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REVIEW ARTICLE

Determination of the medical and social levels of disability as a basis for successful comprehensive rehabilitation

Barbara Kołłątaj[1,A-F], Witold Piotr Kołłątaj[2,A-D], Elżbieta Cipora[3,A-E], Halina Piecewicz-Szczęsna[4,3,B-D], Irena Dorota Karwat[3,A-F]

[1] *Departament of Basic Medical Sciences, Institute of Health Sciences, Faculty of Medicine, The John Paul II Catholic University, Lublin, Poland*
[2] *Department of Paediatric Endocrinology and Diabetology with Endocrine – Metabolic Laboratory, Medical University, Lublin, Poland*
[3] *Medical Institute, Jan Grodek State University, Sanok, Poland*
[4] *Chair and Department of Epidemiology and Clinical Research Methodology, Medical University, Lublin, Poland*
A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of the article

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Abstract

Introduction and Objective. In every society there are people who have the legal or biological status of a disabled person. There are 1.3 billion people worldwide who require assistance and support at every stage of their medical treatment and rehabilitation. Their social needs are underestimated, which reduces their quality of life. The aim of the review is to identify the types of medical and social problems encountered by the disabled, the importance of their extent and level of interdependence, defined by the tasks of comprehensive rehabilitation in order to maximise the independence of people with disabilities.

Review Methods. A review was conducted of scientific literature in English, German and Polish covering the years 1980–2024 on the rehabilitation process with regard to medical and social needs. The following key words were used in the research in PubMed, PubMed Central and Google Scholar databases: disabled people, interdependence of medical and social needs, rehabilitation process.

Brief description of the state of knowledge. Disabled persons, especially the most severely disadvantaged, are among the most excluded groups in many countries. They are marginalised in both social and working life. Fundamental support for people with disabilities involves the full implementation of comprehensive rehabilitation that takes into account both medical and social needs. The majority of scientific works deal with the medical side of disability. Rehabilitation is not always accessible to disabled persons, especially those living in small towns and villages.

Summary. People with disabilities require much more support in terms of social and vocational rehabilitation. Their level of participation and improved quality of life is ensured by well-organised comprehensive rehabilitation.

Key words

disabled persons, dependency of medical and social characteristics, comprehensive rehabilitation

INTRODUCTION

In every society, with varying numbers and percentages, there are people who, for a variety of reasons, form a group of disabled persons with different levels of bodily dysfunction, i.e. physical, mental and social. A number of studies and various statistical compilations in the world in general and in individual countries show that the available data are inconsistent. There are many reasons for this, but the most important include lack of a uniform definition of a disabled person, lack of uniform methods of disability assessment, and lack of updated data on the extent of disability. Other problems include highly disparate living conditions, level of economic development, geographical location, and cultural or educational level of the population. The lack of reliable data on the number of people with disabilities, the types of bodily dysfunctions and the degree of disability are the reasons why many people do not receive full treatment and rehabilitation, which leads to low social participation and an increase in the group of people with a low quality of life.

At every level, people with disabilities require support for their health and social needs that vary in quantity and quality according to the causes, types and degree of body limitations. Invaluable support at every stage of the fight against the causes of disability is comprehensive rehabilitation. This is a process aimed at restoring as much function as possible and the ability to function independently or with some support in society, for a person who has lost these chances due to illness or injury. It is difficult to prioritise medical and social problems, especially as, to a large extent, they are closely interdependent. This problem is recognised not only by groups of academics, professional health and social service workers, but also by those with disabilities themselves who experience it in their lives in the form of low accessibility to rehabilitation services.

✉ Address for correspondence: Irena Dorota Karwat, Medical Institute, Jan Grodek State University, Sanok, Poland
E-mail: irbisiza10@wp.pl

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OBJECTIVE

The aim of this review is to present research priorities regarding the most important problems and related methods of meeting the needs of people with disabilities in the health and social categories, and the types of interdependence ranges in the different characteristics of these two categories. For this purpose, characteristics of the most important issues and problems that have a significant impact on the level of functioning of these people in the community are presented, with a particular focus on the needs for rehabilitation activities. The scopes of research needs aimed at increasing the effectiveness of social rehabilitation, strongly related to the improvement of the quality of life of people with disabilities in their place of residence, are also presented. In Poland, this mainly concerns people living in rural areas.

