



Research priorities in the domain of disability – correlation between health and social characteristics. A Polish example

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Abstract

Introduction and Objective. In each society there functions a group of the disabled who need assistance. The number and character of dysfunctional consequences determine the types of support, characteristics of health, medical and social problems, where a part of them are interdependent. The interdependence of these needs determine the consistency of rehabilitation actions, which result in the improvement of quality of life of disabled persons in their living environment, especially among rural inhabitants.

Materials and method. The scientific medical, and sociological literature, as well as binding legal Acts from 1978–2021 were reviewed. Materials from Polish and English databases were analysed. Key words related to disability, its definition, models of disability, disability discrimination, inequalities in medical and social care, health and social needs, maps of needs, satisfaction with medical and social care, and quality of life were used.

Brief description of the state of knowledge. Despite the fact that disability is a medical-social phenomenon, many reports concern only the treatment of the consequences of diseases, injuries, genetic/congenital or environmental defects. Disability is frequently identified with disease, which is inappropriate. Many researchers dealing with disability focus – quite rightly – on studies concerning social consequences, because they decide about the level of functioning of these persons in society and level of participation.

Summary. Disability is not only a medical and social problem. Treatment does not end the essence of disability. Only interdisciplinary studies can change the life of these persons regarding great possibilities for their participation.

Key words

disabled, trends in scientific studies, medical and social characteristics of disability, rehabilitation

INTRODUCTION

In each society there function persons disabled due to various body dysfunctions whose problems should be solved on local and national levels. The consequences of dysfunction require support typical of medical and social problems which vary greatly, even in the case of the same causes and types of body dysfunction. An essential problem in pursuing many undertakings aiming at providing assistance for these people is the lack of a uniform definition of a disabled person, arbitrarily adopted by scientific circles [1, 2, 3]. Despite many available reports by various specialists there is still the need for a comprehensive research focused on evidence for close correlation between medical, health and social characteristics. Distinguishing the category of problems frequently underestimated by both State institutions and the disabled themselves may be the guidelines for carrying out prospective studies, with a greater emphasis on environmental

research. Based on the actual needs of the disabled great chances may be constructed to help reach the expected level of functioning of the disabled in the environment; unfortunately, only a low percentage of them evaluate their level of satisfaction with life in positive terms.

OBJECTIVE

The aim of the study was to present research priorities concerning the most important problems and associated with them methods aimed at assessing the satisfaction of needs in health and social categories, especially those interdependent. Therefore, characteristics of the most relevant issues are presented which exert a considerable effect on the level of functioning in the environment. The scope of research for assessment of the health, medical and social needs in the area of disability is also suggested. This is strongly related with the improvement of the quality of life of the disabled in their living environment, mainly among rural inhabitants.

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MATERIALS AND METHOD

A review was carried out of legal Acts and scientific literature in Polish and English from 1980–2021 related to the definition and assessment of disability, the needs of disabled people, their rehabilitation and employment of the disabled. Analysis of the literature data was related to the following strategy – PICO Criteria:

- (P) Population. Disabled, adults, all kinds of disabilities; inhabitants of villages and cities with particular emphasis on the situation in rural areas.
- (I) Intervention. Targeted research: health and social needs of people with disabilities, satisfaction with health care, satisfaction with social assistance, life satisfaction, models and definitions of disability.
- (C) Control. Indication of unfulfilled or insufficiently met social and health conditions. In the case of other reasons for dissatisfaction with life – an indication of the reasons for this state of affairs.
- (O) Outcome. A chance to improve the situation – indication of the directions of proposed scientific research aimed at indicating possible changes in directions of activities of the health and social care services, and possible changes in the applied models of disability and legal regulations leading to the improvement of the living conditions of people with disabilities.

To accomplish this task, the scientific literature quoted in the databases: Medline, Embase and Cochrane Library as well as National Library of Medicine, Internetowy System Aktów Prawnych (ISAP, Poland), Baza Wiedzy w Zakresie Nierówności w Zdrowiu Zakładu Monitorowania i Analiz Stanu Zdrowia Ludności Narodowego Instytutu Zdrowia Publicznego – Państwowego Zakładu Higieny – Państwowego Instytutu Badawczego (Knowledge Base on Health Inequalities, National Institute of Public Health – National Institute of Hygiene – National Research Institute, Poland) medical databases of the Ministry of Health (Poland) were analyzed.

The area of scientific knowledge was supplemented by information obtained from various non-governmental organizations (organizations, foundations, associations, associations, support centres) which frequently help the disabled to reach a high level of environmental, social and occupational integration (among them, the Polish Society for Rehabilitation of the Disabled, the Polish Forum of Persons with Disabilities, or the active Rehabilitation Foundation).

The following key words were used: disability, disabled, discrimination, health satisfaction, healthcare satisfaction, life satisfaction, maps of needs, medical needs, models of disability, rehabilitation, rural areas, social needs, satisfaction with social welfare, unmet needs.

Taking into consideration the AMSTAR 2 (Assessment of the Methodological Quality of Systematic Reviews) criteria, every effort was made to ensure that these recommendations were not violated. As the study was not intended for the purpose of statistical analyses and is not a meta-analysis, many reservations named in the AMSTAR 2 criteria, for example, duplicate citations and Risk of Bias (RoB), were not relevant to this study.

DESCRIPTION OF THE STATE OF KNOWLEDGE

Considering the extremely varied character of problems resulting from disability, even an exclusively medical assessment of disability is insufficient. The contribution of social issues is considerably greater, the majority of which are the consequences of negative health causes. Many characteristics in both groups are mutually dependent or overlap.

Until the 1960s, disability was approached as a personal problem of the afflicted persons, and a problem which placed the burden on the able-bodied members of society [4]. Such an attitude resulted from approaching disability as an individual problem of a medical character. A person becomes disabled only when his/her participation in the life of the community becomes limited or impossible.

