Al-Mustaqbal University

Biomedical Engineering Department

Class: 3rd

Subject: Rehabilitation Science

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2nd term – Lect. 3: Overview of Disease, Disability, and Impairment.

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International Background and The UN

International Endorsement: The value of rehabilitation engineering and assistive technology for persons with disabilities is supported by international resolutions and initiatives that offer recommendations for effective action.

The United Nations (UN): An international organization whose mission is to maintain international peace and security, promote sustainable development, protect human rights, uphold international law, and deliver humanitarian aid.

UNITED NATIONS

2030 Agenda for Sustainable Development Goals (SDGs):

- Officially came into force in January 2016.
- These goals build on the previous Millennium Development Goals of 2000.
- Mission: Mobilizing efforts to end all forms of poverty, fight inequalities, and protect the environment while ensuring no one is left behind.

Health and the SDGs: The World Health Assembly (2005) acknowledged that sustainable development cannot be achieved without addressing issues related to the health and rehabilitation of persons with disabilities. Health is viewed as both an outcome of and a precondition for economic, social, and environmentally sustainable development.

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Social Responsibility (ISO 26000)

Global Standard: In 2010, the International Organization for Standardization (ISO) launched the ISO 26000 standard on social responsibility to draw on and disseminate best practices for the international community.

Guidance for Organizations: ISO 26000:2010 provides guidance to businesses and organizations on translating sustainable principles into effective actions at a global level.

Human Rights Principle: The guideline states: "Every person, as a member of society, has economic, social and cultural rights necessary for his or her dignity and personal development."

Expectations: Socially responsible expectations and actions by organizations should be accessible, non-discriminatory, and provide equal opportunities to all stakeholders, including those with disabilities.

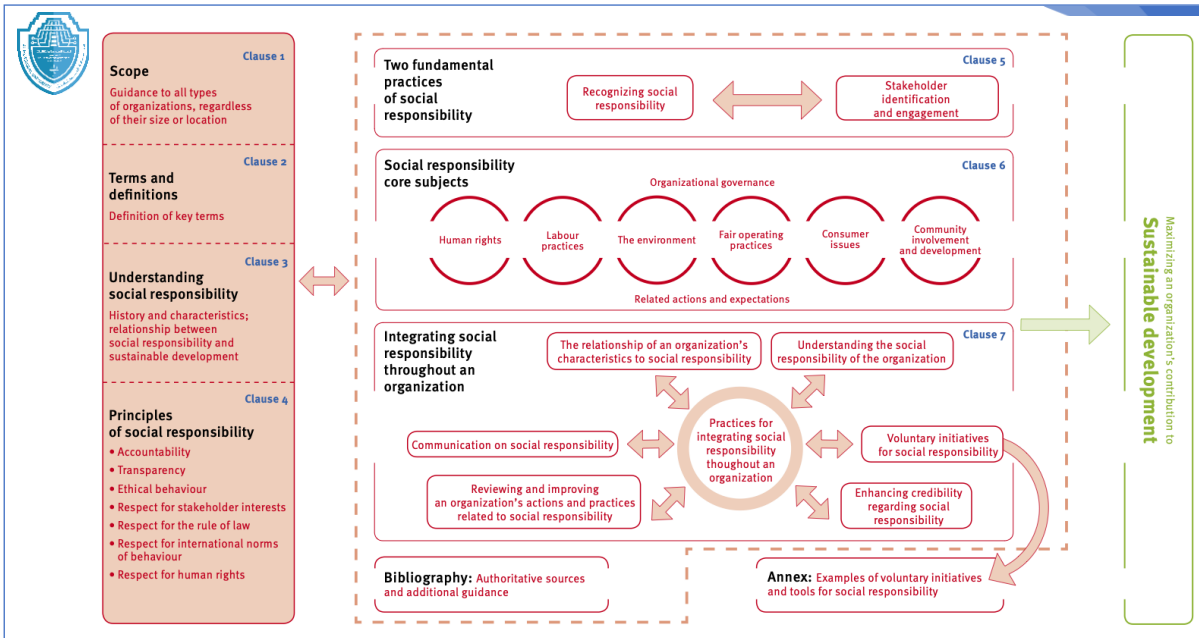


Figure 1: 2010 schematic overview of ISO 26000. The flowchart detailing core subjects such as human rights, labor practices, the environment, and organizational governance to maximize sustainable development.