MATERIALS AND METHOD

In order to achieve the objectives of the review, scientific literature published between 1980 – 2024 in Polish, English and German was reviewed using PubMed, PubMed Central and Google Scholar databases. The literature concerned works of a medical, psychological, sociological, and legal nature related to the comprehensive rehabilitation of people with disabilities. The following key words were used in the search: disabled people, definitions of disability, interdependence of medical and social characteristics, effectiveness of social rehabilitation, comprehensive rehabilitation.

Articles on the prevalence of medical and social needs of people with disabilities, as well as the extent of their interdependence, were identified. After compiling a list of potentially relevant articles, a comprehensive selection of relevant papers on defining disability, health and the rehabilitation process, as well as on the characterisation of rehabilitation needs in the category of broadly defined medical and social needs, was carried out. Of particular relevance were articles on the impact of the effectiveness of rehabilitation, especially that of social and vocational rehabilitation, on the functioning of disabled people in their living environment. The authors also drew on their own many years of research experience in disability issues.

DESCRIPTION OFTHE STATE OF KNOWLEDGE

Currently, disability is a serious public health problem worldwide. To date, the real extent of disability has not been identified in any country, and the situation is unlikely to improve significantly in the near future. Currently, the reported extent of disability is an estimate. According to the data published by the World Health Organisation (WHO), approximately 16% of the world's population, or over 1.3 billion persons worldwide, belong to the category of the disabled. Another 190 million people experience serious difficulties in normal, everyday functioning, and do not know how and where to seek support. Many scientific and statistical data, as well as materials from the WHO and the United Nations Special Rapporteur on the Rights of Persons with Disabilities, show that the number of people with various disabilities is increasing every year [1, 2]. The causes of body dysfunctions are also changing, which requires changes in the organization of health care. The main causes of various types of body dysfunctions include chronic non-communicable diseases, injuries, population aging, genetic/congenital defects. Social and environmental causes are also increasingly mentioned. The increase in the number of people with disabilities is caused by wars, various forms of violence, natural disasters, low level of health care, low level of quality of life, unhealthy behaviours,and other phenomena. Since the first attempts to define disability, the subject of discussion of many scientists, practitioners of various professions, and finally people with disabilities themselves, has been to achieve a balanced share of medical and social needs provided to people with disabilities. Due to the extremely diverse nature of the problems and issues resulting from disability, medical assessment of disability alone is not enough. Social issues play a much greater role, most of which are the result of negative health causes. Many factors of both groups are interdependent or overlapping. A person becomes disabled only when their participation in community life becomes limited or impossible, caused by various types of barriers of varying levels of burden. These include architectural, economic, psychological, cultural, educational and social barriers of many different types. Many studies show that for disabled people, social barriers are a much greater obstacle to everyday functioning than the functional limitations experienced [3, 4]. Therefore, it is necessary to abandon the exclusively medical model of disability in favour of the social-medical model [5]. According to the assumptions of the social model, individual problems become social problems, and only then can they be solved in a planned and effective manner [6]. The effectiveness of these measures is assessed by the disabled persons' achievements of the goal of active participation in society on an equal basis with other members of society [7]. A major achievement and useful document in assessing the needs of people with disabilities is the International Classification of Functioning, Disability and Health (ICF) promulgated by WHO in 2001. This Classification adopts a model of disability, combining medical and social aspects.

A person with a disability is not only a person with a medical condition who requires medical care, but is also a member of society and should have the same rights as all citizens [8]. The legal instrument – the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), adopted in 2006 – is also important for people with disabilities. Its aim is to protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by persons with disabilities, and to respect their dignity [9].

Defining disability as a problem interdependent with the definitions of health and disease. Every health problem always starts with a definition: what is health, and then, what is disease and what is disability. Each of these concepts has its own definition, which, however, despite many years of work carried out by various scientific bodies, do not satisfy all researchers. The understanding of health has undergone major changes since experts from the WHO first defined health in 1948 as 'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity' [10]. These changes mainly concern the understanding of health as a continuum, and not as a static state, as well as the inclusion of health in the existential dimension in physical, mental, and social health. In 2020, Krahn et al. proposed the following definition of health:

'Health is the dynamic balance of physical, mental, social, and existential well-being in adapting to conditions of life and the environment' [11]. The definition of health is interdependent with the definition of disease and disability. In the literature, there are at least 120 definitions of health, and only slightly fewer definitions of disease. One of the more interesting of the latter is the definition by Banja, which argues that the key to characterizing (but not distinguishing) disease is the way in which health professionals in a given society relate their knowledge of pathophysiological processes, subjective symptomatology, and objective clinical signs to cultural attitudes about the threat to human well-being posed by health-related adversities, and what measures are socially and professionally recognized in order to address the problem [12]. In addition, good health requires adaptation in coping with stress and is conditioned by social, personal, and environmental factors.