Two types of barriers lead to this situation: 1) physical barriers, e.g. architectural, and 2) barriers of a social character, resulting from stereotypical behaviour towards the disabled. Therefore, there occurred the need to break with the exclusively medical model of disability in favour of a social model [5, 6]. According to the assumptions of the social model, individual problems become social problems, and only then may they be resolved in a planned and effective manner. Many studies demonstrate that social barriers are a considerably greater obstacle in daily functioning of the disabled rather than the experienced physical limitations [7, 8, 9]. That statement finds confirmation in the definition presented by the experts of the World Health Organization, where it is not limited only to assessing the health itself, but it also deals with the quality of life, kinds of biological, chemical and psychosocial threats, as well as with the defects and deficiencies related to health. Almost every person, irrespective of the cause of disability, requires an effective scheme of actions of a medical and social character, which are closely interdependent. These are: quick and correct diagnosis, effective treatment, and, if possible, an early implementation of therapeutic rehabilitation. The subsequent stage is selection of effective methods of support in the environment, also for the family of the disabled person, followed by the elimination of barriers, including those architectural, psychological, informative and I.T. [10, 11]. The recognized individual needs and the assigned methods to meet them are a basis for the achievement by persons with disabilities, the aim of their active participation in social life on an equal basis with the other members of society [12]. X. Zhako and H. Wang status and the kind of disability result from many unmet needs [13].

The most important issues in the everyday functioning of a disabled person, are the determinants deciding about the level of participation in society under the condition of interaction between medical and social needs. These are: problems pertaining to defining a disabled person, inequality in the health, the necessity to map health and social needs, importance of the formal disability status, secondary disability and rehabilitation. Research aimed at eliminating or limiting the reasons of the mentioned issues decide on implementing the best ways and methods leading to a really high level of social and occupational integration.

Difficulties in defining a disabled person. Despite many definitions available in numerous countries, there is no arbitrarily adopted definition specifying the terms – ‘disabled person’ and ‘disability’. Defining disability is very difficult, or

may be even impossible in the sense of obtaining uniformity and unambiguity. The main causes of this problem are difficulties in determining a clear boundary between health and disease, between disease and disability, as well as difficulties in constructing the principles of certifying the degree of disability from the somatic, physical, psychological, and social aspects. Additionally, creating detailed definitions is a relatively difficult and complex task, in which the tendency is revealed towards ordering the facts according to commonly accepted clinical data which, as knowledge progresses, are expanded or contracted [2, 5]. More and more often these are descriptive definitions, handling the widest spectrum of symptoms possible, considering the degree of their intensity, persistence, and extent. Considering the fact that the concept of disability concerns human functioning in many domains of life, the problem of disability is the subject of interest of many scientific disciplines. Interdisciplinarity and multidimensionality of the concept of disability are the research topics in various scientific fields: medicine, psychology, law, sociology, pedagogy and architecture. Considering the great number of existing definitions, only some definitions of a disabled person will be cited. The preamble in the Convention on the Rights of Persons with Disabilities contains the following definition: 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others' [14]. According to the Charter on the Rights of Persons with Disabilities, the disabled are 'persons whose physical fitness and psychological or mental condition permanently or temporarily hinder, restrict or prevent their daily life, education, work, and performing social roles' [15]. All the available definitions of disability share some common features, i.e. they all mention the difficulties caused by various limitations generating the health condition. This is the reason that the researchers develop definitions and nomenclature for their own needs. The importance of rehabilitation depending on the health condition is shown in Figure 1.

For these and many other reasons, to-date it has not been possible to develop a universal definition of a disabled person and disability. Despite the efforts undertaken by some authors to maintain neutrality of the expressions and phrases in the definitions developed, with time, each of them gains an evaluative meaning [6, 16].

Inequality in the state of health. The scope of problems concerning inequality in the state of health is one of the most important problems affecting many disabled in the majority of the countries worldwide. According to the experts of the World Health Organization (WHO), inequalities in health are unnecessary and avoidable differences in the state of health and are considered unjust [17]. However, due to differences occurring on various background they cannot always be avoided [18, 19]. Health inequity most often concerns differences occurring in the state of health, which are constant or have existed for a long time, due to low income, low level of education, lack of employment, unequal access to services, rehabilitation, cultural goods, etc. [20, 21, 22]. Similar factors exerting an effect on the occurrence of inequalities in health were proposed by the WHO Commission on Social Determinants of Health [23]. Interesting studies concerning the disabled conducted in Poland showed that the social position is most important in

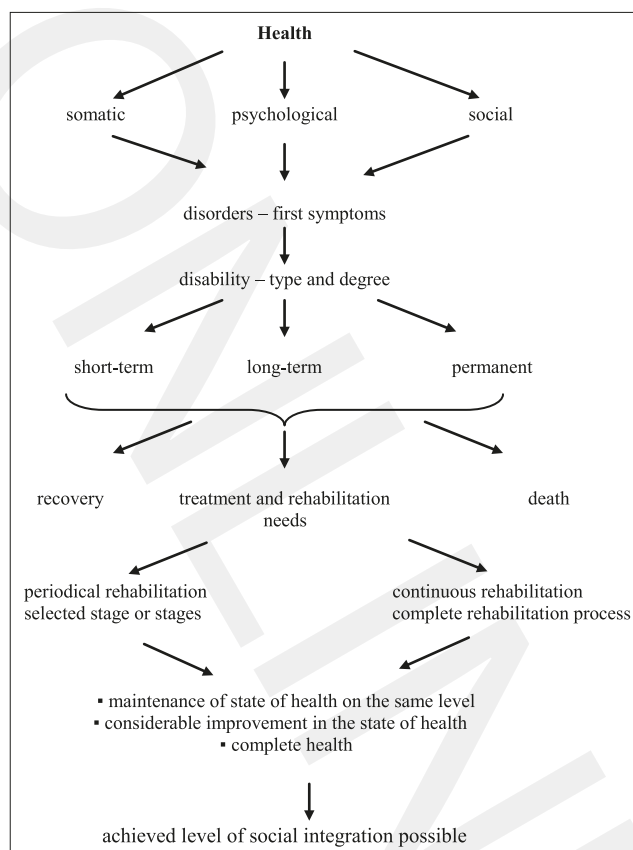


Figure 1. Health, its disorders and possible outcomes of rehabilitation applied. Source: own study

