextual factors. Contextual factors include external environmental factors and internal personal factors. There are three levels of human function according to the ICF: functioning at the level of the body or body part, the whole person, and the whole person in a social context. Qualifiers are then used to record the presence and severity of a problem at each of these levels, resulting in a classification system.[4](https://now.aapmr.org/conceptual-models-of-disability/#references)

**Domains of Disability**

The scientific understanding of disability requires descriptions within a common language of health enabling sharing of information and data among countries and health care providers.

The domains of disability were defined by the ICF to include learning and the application of knowledge, general tasks and demands, communication, mobility, self-care, domestic life, interpersonal interactions and relationships, major life areas, and community, social and civic life. The level of difficulties within the domains are further defined based on level of difficulties as activity limitations or as participation restrictions when comparing those with the particular health condition leading to the disability to that of those without the particular health condition.[5](https://now.aapmr.org/conceptual-models-of-disability/#references)The contextual component of the ICF includes external environmental factors, and these are divided into two subcategories: individual and societal. It is helpful to identify individual factors and societal factors as enabling/facilitating or disabling/restricting. For instance, assistive technology such as hearing aids or ramps is facilitating, whereas a lack or ramps and elevators is restricting. Similarly, government agencies and advocacy groups can be facilitating, and businesses that are not in compliance with the Americans with Disabilities Act would be restricting. Once these factors are appropriately identified, they can then be addressed.

The World Health Organization Disability Assessment Schedule 2.0 (WHODAS-2)[6](https://now.aapmr.org/conceptual-models-of-disability/#references)was created in 1998 as WHODAS II in line with the ICF conceptual model and to be used in assessing the disability based on this model.

There are 36 items (self-administered and covering the past 30 days) on functioning and disability covering seven domains under WHODAS-2, which are the following (and explicit):

1. Understanding and Communicating (6 items)
2. Getting around (5 items)
3. Self-care (4 items)
4. Getting along with others (5 items)
5. Life activities: Household (4 items)
6. Life activities: Work/School (4 items)
7. Participation in society (8 items)

For each item, the response is scored from 1 (No difficulty), 2 (Mild difficulty), 3 (Moderate difficulty), 4 (Severe difficulty) to 5 (extreme difficulty or cannot do), with scores for each domain based on item responses, with room for missing items up to 30% for each domain. A final score is then computed that fits into a range from 0 to 100 with higher score as evidence of higher disability.

Within each domain classification, health conditions are diseases, illnesses, or other health conditions, injuries, mental or emotional problems, problems with alcohol, and problems with drugs. Having difficulty with an activity means increased effort, discomfort or pain, slowness, and changes in the ways such activities are performed.

**Current Concepts**

The ICF is currently the global standard for disability models; however, it is generally acknowledged that it is a dynamic model with room for improvement. Although the current model included revisions that addressed some initial controversies such as incorporating neutral as well as negative ways of describing an individual’s status (ex: including “activity” in addition to “activity limitations”), there remain possibilities for evolution. For instance, it has been proposed that future versions of the ICF should distinguish between elements of activity and elements of participation.[7](https://now.aapmr.org/conceptual-models-of-disability/#references)

Models of disability can be used as the basis for other conceptual models. For instance, the ICF can be used as the basis for a conceptual model of rehabilitation. A conceptual model of rehabilitation understood as a health strategy has been proposed by Stucki et. al. in collaboration with the European Union of Medical Specialists (UEMS) section for Physical Medicine and Rehabilitation (PMR). This model defines rehabilitation as a health strategy that applies and integrates approaches to optimize a person’s capacity, approaches that build on and strengthen the resources of the person, approaches that provide a facilitating environment, and approaches that develop a person’s performance in the interaction with the environment. The strategy spans the course of a health condition, across the continuum of care, and across sectors. The goal of this strategy is to enable people with health conditions experiencing or likely to experience disability to achieve and maintain optimal functioning in interaction with the environment.[8](https://now.aapmr.org/conceptual-models-of-disability/#references)

The ICF can also be used to solve clinical problems in the field of rehabilitation. Steiner et. al developed an instrument called the “Rehabilitation Problem-Solving Form,” based on the ICF, because it provides a common descriptive language and facilitates multidisciplinary responsibility and coordination of interventions. The instrument provides a visual representation of aspects of pathology as well as the relationships between disabilities and underlying factors. The tool can be used as a basis for interdisciplinary team meetings to discuss interventions and their goals.[9](https://now.aapmr.org/conceptual-models-of-disability/#references)This is an example of a way that a global model of disability can have a direct clinical benefit.

**Conclusion**

According to the United States Census Bureau, approximately 56.7 million people living in the United States in 2010 had a disability. This was an increase of 2.2 million people from 2005. Of these, 12.6 percent were classified as having a severe disability. The oldest age group (80 years and older) was eight times as likely to have disability as the youngest group (less than 15 years).10 We can therefore expect to see an increasing prevalence of disability as our population ages. Rehabilitation practitioners must be aware of these trends and conceptual models of disability in order to efficiently and thoroughly attend to the multiple issues surrounding disability.

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