However, there is a new definition: 'health is dynamic, continuous and multidimensional, distinct from function, and determined by balance and adaptation.' This new definition has implications for research, policy, and practice, with particular emphasis on health in the context of disability and chronic disease [11]. Despitethe many definitions of this condition, there is no single one that would objectively and fully define disability in its all dimensions, namely somatic, mental and psychological, as well as social (including vocational). In connection with this, the third problem was also taken into account, which is closely related to the previous one, namely, the scientific problems of defining disability [13]. Many studies by various specialists who deal with disability issues show that defining disability is a task as difficult as defining health and disease, and perhaps even impossible. Disability is also defined by many definitions, none of which, however, has been fully accepted. The reasons for this problem include, among others, difficulties in defining a clear boundary between health and disease, between disease and disability, as well as difficulties in defining the principles of determining the degree of disability, i.e. the 'specific gravity' of the health condition of a disabled person. The most frequently cited definition is the one formulated by experts from the WHO: 'A disabled person is a person whose significant impairments and reduced efficiency of the body's functioning make it impossible, difficult or limited to function effectively in society, taking into account factors such as gender, age and external factors' [14]. This is all the more difficult because it is impossible to include all types of disabilities in the definition. Depending on the cause, the following types of disabilities can be distinguished:

1) people with sensory disabilities (damage to the sense organs (blind and partially sighted persons, deaf and hard of hearing persons);
2) people with physical disabilities (persons with motor disabilities, with damage to their musculoskeletal system, persons with internal diseases);
3) people with mental disabilities (mentally retarded persons, mentally ill persons with personality and behavioural disorders, people suffering from epilepsy, with disorders of consciousness);
4) people with complex disabilities, affected by more than one disability [15].

Due to the fact that the concept of disability concerns the functioning of a person in many areas of life, the problem of disability is a subject of interest of many scientific disciplines, ranging from medicine to law. Therefore, researchers develop definitions and nomenclature for their own scientific needs. Over the last 35 years, the content of the definition of disability has been expanded to include facts that researchers discover through studies on various groups of people with various causes of body dysfunction. Such works also result in changes in the terminology for defining various states of body dysfunction. Terms such as 'invalid', 'cripple', 'lame', and 'handicapped', long used in many societies, currently have a pejorative meaning, and therefore have been replaced by a broader concept – 'a disabled person'. This corresponds almost completely to various states of dysfunction, both somatic, physical, mental and social, regardless of gender, age, place of residence, level of education or profession.

Defining the concept of a disabled person is still an open problem in many countries worldwide; for example, definitional difficulties have led French legislation not to adopt a formal definition of this concept, but to grant the status of a disabled person by means of an individual decision, through decisions of the Committee established for this purpose [15, 16]. It should be emphasized here that disabled people themselves take part in the discussions, including those related to definition, demanding to be addressed as 'persons with disabilities'. Moreover, since there are various intermediate states between health and illness, which are numerous, there is the problem of treating each disabled person as an individual, with specific personality traits. This means that a person with the same type and degree of disability may have, in certain areas, a completely different type and nature of needs and expectations. Professor A. Kabsch was right in claiming that 'disability is a trait as individual as the individuality of each person can be' [17]. This results in the difficulty of assessing the degree of disability.