the occurrence of health inequalities. During 1991–2019, in each examined group of the disabled the greatest problems were material standard, low level of education, rural place of residence, lack of possibilities of rehabilitation at the place of residence, hindered access to physicians (mainly specialists), negative attitudes of society towards disability, difficulties with dealing with official matters, and lack of the possibility of employment. Here, significant differences were found between the disabled living in rural and industrialized areas in Poland, to the disadvantage of the former [24, 25, 26, 27, 28]. Studies carried out in many countries worldwide show that a part of problems recur, however with different intensity. For example, D. Salellarion and E. S. Rotaron have shown in their research that the disabled persons claimed worse access to healthcare and the main causes were transport, cost and long waiting lists. The biggest gap concerns psychiatric care due to the cost, and in this case persons with severe disability, seemed to be 4.5 times more likely to be exposed to this problem, whereas those less severely disabled only 3.6 times. Disabled women were 7.2 times more often exposed to unmet needs because of the treatment cost, compared to men with no disability [29]. E. Mahmondi and M. A. Meade have proved that among a representative sample of adults of working age, those with motor disability are 75% more likely to have their medical and stomatological needs unmet, which also concerns receiving prescription drugs. These three measures of access were also related to socio-demographic factors [30].

Persons who are in a worse socio-economic situation die at younger age, and during shorter life are affected by at least several health problems. The issue of health inequalities

remains a constant challenge in pursuing the tasks of public health [31]. C. Brown et al. found that in the European region of the WHO, which covers 53 countries, serious shortcomings are observed in managing equality. Among many of them mentioned, an important issue is the level of competences in the domain of public health of all stakeholders in the management process [32]. Many researchers confirm that prophylactic programmes are of primary importance in the levelling of disproportions in the state of health of the population. These programmes are important considering mortality and morbidity which increase along with a decline in social position. Deaths of people at productivity age and absenteeism through sickness contribute to the economic losses [33, 34, 35, 36].

Problems of discrimination. Discrimination (from the Latin *discrimino* – ‘distinguished between’) consists in a different approach to various objects which are in a similar situation. A basis for unequal and unjust treatment is affiliation to the specified social categories or groups, and not personal traits or behaviour of individuals. The disabled belong to such groups [37]. Especially discrimination in employment against such persons is particularly oppressive and frequent. Prohibition of discrimination is legally established in the system of international, community and national legislation. Although this has certainly contributed to the provision of equal opportunities, many disabled are still not provided with equal opportunities and equal treatment in the social space, experiencing exclusion or even self-exclusion. Practically, most disabled persons can find employment. In Poland, however, unemployed disabled persons seeking employment are less numerous, although more of them are becoming employed. Despite the fact that these groups are small, in recent years their percentage has been increasing, and currently is 18–39% [27, 28]. Research carried out in Australia in 2015 showed that in that year about 10% of persons were discriminated and 31% were engaged in avoidant behaviours because of disability. These problems were noticed more frequently among the divorced, unemployed, badly educated and persons born abroad [38]. In the USA, every fifth person was discriminated against in healthcare facilities [39]. In Brazil, the elderly were more likely to suffer from poor self-esteem of health, diagnosed depression and symptoms of depression [40].

The presence of these and many other barriers usually contributes to the deterioration of the quality of life, and consequently, a decrease in the level of satisfaction with life. The lack of support in the elimination of these barriers is harmful for the disabled and determines a negative image of these persons, contributing to their marginalization or even exclusion, most frequently affecting those with visible and advanced disability [10, 41]. Apart from legal possibilities of limiting discrimination of the disabled it is equally important to improve social awareness, change stereotypical thinking about the disabled and negative attitudes and resisting discriminatory situations and behaviours towards them [42]. Such tasks are fulfilled by various non-governmental associations which gather both disabled and able-bodied persons in their ranks, e.g. Polskie Towarzystwo Walki z Kalectwem, the Association of Friends of Integration, the Active Rehabilitation Foundation, and the Sinapsis Foundation.

According to the philosopher M. Szyszkowska, the problem of discrimination lies in the fact that it is generally expected that people should be similar to each other. Both

individuals dealing with the problems of the disabled and persons referred to as disabled, frequently do not find the anticipated understanding. The researcher emphasized that often those who educate or re-socialize should themselves be socialized. Frequently, an insufficient preparation for work with the disabled results from an increasing number of specializations in education, and eradication of philosophy from education [41].

Social actions which raise the importance of the problem of disability, and contribute to the levelling of opportunities are of great importance. These are, e.g. 5 May – the European Day to Combat Discrimination against Persons with Disabilities, originated by the French in the 1990s in opposition to discrimination against persons with disabilities, both in everyday life and at the workplace. In Poland, this is also the Day of the Dignity of Persons with Intellectual Disability [43]. Other important celebrations included in the Calendar are 3 December – International Day of Persons with Disabilities, 14 September – World Schizophrenia Awareness Day, 27 January – World Leprosy Day, 10 October – World Mental Health Day, 15 October – White Cane Safety Day, and 16 November – International Day of Tolerance [44].

Necessity to develop maps for health and social needs. Multiple health and social needs of the disabled, especially those living in rural areas, who for many reasons are frequently undiagnosed, is the cause of usually unconscious negligence in satisfying them. Undoubtedly, the needs of the disabled differ according to regions and areas within a given country, geographical position or domicile. Therefore, a constant, permanent assessment of each category of problems is a reliable basis for general and detailed evaluation of all categories of problems, and allows actions aimed at improving the quality of life of these persons.