Global Prevalence of Disability

- **The World Bank:** Considered a leading institution for investments in health and development, its motto is "Working for a World Free of Poverty".
- **The Reality of Disability:**
- One billion people, or 15% of the world's population, experience some form of disability.
- Disability prevalence is higher in developing countries.
- **Adverse Socioeconomic Outcomes:** Persons with disabilities, as a group, are more likely to experience less education, poorer health outcomes, lower levels of employment, and higher poverty levels than persons without disabilities.
- **World Report on Disability (2011):** Jointly produced by the WHO and the World Bank, it suggests steps for governments and organizations to create enabling environments, develop rehabilitation services, ensure social protection, and enforce standards.

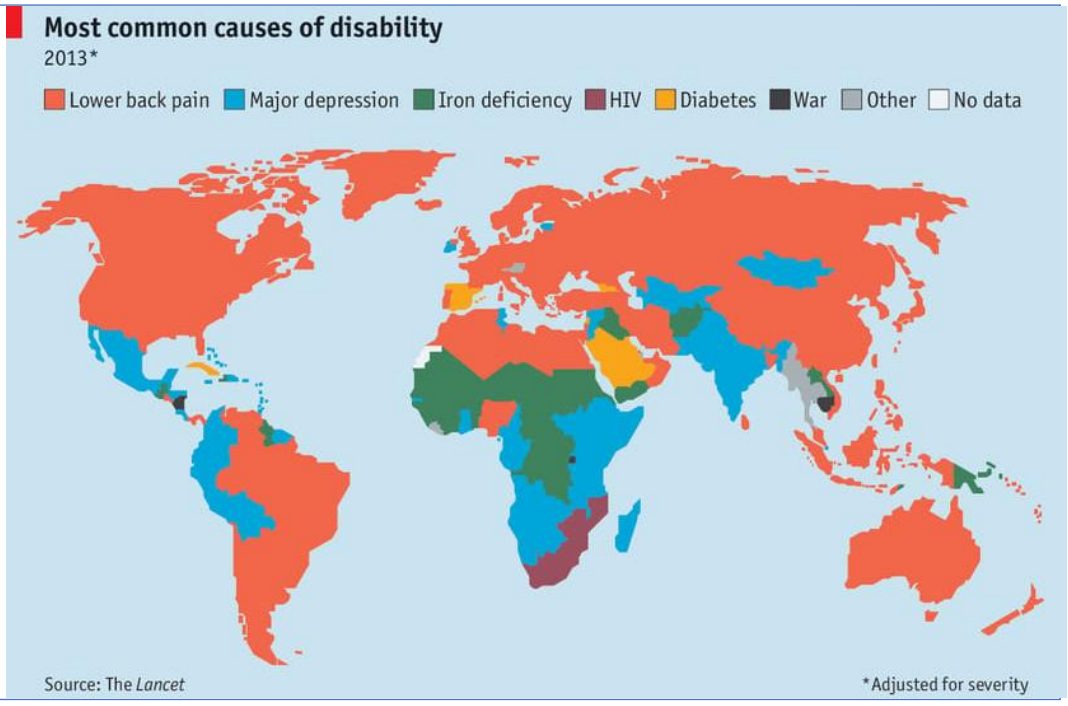


Figure 2: Map of the most common causes of disability internationally as reported in 2013. World map categorized by causes such as lower back pain, major depression, iron deficiency, HIV, diabetes, and war.

Defining Health and Disease

- **Why Definitions Matter:** Understanding the impact of disease and definitions of health as related to improving function is critical to the provision of appropriate rehabilitation engineering services.
- **WHO Definition of Health (1948):** Defined as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".
- **The Healthcare Gap:** General health care needs, including health promotion and prevention activities, are frequently unmet for people with disabilities, resulting in greater vulnerability to secondary and age-related conditions.
- **Shifting Concepts:** Definitions of disease and health continue to change as expectations for health, diagnostic capabilities, and social and economic factors evolve. These concepts, in part, embody value judgements and are rooted in metaphor.
- **Ethical Distribution:** Defining these concepts in a common language is critical to ensuring the ethical and appropriate global distribution of limited healthcare resources.