The most effective method for the social and professional integration of people with disabilities is rehabilitation. Rehabilitation (Latin *re* – again, anew, against; *habili*s – fit, proper, appropriate) has already become an indispensable component of the social development of every modern country [5]. It is a branch of medicine that became distinguished quite late – in the middle of the 20th century. Its development was associated with the increase in the number of disabled people (invalids) after the Second World War and later the polio epidemic. The pioneers of modern medical rehabilitation in the world were Howard Rusk and Viktor Dega. Rusk defined rehabilitation as the third stage of treatment, the first being diagnosis, the second primary treatment. In Dega's approach, rehabilitation is supposed to co-exist with and be an integral part of primary treatment [18]. Rehabilitation, according to experts of the WHO, is the comprehensive and coordinated application of medical, social and occupational interventions to enhance functional abilities and improve the overall well-being of individuals with impaired functional capacity [19]. The effectiveness of the rehabilitation process depends on starting improvement as early as possible, from the onset of the disease. Early commencement of rehabilitation shortens the treatment period and prevents the onset or perpetuation of different ranges of disability. One commonly held view is that once recovery has reached a plateau and treatment is discontinued, the person with a disability is likely to remain permanently at that level of health and functioning. This view does not take into account the true nature of disabilities: they are long-term, dynamic illnesses, the severity of which can

change many times over the course of a lifetime. Moreover, a person with a disability often develops other, additional diseases, so-called co-morbidities, which are not necessarily causally related to the original source of the disability. This calls for changes in treatment measures and rehabilitation methods.

The available works on defining rehabilitation reveal that their multiplicity shows that it is necessary to adopt only a general scheme of rehabilitation measures, referred to as comprehensive rehabilitation in the broadest sense. Any details included in the definition do not serve all individual persons [20]. Here it is worth mentioning the philosophy of the Polish School of Rehabilitation, the initiators of which were W. Dega and M. Weiss. In October 1970, WHO experts highly assessed the assumptions of the Polish rehabilitation concept and indicated that it was worth imitating and promoting in the world [21]. The Polish rehabilitation concept programme includes the following goals and features:

1) *early initiation* – means starting rehabilitation at the earliest possible stage of treatment, from the first day of hospitalisation or outpatient visit. It is an important basis for rehabilitation of post-traumatic treatment, as well as all diseases, including cardiological, neurological;
2) *universality* – is available to everyone, which means from the beginning the implementation of all three stages of rehabilitation to those who need it, and includes all specialties in hospital, outpatient and sanatorium treatment;
3) *comprehensiveness* – all aspects (stages) of rehabilitation are taken into account from the beginning, i.e. therapeutic, psychological and socio-professional. All stages of the rehabilitation process can only be implemented by a group of well-prepared specialists, creating an interdisciplinary team closely cooperating with each other. Its composition depends on the content of the rehabilitation programme, which is developed individually for a given person. Depending on the individual needs of the disabled person, this process may include the entire rehabilitation procedure, i.e. three stages, closely interdependent (therapeutic, psychological, social, including vocational rehabilitation) or take place in a limited form;
4) *continuity* – rehabilitation from the moment of initiation is carried out until full fitness is achieved, and in those who do not promise full recovery, until optimal compensatory mechanisms are achieved, consolidating the results of the improvement or maintaining the achieved condition. Medical rehabilitation closely linked to psychological, social, including vocational rehabilitation, creates comprehensive rehabilitation. The most important features of the individual stages of rehabilitation are:

1. *Medical rehabilitation* – a modern treatment programme, the aim of which is to restore, in the shortest possible time, fitness allowing participation in social life, and in the case of morphological damage – to develop and consolidate replacement mechanisms. This is the first stage that opens up enormous possibilities for the use of ways and methods in the remaining two stages of rehabilitation in order to restore full or maximum psychophysical fitness to the disabled person.
2. *Psychological rehabilitation* – restoring mental balance to the disabled person and regaining a sense of self-worth. People who have suffered an illness or injury often experience a sense of low self-esteem and exclusion. Psychological therapy is then an essential element of rehabilitation, enabling the disabled person to return to the fulfilment of social roles and taking up activities in everyday life, while accepting their physical condition.
3. *Social rehabilitation* – including vocational rehabilitation – enabling active participation in social, cultural and professional life, learning to overcome environmental, technical and communication barriers. The aim of social rehabilitation is also to educate healthy people about the issue of disability.
4. *Vocational rehabilitation* – restoring the ability of a person with disabilities to work according to their skills and qualifications, carrying out professional reorientation, using the advice of a career advisor, training and ensuring conditions for taking up work after completing rehabilitation [22] (Fig. 1).