Considering the fact that it is very difficult to formally diagnose the actual health needs of the disabled, it is justifiable to develop maps of health needs for long-term determination of kinds of problems, and needs within the analysed areas and regions of the country. Insufficient knowledge about the needs of the disabled results from many causes, the most important of which are formal shortcomings in health care, staff shortages, including the domain of public health, non-systematic statistical analyzes, too rarely undertaken research in this direction, both of targeted and population studies character [45, 46]. That is why the maps of needs are beneficial for both parties, i.e. those interested and their families, as well as healthcare institutions and State administration at various levels. For formal reasons, these areas should be divided into the areas of each province, regions defined by different types of industry, agriculture, level of urbanization, air pollution, or any other characteristic features of a given region. These needs should be based on the assessment of such features as: existing infrastructure, equipment in medical facilities, rates of incidence of the most frequent civilization and infectious diseases, as well as other epidemiological measurements, so that the real needs conditioned by availability of medical services could be met. Such a project must be long-term in order to fulfil its task, and would provide at least indicative information concerning the frequency of occurrence of the types of needs. The identified needs should be divided into individual needs dependent on the state of health, type and degree of disability, and the group of the disabled. Some of them may occur characteristic of a

given area of the country, which should induce researchers to undertake research procedures and the methods and ways to be applied to meet the needs. Obviously, the development of such maps of health needs is a difficult task from the formal, methodological, and financial aspects. A high level of this undertaking may be provided by an experienced, multidisciplinary team directed by an epidemiologist with great knowledge in the area of methodology of scientific research and biostatistics [47, 48]. Maps of health needs have already been implemented in many countries of the European Union, and the research results help avoid medical, social and economic reinvestment in a given area.

Focusing attention on individual health needs provides great possibilities for directing the programmes of health education to the most critical types of health and social problems, according to the causes and types of disability [49]. Health education of disabled persons helps them diagnose their own needs consciously and plan the programme to meet them. The higher the level of knowledge, the greater the possibilities of exerting an effect (modulating) the level of own health and a high level of participation.

The European Union (EU) demanded from Poland the development of health maps, the publication of which is the condition for mobilization of EU funds. In Poland, on the verge of 2013 – 2014, the National Institute of Public Health/National Institute of Hygiene (NIZPPZH) developed first maps of health needs for the Warsaw Province as a pilot study. Their quality was highly evaluated by the Ministry of Health and the European Commission [46]. Another type of mapping designed for the disabled is the OpenStreetMap, a project of international Internet community, launched in 2004 by British entrepreneur Stephen Coast. The aim of this project was to create free access to the whole globe edited by the registered users. There are many applications and research projects for the disabled adjusted for the use within the OpenStreetMap, for the collection and data sharing for those interested, mainly persons in wheelchairs, the blind, or visually impaired persons (tactile maps) [47].

Apart from the above-mentioned use, the term mapping also has other, highly useful application in a quite different domain of knowledge. Considering the constantly increasing bacterial and fungal resistance, effective clinical tools are sought which, with a high probability, would allow an effective application of empiric antibiotic therapy in Intensive Care Units. Microbiological mapping belongs to such methods which allows the correlation of isolated pathogens and the phenotype of their drug sensitivity [50].

Importance of formal disability status. The needs of the disabled and level of life associated with them, to a considerable extent is conditioned by the legal legitimization of disability. The population of the disabled in Poland consists of two groups, i.e. those with one of the three degrees of disability certified – considerable, moderate or light (legally disabled) [51], and persons without a disability certificate but with different organism dysfunctions (biologically disabled). Such a division results from many causes, most often indicated in scientific studies as the lack of arbitrarily adopted definition of a disabled person. Another cause is the different legal requirements in individual countries worldwide. Nevertheless, considerably more often a disability certificate is possessed by people with genetic/congenital defects, those after severe injuries and the bedridden.

Many studies show that a part of the needs are independent on the disability status, some of them more often characterize the needs of persons with certified disability, and some who are biologically disabled [33, 52, 53]. Such a division leaves room for actions on behalf of more detailed studies associated with the qualification into the group of the biologically disabled. Studies of health of various groups of society demonstrate that multiple morbidities, consequences of injuries, and the number of noxious complaints in some persons are the cause of various scope of disability, while these people did not fall into any of the two groups. They require intensive medical and social actions.

For this reason, perhaps it is worth introducing into the current division an additional group of persons with short-term disability who require treatment, rehabilitation and support over a short time, even despite severe and bothersome body dysfunctions. Here, the condition of qualification should be a medical prognoses concerning health consequences and duration of their occurrence. The assessing team should include, apart from appointed specialists, a physician specialized in rehabilitation.

Secondary disability. Secondary disability is among the most difficult situations which may be experienced by the disabled, irrespective of their formal disability status. This is a state which may be defined as a secondary loss of functions, both physical and psychological which, in a relatively short time, will lead to the destruction of current rehabilitation achievements. This unfavourable state should not happen to any disabled person. This is the consequence of the lack of the full rehabilitation process or one (or a few) of its stages in own environment of life. That in turn, leads to the lowering of the level of self-esteem [25].

For various reasons, also financial and lack of information, the support of the disabled in their place of residence is highly insufficient. This more often concerns persons living in rural areas and small towns. An effectively conducted full process of rehabilitation can satisfy all needs of the disabled, i.e. medical, health, social, and psychological, which decide about good or very good outcomes in the environment of life. Frequently, the cause of secondary disability is the lack of motivation, perspectives of development, and unwillingness to apply rehabilitation actions by interested parties.

An even more serious consequence of discontinuation of the rehabilitation process may be the deterioration of body dysfunction in the somatic and psychological domains, especially among rural inhabitants [33, 49]. The indirect and adverse causes include great economic changes in the country which, on the one hand, prefer actions of healthy and entrepreneurial people, while on the other hand, considerably limit the possibilities of maintaining and developing the functions lost by the disabled person due to rehabilitation, despite legal protection. None of the degrees of disability eliminates a disabled person from the possibility to undertake work. The condition is medical assessment and the psychophysical capabilities of the disabled person, which are the determinant of adjustment of the type of workplace. Here, the opinion of a career counsellor and a psychologist is very useful [54, 55].

The undertaking of rehabilitation in persons with secondary disability is possible; however, obtaining the results is extremely difficult and long-lasting. The greatest barrier in obtaining good outcomes are the psychological

aspects, mainly discouragement and lack of prospects for effective rehabilitation resulting in employment. For many people, financial difficulties are of great importance in the limitations of rehabilitation.