The WHO Family of International Classifications (WHO-FIC)

- The WHO-FIC is intended to support international and national health systems, statistics, and evidence by providing reference classifications to describe health states.

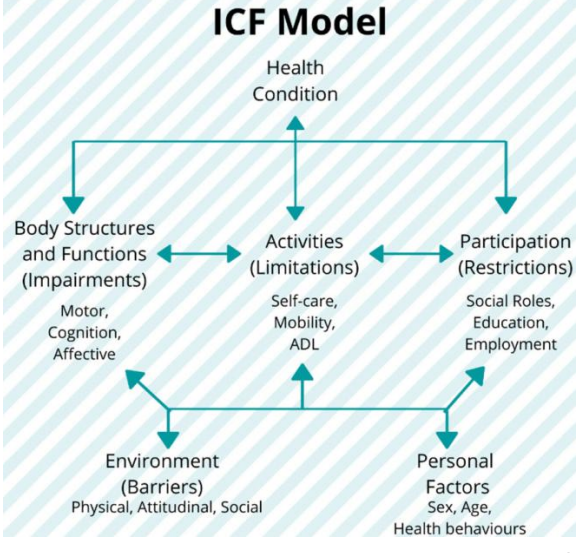
1. **ICD-10 (International Classification of Diseases):**

- Currently in its 10th revision, it classifies diseases and other health problems like symptoms and injuries.
- Used globally by healthcare providers, policymakers, and insurers to monitor the incidence and prevalence of diseases, providing a picture of the general health situation of countries.
- In the US, the Centers for Medicare & Medicaid Services (CMS) requires reporting of medical events using ICD codes.

The WHO Family of International Classifications (WHO-FIC)

2. ICF (International Classification of Functioning, Disability and Health):

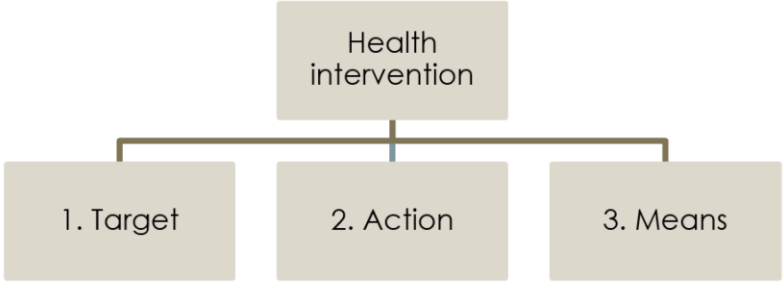
- Conceptualizes and classifies functioning and disability specifically in the context of health, separated from the disease classification.



The WHO Family of International Classifications (WHO-FIC)

3. ICHI (International Classification of Health Interventions):

- Currently under development as the third reference classification.
- Purpose: It will specifically provide health care service providers and researchers with a common tool for reporting and analyzing health interventions between countries.



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Disability and Functioning – The ICF Framework

- **Health Condition (Umbrella Term):** Defined in the ICF as an umbrella term for disease (acute or chronic), disorder, injury, or trauma. It may also include pregnancy, aging, stress, congenital anomalies, or genetic predispositions.
- **Defining Disability in the ICF:** An umbrella term for impairments, activity limitations, and participation restrictions. It denotes the negative aspects of the interaction between an individual and that individual's contextual factors (environmental and personal).
- **Defining Functioning:** Denotes the positive aspects of these interactions.

The Biopsychosocial Model and Paradigm Shift

- **The UN Convention on the Rights of Persons with Disabilities (CRPD, 2008):** Marked a shift in thinking about disability from a social welfare concern to a human rights issue, acknowledging that societal barriers and prejudices are themselves disabling.
- **A Social Model:** The CRPD adopted a social model defining disability as including those with long-term physical, mental, intellectual, or sensory impairments which, in interaction with various barriers, hinder their full participation in society.
- **The ICF's Role:** The WHO-ICF offers a scientific tool to support this paradigm shift from the purely medical model to an integrated biopsychosocial model of human functioning and disability.