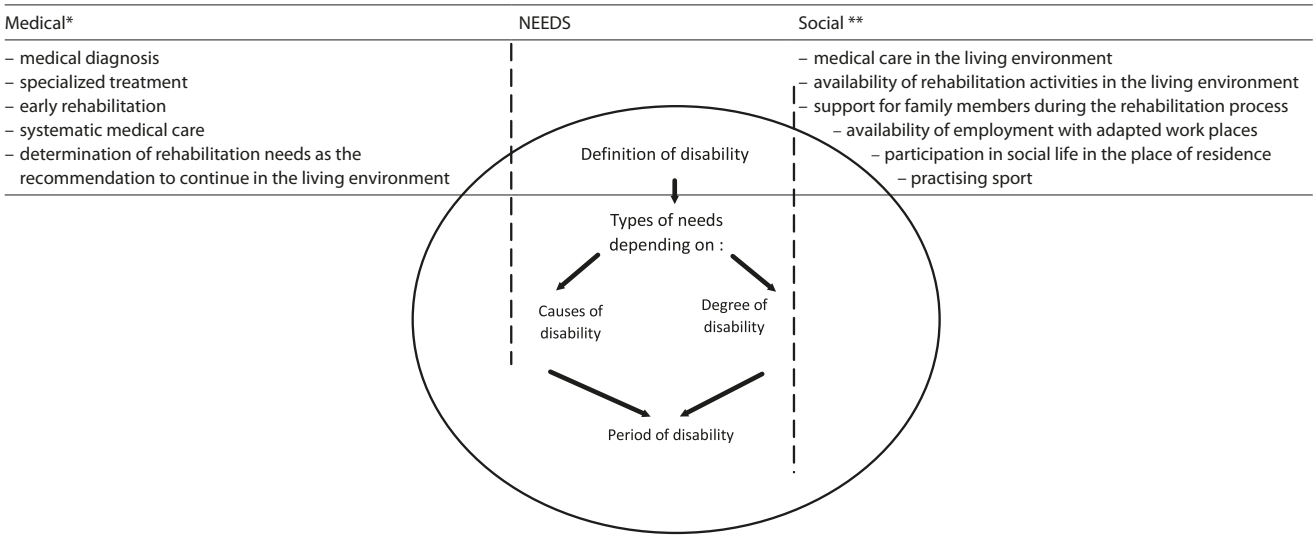

Figure 1. The complete rehabilitation process and its stages.
Source: own work.
* medical (including psychological); ** social (including professional)

Despite the passage of time, the assumptions of the Polish school of rehabilitation and its philosophy, are still relevant, and its scheme can be used in every country. They should certainly be modified and adapted to the needs and tasks resulting from medical progress and organizational changes in the health care. Rehabilitation understood as a process provides unique, irreplaceable support for people with disabilities. This applies to all persons with disabilities, and especially those suffering from chronic diseases or serious injuries for whom all stages of rehabilitation are necessary, which constitute a full process providing opportunities to achieve improvement in the quality of life [23].

Depending on the individual needs of the person with a disability, this process may encompass the entire rehabilitation procedure, included in all stages, closely interlocking with each other, or it may take place in a limited form. Research shows that there are different ranges of interdependence between interventions of a medical and social nature and, moreover, from the opinions of people with disabilities, a higher proportion is attributed to tasks falling within the stage of social and vocational rehabilitation [24].

The purpose of rehabilitation is to ensure that disabled people, regardless of the type of disability, enjoy the greatest possible social and economic participation in the life of society and the greatest possible independence. Therefore, the more detailed the data on the extent of disability, causes and consequences are, the better the basis will be for developing tasks and goals in the individual stages (aspects) of rehabilitation, i.e. therapeutic, psychological and social, including professional, i.e. comprehensive rehabilitation. The comprehensiveness of rehabilitation concerns a comprehensive, holistic view of the patient as the subject of action, because a person is treated and not his or her illness [25, 26] (Fig. 2).