Rehabilitation as the best method for social and occupational integration. Rehabilitation, understood as an action, a process appreciated in the 19th century, is a unique, irreplaceable support for the disabled. As a constant, long-lasting process it provides possibilities of regaining full health, or at least maintaining it on a current, stable level. In the case of the lack of such possibilities, rehabilitation actions may result in the formation of compensatory mechanisms which, to a various extent, will be able to replace the lost body functions. Rehabilitation (from the Latin prefix *re-*, meaning 'again' and *habitare*, meaning 'make fit.') has become an indispensable component of the social development of each modern country. This is a set of actions aimed at restoring or shaping in a disabled person the lost optimum biological, family, and social functions [56, 57]. An increasingly larger group of the temporarily or permanently disabled contribute to the development of rehabilitation, understood in a modern way as a multi-aspect extensive social process. The achievement of this goal is possible through completion of the tasks of therapeutic, occupational, and social rehabilitation. Such an understanding allows to distinguish between disease and disability, A person with disability, especially during the final period of treatment, requires the creation of such life, social, and economic opportunities in the achievement of the intended goal, as those which an able bodied person has to meet [58, 59]. Rehabilitation understood in this way frequently enables a quick return of a disabled person to the family and society.

The creators of the Polish model of rehabilitation, Wiktor Dega and Marian Weiss, have given it some characteristic properties. Rehabilitation should be common – available to anyone in need, early already at the stage of basic treatment, complex – carried out by a multi-specialist team, and constant – medical, occupational, and social rehabilitation is to be carried out continuously. Medical rehabilitation is closely related with social and occupational rehabilitation [58].

Legal empowerment of the present shape and functioning of rehabilitation is the Act of 27 August 1997 on occupational and social rehabilitation, and employment of the disabled. According to this Act, rehabilitation of the disabled means a set of actions (organizational, therapeutic, psychological, technical, training, educational, and social) aimed at achievement, with the participation of these persons, the highest possible level of their functioning, quality of life and social integration (Art. 7 of the Act) [51].

In Poland, one of the lowest employment rates of the disabled in the European Union is still recorded. From among 3,500,000 disabled at the age of occupational activity, less than 500,000 are employed. In 2019 in Poland, about 70% of the disabled at the professional activity age remained unemployed, while in other European Union countries the percentage was 50 [60]. The reasons of this problem derive from each area of health, medical and social features, the majority of which are interdependent and generating negative consequences. This is due to many factors: ignorance about the possibilities of occupational rehabilitation, vocational guidance and taking up sheltered employment among the disabled, and unwillingness of employers to employ such

persons. In Western European countries, employers have become convinced that the disabled may be good workers and may achieve occupational success [61].

The goal of rehabilitation is the provision for the disabled, irrespective of the type of their disability, the greatest possible social and economic participation and independence. Therefore, the more detailed the data concerning the scope of disability, its causes and consequences, the better the basis for the development of goals and tasks at individual stages (aspects) of rehabilitation, i.e. therapeutic, psychological, and social, including occupational.

SUMMARY

The percentage of the disabled in Polish society is similar to that in many other countries, and its scope is determined mainly in the categories of estimations. The main cause of such a situation is the lack of uniform methods and principles of qualification into the group of the disabled. Diversity of assessment is caused by defining disability in various ways in different countries. It concerns both the legal and biological definitions of disability. This constitutes the main reason for the lack of a systematic register of disabled persons in each country worldwide.

Disability is a multidimensional phenomenon, a subject of interdisciplinary research, and an element of contemporary politics. The kinds of problems of the disabled, their dimension and intensity, and their interdependence, are very individual for each disabled person; hence, the effectiveness of support and scope of assistance closely depend on the actual diagnosis of needs determined in the medical, health, and social categories.

For the improvement of the quality of life and full participation in society, various legal acts are developed of domestic and foreign reach. An example is the International Classification of Functioning, Disability and Health (ICF), accepted by the WHO experts and recommended for use in all countries worldwide, also in Poland. The ICF is not a classification of people, but a classification of characteristics concerning the state of human health with reference to the individual life situation and the effect of the living environment. The combined use of the ICD-10 and ICF is beneficial, because information from both sources concerning the diagnosis of the disease and the scope of functioning provide greater possibilities to assess broadly understood health for both individuals and the whole population [62, 63, 64].

Considering the many negative feelings and experiences the disabled themselves show initiatives in the creation of legal Acts, the main aim of which is the provision for this population group the access to the same rights and duties as those enjoyed by other members of society. For example, the merit of the representatives of the environments of the disabled is the Convention on the Rights of Persons with Disabilities adopted on 13 December 2006 by the Resolution 61/106. Signatories of the international treaty were more than 153 countries, including Poland [65]. Activity of the disabled is reflected in their participation in different organizations of disabled persons, also institutions working for their benefit, such as the nationwide debate in 2015 in Gdańsk, Poland: 'Nothing about us without us. Implementing the Convention on the rights of Persons with Disabilities, seriously' [66].

The level of knowledge and multitude of scientific reports testify to the need for further improvement of both the definition of disability, and the models of disability. There still functions the medical and social models, and in recent years a functional model has occurred [67]. Therefore, studies are necessary in order to develop a consistent and universal method of understanding disability, which cannot be specified in the category of only medical and exclusively social model. According to A. Twardowski, none of the models is a sufficient theoretical basis for investigation of the phenomenon of disability [57]. M. Karaś has reported a new trend in reflection on disability which is called Disability Studies. This new approach uses the social model to define disability as a social and cultural construct, where disability is no longer the issue of the body, but becomes a social issue [68].

Based on the presented results of studies and information referring to disabilities priority problems were indicated, the value of which is of a special character for the achievement of the highest possible opportunities for participation in social life. The majority of medical and social characteristics are dependent on each other, they interpenetrate (Fig. 2).