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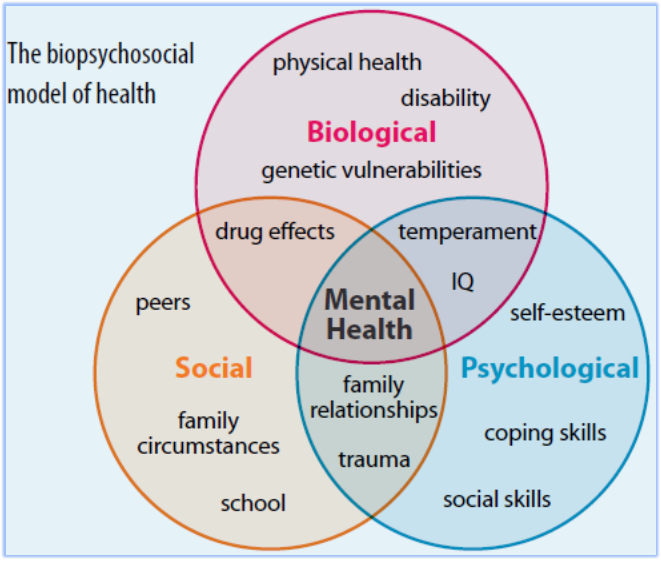

The Biopsychosocial Model and Paradigm

Barriers and Facilitators to Participation

- **Societal Impact:** Disability is not an unavoidable consequence of injury and chronic disease; rather, it is substantially shaped by the actions society takes.
- **Identifying Barriers (WHO Definition):** Barriers include access to the physical environment, lack of relevant assistive technology, negative attitudes toward disability, and services/policies that are either nonexistent or hinder involvement.
- **Personal Factors:** Defined as the background of a person that is not part of a health condition but plays a role in disability (e.g., gender, age, culture, life experiences, and psychological characteristics).
- **Environmental Factors:** Represent the physical, social, and attitudinal environments in which people live their lives.
- **Facilitators:** Environmental factors that improve functioning and reduce disability (e.g., accessible physical environments, available assistive technology, positive attitudes).

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Rehabilitation as a Key Intervention

- **Rehabilitation Defined:** Described as a set of interventions, along a continuum of care, designed to optimize functioning and reduce disability in individuals with health conditions in their environments.
- **Habilitation Defined:** Building abilities for the first time, whereas rehabilitation restores them.
- **An Investment, Not a Cost:** The 2005 World Health Assembly report recognized that people with disabilities are important contributors to society and that allocating resources to their rehabilitation is an investment.
- **Impact of Rehabilitation:** Access to rehabilitation can reduce the consequences of disease or injury, improve health and quality of life, and reduce reliance of other health services. It provides disabled people with the tools needed to attain independence and self-determination.

Assistive Technology (AT) Realities

- **The AT Gap:** Assistive technology can have a profound impact on safety, functioning, and independence. However, access remains a severe barrier; only one in ten people in need receives the assistive products and services necessary to maintain their functioning.
- **Barriers to AT Access:** Include high costs, a lack of awareness, a lack of availability, a lack of trained personnel, and poor policy and financing.
- **International Collaboration Agreements:**
- In 2000, the Tokushima agreement was signed by RESJA (Japan), AAATE (Europe), RESNA (North America), and ARATA (Australia) to promote information exchange.
- In 2016, this was supplanted by the Alliance of Assistive Technology Professional Organizations, expanding to include RESKO (Korea) and TREATS (Taiwan), reflecting a joint commitment to improving AT access.

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The GATE Initiative and Future Directions

- **GATE (Global Cooperation on Assistive Technology):** Established by the WHO in 2014 with the goal of improving access to high-quality, affordable assistive products by persons with disabilities through capacity building.
- **The Vision of GATE:** "A world where everyone in need has high-quality, affordable assistive products to lead a healthy, productive and dignified life".
- **The 4 Interlinked Activities:** GATE focuses on policy, products, personnel, and provision.
- **Future Vision:**
- Strengthening interventions will begin of including accurate data on rehabilitation across all health systems, leveraging emerging health information systems.
- Building workforce capacity will require "disruptive innovation" to create fundamental changes in educational programming, practice, research, and policy.

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The GATE

Thank You
For Your Attention