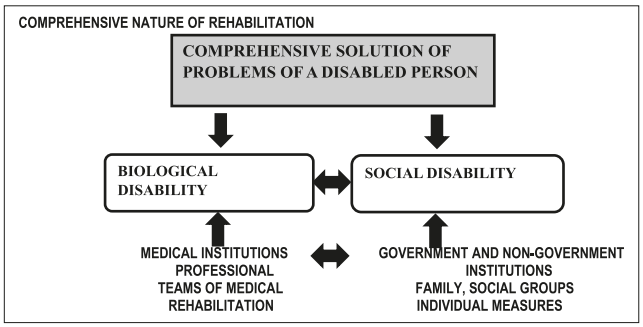

Figure 2. Comprehensive rehabilitation scheme [27]

The above assumptions show that the multiplicity of categories of the meaning of rehabilitation is not limited to one or even several definitions. Wade [27] rightly emphasizes that the definition serves to control the unstable meaning of the word – it only outlines and creates boundaries. Nevertheless, there are many reasons to categorize the meaning of rehabilitation and each researcher or team will need their own definition. Despite this, Wade believes that attempts to define rehabilitation for any purpose, including scientific purposes, will fail for three reasons: linguistic, clinical and logical [27]. However, further attempts to define the meaning of rehabilitation should be sought and undertaken and such attempts are already underway. It is worth citing three works focused on defining rehabilitation for scientific purposes: Tederko P. et al., *Rehabilitation – definition for research purposes* (2024) [28]; Negrini S. et al., *Rehabilitation definition for research purposes. A global stakeholders' initiative* (Cochrane Rehabilitation, 2022) [29]; Battel et al., *The new rehabilitation definition for research purposes could improve rehabilitation description* (Cochrane Systematic Reviews) [30].

There is also a need to standardize the concept of secondary disability. In assessing the achievements of rehabilitation activities, an extremely important problem that affects many people with disabilities cannot be ignored, namely dealing with the problem of secondary disability. Based on the reference literature, various definitions of secondary disability can be found. Discrepancies in this area provide a certain difficulty in various areas of care for these people, as well as in legislative work. This term appeared about 30 years ago, and over time two types of assessments of this health problem have emerged. The first group are researchers who claim that secondary disability is a consequence of another disease that is causally related to the primary disease state, and can lead to further functional limitations to a varying extent [31] The most commonly reported secondary diseases or symptoms include pressure sores, contractures, urinary tract infections, sleep disorders, or depression. Each of these can lead to additional impairments, limitations, and disabilities [32, 33, 34] The way this problem is presented can be called a medical concept. Another approach to this issue is social or psychosocial. Therefore, it can be said that secondary disability is a repeated loss of functions, both physical and mental, by a disabled person, as a result of the lack of continuing physical, psychological, social and especially professional rehabilitation, which in a relatively short time leads to a reduction or loss of the rehabilitation achievements achieved by the disabled person [5]. This is a highly harmful condition for the further functioning of each disabled person in the living environment. It is difficult to determine the causes of neglect concerning the abilities acquired or regained by disabled people, mainly physical ones. They may result from neglect by the disabled persons themselves, or to varying degrees, from neglect by specialists in primary, specialist and social health care.

Improving the condition of people with secondary disability is possible, but difficult, not only for physical reasons, but mainly for psychological reasons. The condition of secondary disability often leads to a sense of loneliness, helplessness, experiences of depressive states, low self-esteem and a low level of acceptance of the disease, and even lack of acceptance. Such a situation of a disabled person indicates a lack or neglect of social rehabilitation, and thus a lack of comprehensive rehabilitation. The implemented medical rehabilitation is largely limited to medical activities and has a shorter period of intervention. According to the principles of comprehensive rehabilitation, this is the basis for social rehabilitation activities, mainly in the living environment.

Medical and social dimensions of disability – areas of cooperation. Currently, in many countries, non-communicable diseases, injuries and poisonings constitute a serious health, social and economic problem, the consequences of which are disabilities of various types and degrees. In every population, this practically applies to every age group. Rubio [35] states that the incidence of disability may largely result from differences in the health conditions and their interaction with environmental and personal factors [35].

People with disabilities do not form a homogeneous group, they differ in many ways. These include: causes of disability, degree of disability, duration of disability, experiences related to disability, lack or types of social support, natural abilities and interests.

Great hopes are associated with the implementation of comprehensive data on functioning and disability all over the world. They are necessary to supplement data on mortality and morbidity. It is necessary to estimate rehabilitation needs for as many countries and regions as possible, and to monitor the Convention on the Rights of Persons with Disabilities (CRPD) and the Sustainable Development Goals (SDGs). Studies are already being conducted based on ICF questionnaires and WHO Model Disability Survey tools focused on functioning and disability, and have good and very good psychometric properties [36]. Lee also presented in his work the psychometric properties of tools such as the World Health Organization Functioning and Disability Disaggregation Tool (FDD11) – a short tool for disaggregating disability that can be used by many countries [37].