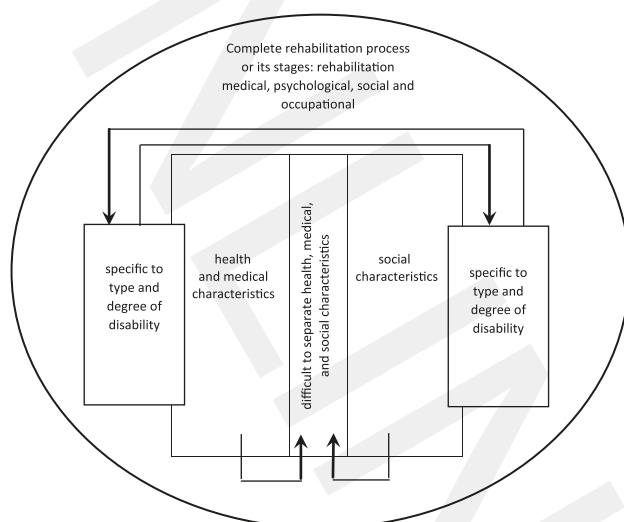


Figure 2. Relationships between health, medical, and social characteristics with consideration of specific characteristics dependent on the type and degree of disability in the aspect of rehabilitation process.
Source: own study

The following directions of studies were distinguished:

- 1) Continuation of efforts aimed at the development of a general definition, as well as detailed definitions, in cooperation with research teams, with the disabled or their representatives.
- 2) Studies concerning medical and social needs defined in the categories of the stages of rehabilitation, as a full process or a specified stage, according to the type of disability, assessment of the state of health, including self-assessment.
- 3) Multi-profile studies of the disabled living in rural areas, i.e. the risk of social exclusion, forms of discrimination, needs for provision of rehabilitation, orthopaedic and technical aids, determination of barriers, including architectural, possibilities of employment, access to educational infrastructure, possibilities of communication infrastructure.
- 4) An important area of study is the problem of digital exclusion, especially of the disabled living in rural areas, which is the lack or low access to the Internet, low level of

occupational activity, lack of possibilities of making contact with institutions providing support for this social group.

- 5) Construction of schemes of medical and social needs by mapping in order to specify regions with varied needs, which decides about accurate actions shortening the path of services and assistance for the disabled.

Howard Archibald Rusk, the founder of rehabilitation medicine, pioneer of modern and comprehensive rehabilitation of the disabled, specified the essence of rehabilitation extremely accurately. According to him, rehabilitation is the restoration of social functions, and assistance in returning to work and life in society. He stated that rehabilitation extends over the period between the patient's bed and workshop. He emphasized that we should rely on the remaining capabilities of the patient and not incapacities, and teach how to live and work with what was left [69].

Declarations

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REFERENCES

1. Galasiński D. Osoby niepełnosprawne czy z niepełnosprawnością?. ©Niepełnosprawność – zagadnienia, problemy, rozwiązania. 2013; 4(9):2–3.
2. Trębicka-Postrzygacz B. O niepełnosprawności w definicjach i regulacjach prawnych w perspektywie inkluzji społecznej. Student Niepełnosprawny. 2017;17(10):41–53.
3. Łaniecka J. Niepełnosprawność i osoba niepełnosprawna – w poszukiwaniu definicji pojęć. Konińskie Studia Społeczno-Ekonomiczne. 2018;4(2):119–130.
4. Kawwa J, Wilmonska-Pietruszyńska A. Znaczenie rehabilitacji w zapobieganiu niepełnosprawności. ©Niepełnosprawność – zagadnienia, problemy, rozwiązania. 2016;2(19):76–90.
5. Głab Z, Kurowski K. W poszukiwaniu nowego systemu orzekania o niepełnosprawności w świetle Konwencji ONZ o prawach osób niepełnosprawnych i idei niezależnego życia. Studia z Polityki Publicznej. Szkoła Główna Handlowa. 2020;4(20):146–150.
6. Dudzińska A. Niepełnosprawność jako obszar interwencji publicznej. Warszawa: Wyd. Uniwersytetu Warszawskiego; 2021.
7. Włodarczyk K. Niepełnosprawni mieszkańcy wsi. Sytuacja społeczna i zawodowa. Warszawa: Fundacja Pomocy Matematykom i Informatykom Niepełnosprawnym Ruchowo; 2014.
8. WHO global disability action plan 2014–2021: Update from the Seventy-fourth World Health Assembly – 27 May 2021.
9. Włodarczyk K. Niepełnosprawni mieszkańcy wsi. Sytuacja społeczna i zawodowa. Projekt „Centrum Edukacji i Aktywizacji Zawodowej Osób niepełnosprawnych”. Państwowy Fundusz Rehabilitacji Osób Niepełnosprawnych, Oddziały Bydgoszcz i Łódź; 2019.
10. Szulc P. Bariery w życiu codziennym i ich wpływ na jakość życia z niepełnosprawnościami. Przegląd Krytyczny. 2021;3(2):51–64.
11. Mikrut A. O prawie osób z niepełnosprawnością do ochrony przed dyskryminacją. Idea – Jurysdykcja – Rzeczywistość. Pedagogical Contexts. 2021; No. 1(16). www.kontekstypedagogiczne.pl. ISSN 2300–6471, e-ISSN 2720–0000 pp. 31–53 <https://doi.org/10.19265/kp.2021.1.16.307>
12. Paluszkiwicz M. Wolność pracy osób z niepełnosprawnościami jako wartość prawnie chroniona. Łódź: Wyd. Uniwersytetu Łódzkiego; 2019.
13. Zhao X, Wang H. Disparities in unmet health service needs among people with disabilities in China. Int J Qual Health Care. 2021 Oct 20;33(4):mzab136. doi: 10.1093/intqhc/mzab136. PMID: 34613344
14. Konwencja o Prawach Osób Niepełnosprawnych przyjęta przez Zgromadzenie Ogólne Narodów Zjednoczonych dnia 13 grudnia 2006r. w Nowym Jorku (ratyfikacja Konwencji przez Polskę 6 września 2012).
15. Karta Praw Osób Niepełnosprawnych. Uchwała Sejmu Rzeczypospolitej Polskiej z dnia 1 sierpnia 1997r. (MP z 13.08.1997r. Nr 50 poz.475).
16. Zakrzewska-Manterys E, Niedbalski J. Samodzielni, zaradni, niezależni. Ludzie niepełnosprawni w systemie polityki, pracy i edukacji. Łódź: Wyd. Uniwersytetu Łódzkiego; 2016.
17. Panasiuk L. Analiza wybranych problemów medycznych i społecznych dorosłych mieszkańców Lubelszczyzny – nierówności w zdrowiu.

- Rozprawa habilitacyjna. Lublin: Uniwersytet Medyczny w Lublinie; 2011.
18. Grabowska A. Zakres dyskryminacji w zatrudnieniu ze względu na niepełnosprawność. *Pracownik i Pracodawca*. 2016;1(2):67–78.
 19. PAHO/WHO. Principles and basic concepts of equity and health. Division on Health and Human Development, October 1991. <http://www.gega.org.za/download/pahowho.pdf>
 20. Kawachi I, Subramanian SV, Almeida-Filho N. A glossary for health inequalities. *J Epidemiol Community Health*. 2002;56:647–652.
 21. Kołłątaj B. Selected health and social needs resulting from state of health of disabled rural inhabitants from the aspect of problems with defining disability. *Journal of Education, Health and Sport*. 2020;10(10):17–34. eISSN 2391-8306. doi: <http://dx.doi.org/10.12775/JEHS.2020.10.10.002>
 22. Nierówności w zdrowiu i znaczenie ich pomiaru w ramach realizacji Narodowego Programu Zdrowia (NPZ). http://imid.med.pl/files/imid/projekty/Nierownosci_w_zdrowiu/Nierownosci_w_zdrowiu_i_znaczenie_ich_pomiaru.pdf
 23. Potrzeby medyczne i społeczne osób niepełnosprawnych zamieszkałych na wsi w rejonach rolniczych i uprzemysłowionych (kierownik zadania badawczego: Karwat ID.). DİN, Lublin: Instytut Medycyny Wsi w Lublinie; 1991.
 24. Karwat ID. Analiza problemów medycznych i społecznych niepełnosprawnych mieszkańców wsi. Rozprawa habilitacyjna. Lublin: Instytut Medycyny Wsi w Lublinie; 1996.
 25. Sprawozdanie końcowe z realizacji zadania badawczego PW 508 /09 – „Epidemiologiczne trendy występowania chorób przewlekłych i rozmiary niepełnosprawności w Polsce w latach 1990–2006” (kierownik zadania badawczego: Karwat ID.). Lublin: Uniwersytet Medyczny w Lublinie; 2007.
 26. Sprawozdanie końcowe z realizacji zadania badawczego DS 444/09 – Analiza wybranych cech epidemiologicznych niepełnosprawności w Polsce – znaczenie dla organizacji ochrony zdrowia (kierownik zadania badawczego: Karwat ID.). Lublin: Uniwersytet Medyczny w Lublinie; 2010.
 27. Sprawozdanie końcowe z realizacji zadania badawczego DS 444 /13 – Niepełnosprawność, jako problemy medyczne i społeczne w województwie lubelskim – znaczenie w organizacji ochrony zdrowia i w polityce zdrowotnej regionu (kierownik zadania badawczego: Karwat ID.). Lublin: Uniwersytet Medyczny w Lublinie; 2015.
 28. Sakellariou D, Rotarou ES. Access to healthcare for men and women with disabilities in the UK: secondary analysis of cross-sectional data. *BMJ Open*. 2017 Sep 11;7(8):e016614. doi: [10.1136/bmjopen-2017-016614](https://doi.org/10.1136/bmjopen-2017-016614). PMID: 28893735; PMCID: PMC5629679
 29. Mahmoudi E, Meade MA. Disparities in access to health care among adults with physical disabilities: analysis of a representative national sample for a ten-year period. *Disabil Health J*. 2015 Apr;8(2):182–90. doi: [10.1016/j.dhjo.2014.08.007](https://doi.org/10.1016/j.dhjo.2014.08.007). Epub 2014 Aug 23. PMID: 25263459
 30. Assessing the impact and effectiveness of intersectoral action on the social determinants of health and health equity: Expedited Systematic Review an Expedited Systematic Review. National Collaborating Centre for Determinants of Health, St. Francis Xavier University 2012: 22. http://nccdh.ca/images/uploads/ISA_Report_EN1.pdf
 31. Brown C, Harrison D, Burns H, Ziglio E. Governance for health equity: taking forward the equity values and goals of Health 2020 in the WHO European Region. WHO, Copenhagen 2013.
 32. Rehabilitation 2030: a call for action. Geneva: WHO; 2017.
 33. Pinkas J. Współczesne wyzwania zdrowia publicznego. Warszawa: Wyd. PZWL; 2021.
 34. Cianciara D. Strategie zmniejszania nierówności w zdrowiu. *Hygeia Public Health*. 2015;50(3):449–456.
 35. Wypych-Ślusarska A, Głogowska-Ligus J, Słowiński J. Społeczne uwarunkowania nierówności w zdrowiu. *Piel Zdr Publ*. 2019;9(3): 229–236.
 36. Przeciwdziałanie dyskryminacji. Strategia na rzecz Osób z Niepełnosprawnościami 2021–2030. Biuro Pełnomocnika Rządu do Spraw Osób Niepełnosprawnych.
 37. Temple JB, Kelaher M, Williams R. Discrimination and avoidance due to disability in Australia: evidence from a National Cross Sectional Survey. *BMC Public Health*. 2018 Dec 5;18(1):1347. doi: [10.1186/s12889-018-6234-7](https://doi.org/10.1186/s12889-018-6234-7). PMID: 30518354; PMCID: PMC6282294.
 38. Rogers S, Thrasher A, Miao Y, et al. Discrimination in healthcare settings is associated with disability in older adults: health and retirement study, 2008–2012. *J Gen Intern Med*. 2015;30:1413–1420. doi: [10.1007/s11606-015-3233-6](https://doi.org/10.1007/s11606-015-3233-6)
 39. Dixon AR, Adams LB, Ma T. Perceived healthcare discrimination and well-being among older adults in the United States and Brazil. *SSM Popul Health*. 2022 May 5;18:101113. doi: [10.1016/j.ssmph.2022.101113](https://doi.org/10.1016/j.ssmph.2022.101113). PMID: 35664925; PMCID: PMC9160820.