One of the most important problems affecting many disabled people in most countries of the world is that of health inequalities. According to the WHO, health inequalities constitute unnecessary and avoidable differences in health status, which are considered unjust [38]. The broadly understood care provided to people with disabilities is highly insufficient, as evidenced by scientific works on various medical, psychological and social topics. Although diagnosing the needs of these people has been ongoing for many years, including the development of legislative regulations, the situation of people with disabilities is changing slowly, which is also confirmed by the persons concerned. Most of the problems of this group of people fall within the broad scope of socio-environmental problems. The most important include: discrimination, negative social attitudes, low level of education, difficult access to public places, the need to use institutional forms of care, e.g. social welfare homes, unequal and unfair treatment in employment.

Despite being legally mandated in the system of international law on equal opportunities, many disabled people are not provided with equal opportunities and equal treatment in the social environment, they experience exclusion, or even self-exclusion. These types of problems constitute a high deficiency in rehabilitation care, mainly social care, despite the fact that rehabilitation is a combined and coordinated therapeutic, psychological, pedagogical, socio-professional impact, aimed at regaining or restoring in a person permanently or temporarily damaged in health, the abilities, skills and the possibility of independent life in society [39]. Over 80% of disabled people define their level of independence by taking up professional work, which is the final stage of effective comprehensive rehabilitation. No degree of disability eliminates a disabled person from the possibility of taking up employment [40, 41]. No job requires full fitness from the person who is to perform it. There are jobs with different levels of requirements that can be successfully performed by most disabled people; however, the problem is that rehabilitation at the stage of professional activities in many countries, including Poland, is ineffective.

People with disabilities experience various types of problems much more often compared to people without bodily dysfunctions. These include more frequent deaths up to 20 years earlier than people without disabilities, twice the risk of developing diseases such as asthma, depression, diabetes, stroke, obesity, poor oral health, and most people with disabilities experience multiple diseases. A huge problem for these people is the lack of access to transport, more than 15 times more common than for people without disabilities. A major problem for disabled persons is the state of health of their oral cavity, and research in this area is rarely conducted. Kim [42, 43] reports that socio-economic problems, gender and age were the most common reasons for unmet dental needs. There are also people who have never used the services of a dentist. Studies on a group of doctors practicing in the USA show that people with disabilities experience inequalities in health care. 82.4% of them stated that people with significant disabilities have a worse quality of life than those who are able-bodied. Only 40.7% of doctors were confident in their ability to provide equal quality care to disabled patients, 18.1% strongly agreed that the healthcare system treats these patients unfairly [44].

In addition to the above-mentioned difficulties, a major health and social problem is the increasing number of elderly people, which affects many societies, mainly in Europe. This involves the need for organizational changes in the provision of medical treatment, rehabilitation, and periodic or permanent care for the elderly, most of whom have the status of disabled persons.

It should be strongly emphasized that comprehensive rehabilitation is particularly applicable in the care of disabled people with significant limitations in locomotor abilities, i.e. persons using wheelchairs, requiring support from other people and appropriate technical equipment, as well as those constantly confined to their bed. This does not only apply to people with movement disorders due to injuries (traumatic amputations, fractures in various parts of the spine) or the consequences of congenital malformations (e.g. spina bifida, encephalocele), but also to people whose movement limitations are the result of various long-term chronic diseases. Care for these people is often provided by family members, for whom these tasks are emotionally, physically and economically burdensome. In 1980, Steven H. Zarit [45] defined the term 'caregiver burden' as the physical, emotional, material and social costs incurred as a result of family members looking after a chronically ill person [45]. However, the quality of life in chronic diseases is inextricably linked to broadly understood comprehensive rehabilitation.

There is another group of people that needs attention, namely those who require full rehabilitation, but most of whom do not receive it – people who live with so-called 'invisible' disabilities. Invisible disabilities include a wide range of health problems, such as chronic pain, chronic fatigue, autoimmune diseases, personality disorders, autism, Asperger's syndrome, cognitive impairment, including dementia, obsessive-compulsive disorder, and sensory difficulties. These people should, above all, count on assistance from primary healthcare workers [46]. In Poland, these people can count on support from the Fundacja Dobro Powraca – Good Returns Foundation, an organization for people with multiple sclerosis and other chronic illnesses, which has been functioning since 2009 [47].