 40. Szyszowska M. Wyznaczniki człowieczeństwa i płynące stąd powinności wobec Innego. In: Drabarz A, editor. Aksjologiczne i prawne aspekty niepełnosprawności. Białystok: Wyd. Tamida 2; 2020. p. 9–14.
 41. Standardowe Zasady Wyrównywania Szans Osób Niepełnosprawnych zostały przyjęte podczas 48 sesji Zgromadzenia Ogólnego Narodów Zjednoczonych w dniu 20 grudnia 1993 (Rezolucja 48/96). Narody Zjednoczone, 1994.
 42. Walka z Dyskryminacją Osób Niepełnosprawnych. Strategia na rzecz Osób z Niepełnosprawnościami 2021–2030. Biuro Pełnomocnika do Spraw Osób Niepełnosprawnych. Warszawa; 2022.
 43. Kalendarium. Świat Osób z Niepełnosprawnością. Serwis bez barier, www.integracja.org
 44. Mapa potrzeb zdrowotnych dla Polski. Prognoza stanu i struktury ludności. Prognoza zapadalności. www.mapypotrzebzdrowotnych.mz.gov.pl
 45. Tworzenie map potrzeb zdrowotnych, NIK, KZD.430.008.2017, Nr ewid. 191/2017/P/17/059/KZD, Departament Zdrowia, 2018.
 46. OpenStreetMap, Foundation, Steve Cost, data uruchomienia 9 sierpnia 2004.
 47. Blas E, Sivasankara Kurup A. Equity, social determinants and public health programmes. Geneva: WHO; 2010. p. 4–10.
 48. Bem A, Ucieklak-Jeż P. Health status of the rural population in Poland. Management Theory and Studies for Rural Business and Infrastructure Development, Aleksandras Stulginskis University. 2014;36,2,235–243.
 49. Zorska J, Woron J, Serednicki W. et al. Jak stworzyć dobrze funkcjonującą antybiotykoterapię empiryczną Oddziału Intensywnej Terapii opartą na mapowaniu bakteriologicznym? *Anestezjologia i Ratownictwo* 2014;8:415–428.
 50. Ustawa z dnia 27 sierpnia 1997r. o rehabilitacji zawodowej i społecznej oraz zatrudnianiu osób niepełnosprawnych (zm. 2022r. poz. 558. 1700, 1812).
 51. Sobieszkańska A, Sobieszkański J, Pieciewicz-Szczęśna H, et al. Most important factors modelling health status of an individual and the population. Part 1. *Journal of Education, Health and Sport*. 2016;6(13):247–259. eISSN 2391-8306. doi: <http://dx.doi.org/10.5281/zenodo.290621>
 52. Badanie potrzeb osób niepełnosprawnych. Raport końcowy. Badania Społeczne MSK. Warszawa: Państwowy Fundusz Rehabilitacji Osób Niepełnosprawnych; 18 maja 2017.
 53. Jakubowska A, Rosa A. Nierówności w stanie zdrowia mieszkańców krajów Unii Europejskiej – analiza relacji miasto – wieś. *Roczniki Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*. 2017; XIX (5):93–99.
 54. Kołłątaj B, Kołłątaj WP, Panasiuk L, et al. Importance of most frequent needs of the disabled in shaping areas of support in public health. Part 1. Analysis of selected demographic and social characteristics of the disabled with consideration of the causes of body dysfunction, legal disability status, and selected characteristics of the state of health. *Ann Agric Environ Med*. 2021;28(4):692–704. doi: <https://doi.org/10.26444/aaem/145284>
 55. Czechowski K, Wilmowska-Pietruszyńska A. O potrzebie rehabilitacji kompleksowej. ©Niepełnosprawność – zagadnienia, problemy, rozwiązania. 2016;2(19):35–51.
 56. Twardowski A. Społeczny model niepełnosprawności – analiza krytyczna. *Studia Edukacyjne*. 2018;48:97–114.
 57. Lubecki M. Polski model rehabilitacji medycznej zaakceptowany i zalecany przez WHO. *Hygeia Public Health* 2011;46(4):506–515.
 58. Flynn E, Arstein-Kerslake A. State intervention in the lives of people with disabilities: the case for a disability – neutral framework. *Intern J Law Context*. 2017;13(1).
 59. Strategia na rzecz Osób z Niepełnosprawnościami 2021–2030. Biuro Pełnomocnika Rządu do Spraw Osób Niepełnosprawnych. Dziennik Urzędowy Rzeczypospolitej Polskiej „Monitor Polski” pozycja 218, 25.02.2021r.
 60. Korzyści z zatrudniania niepełnosprawnych. Fundusze Europejskie: Wiedza Edukacja Rozwój; Unia Europejska: Europejski Fundusz Społeczny; 2017.
 61. International Classification of Functioning, Disability and Health. Geneva: World Health Organization; 2001.
 62. Fal DM. Znaczenie klasyfikacji ICF w opisie niepełnosprawności. *Wiadomości Ubezpieczeniowe*. 2018;1:86–96.
 63. Cwirlej-Sozańska A, Wilmowska-Pietruszyńska A. Międzynarodowa Klasyfikacja, Niepełnosprawności i Zdrowia – model biopsychospołeczny. *Prawo i Edukacja*. 2015;8:11–13.
 64. Konwencja nr 159 Międzynarodowej Organizacji Pracy dotycząca rehabilitacji zawodowej i zatrudnienia osób niepełnosprawnych, Genewa 1983.06.20. Akt obowiązujący: DzU z 2005r. Nr 43, poz. 412.
 65. Organizatorzy debaty: Polskie Forum Osób Niepełnosprawnych, Miasto Gdańsk oraz Unia Metropolii Polskich i Stowarzyszenie Gdański Obszar Metropolitarny. <http://gdansk.tvp.pl/8260169/swiatnie-jest-taki-zly>
 66. Nowakowska I. Self-adwokatura jako forma wolontariatu osób z niepełnosprawnością. *Człowiek – Niepełnosprawność – Społeczeństwo* 2020;2(48):69–82.
 67. Karaś M. Niepełnosprawność, od spojrzenia medycznego do społecznego i Disability Studies. *Przegląd Prawniczy, Ekonomiczny i Społeczny* 2012;4:20–33.
 68. Rusk A. Rehabilitation medicine: knowledge in search of understanding. *Arch Phys Med Rehabil*. 1978;59:156–160.