It is also impossible to ignore the large groups of people who live in extremely difficult conditions, namely, refugees. Anwar et al. [48] presented the results of research on a group of 864 people over the age of 60 living in a refugee camp in Bangladesh. Based on the factors determining the self-

declared functional status by the respondents, it was shown that the disabled constituted 26.5% of all the respondents. Disability mainly concerned the inability to perform self-care activities, use of stairs, locomotor insufficiency, loneliness, and poor memory [48].

SUMMARY

Disability is a widespread phenomenon and according to the WHO nearly 16% of the world's population, or about 1.3 billion people, suffer from various disabilities. This huge number of people is indicative of a major public health problem. So far, much has been done for these people, including in terms of legislation, i.e. defining disability, assessing disability, defining rehabilitation, publishing laws, conventions, programmes and organising campaigns to improve the living conditions of this large minority in many communities. Also, a great deal of research has been carried out on multi-profile topics, including the elimination of various barriers, the creation of a more welcoming environment for disabled persons, full participation in society, the availability of rehabilitation in the community, and employment opportunities. However, in spite of these achievements, many researchers and people with disabilities express their dissatisfaction due to ineffective rehabilitation measures meant to improve daily functioning and quality of life. A high level of effectiveness can only be achieved with an individual comprehensive rehabilitation programme. Rehabilitation should become an important element of social policy in every country.

Based on the above, the following directions of research and organizational change needs have been identified, which are necessary to improve the quality of life of persons with disabilities through comprehensive, effective use of the principles of comprehensive rehabilitation:

1) Continuation of work on the development of a general definition of disability (with the participation of people with disabilities), in cooperation with medical specialists and other specialists necessary to support persons with disabilities in their living environment (psychologists, lawyers, sociologists, educators, career counsellors).
2) Research on the determination of interdependence of activities of medical and psychological natures with rehabilitation activities of social nature, in order to distinguish tasks that should be monitored by the team developing an individual programme for each disabled person. This mainly concerns the implementation of rehabilitation measures already carried out in the living environment, especially for people with severe mobility problems and who are permanently confined to their bed.
3) Encouraging health care decision-makers to incorporate the principles of the Polish School of Rehabilitation, the advantages of which were appreciated already in 1970 by the WHO experts and recommended as worthy of imitation.
4) Monitoring the fate of disabled people continuing rehabilitation in living conditions, including the home environment, in order to prevent secondary disability.
5) Conducting research on groups of disabled people living in small towns and villages in the field of supply of rehabilitation, orthopaedic and technical devices, identifying barriers, including architectural, digital, informational, employment opportunities, access to education, communication infrastructure capabilities – in order to determine the level of risk of social exclusion, e.g. forms of discrimination.
6) Monitoring the effectiveness and availability of rehabilitation activities in the living environment of disabled people and diagnosing barriers and difficulties of an environmental nature.
7) Introduction of a system for recording disabled people in order to determine the types of medical, psychological and social needs on an ongoing basis, with data related to employment.
8) Building patterns of medical and social needs through mapping in order to assess the types of differentiated needs by region, depending on the causes of disability, so that rehabilitation activities and medical interventions reach disabled people as quickly as possible.

Comprehensive rehabilitation is of key importance, with the programme resulting in obtaining new professional qualifications or professional retraining for all those who, due to some illness or accident, have lost the ability to perform their previous profession and would like to work in accordance with their interests and health condition. It is also a huge opportunity for people with congenital or acquired disabilities during the developmental period, who have never worked and have no such prospects.

According to Wade, scientific evidence indicates that rehabilitation can bring benefits to any person with long-term disability resulting from any cause, can be implemented at any stage of the disease, at any age, and can be implemented in any environment. The effectiveness of rehabilitation depends on an expert multidisciplinary team, working within a bio-psychosocial model of illness and cooperating in order to achieve agreed goals [49]. Undoubtedly, rehabilitation interventions are among the most effective ways for people with disabilities to emerge from social isolation, loneliness, anxiety and depression, and this is closely linked to improved quality of life and social reintegration [50]. Restoring the ability of disabled people to work is also important from an economic point of view. Many persons with disabilities have the capacity to support themselves, they just need to be supported in order to do so. Even the most modern forms of medical treatment will not fully benefit the patients if they are not complemented by comprehensive rehabilitation [20].

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