Human functioning in health care
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General Introduction
1.1 General introduction

1.1.1 Human functioning in health care
The concept of human functioning pertains to how people function in everyday life, in the performance of activities, and in the areas of life in which they participate. Functioning, as described in the International Classification of Functioning, Disability and Health (ICF), is influenced by health conditions (i.e. diseases or disorders) and by contextual factors (i.e. environmental and personal factors). Functioning is currently increasingly recognized as being crucial to the concept of health as its scope has extended in the last decade beyond the prevention of disease to the promotion of well-being.

In the current definition of health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”, functioning is not addressed yet. This definition can be labeled as biomedical because of its emphasis on disease and the state of complete well-being. The biomedical approach to health in the current definition is limiting and even counterproductive for improving health. The emphasis on disease stigmatizes the chronically ill as unhealthy, and the requirement for a state of complete well-being labels most of the people in the world unhealthy for most of the time.

With the knowledge that a disease or disability impacts one’s health but does not define one’s health, a new definition has been proposed recently: “health is the ability to adapt and self-manage in the face of social, physical and emotional challenges”. This definition strongly emphasizes ‘the ability to adapt’, i.e. focusing on how to stay healthy, rather than only focusing on causes of disease. This broader view of health originates from the salutogenetic model of health described by Antonovsky. Following the salutogenetic model, the main question for health care provision, especially for the chronically ill, can be reformulated as follows: how can an individual become healthier, while at the same time he/she remains chronically ill? The salutogenetic approach fits in with the biopsychosocial model, for the latter model incorporates the biological dimension as well as the sociological and psychological dimensions. The concept of functioning, as described in the ICF, is an essential part of the biopsychosocial model and is expressed in terms of ability. Hence, following the new definition of health, the concept of functioning can be seen as a useful concept in current health care.
Although the principles and importance of the use of functioning and a biopsychosocial model in health care are acknowledged,\textsuperscript{11,12} they are not incorporated in current health care practice. Moreover, they do not fit easily in the current predominant biomedical model in health care.\textsuperscript{13,14} Health care professionals, including nurses, therapists and physicians, deliver their care to patients by using tools and skills embedded in the biomedical model.\textsuperscript{15}

When information related to functioning is registered in patient records in clinical practice, this information is hardly ever incorporated in the guidelines for clinical decision-making.\textsuperscript{16,17} For example, the 2013 updated American guidelines for cardiovascular prevention include blood cholesterol levels in all risk prediction algorithms.\textsuperscript{18} The strongest recommendation of these guidelines is the prescription of cholesterol-lowering drugs, particularly statins. However, instead of prescribing statins, a stronger focus on nutrition, which is an aspect of functioning, would have been a more sensible approach.\textsuperscript{19} No less than 80 percent of deaths from cardiovascular diseases can be prevented by means of the following changes in functioning: keeping up a healthy diet, engaging in regular physical activity, and reducing tobacco use.\textsuperscript{20}

Considering the increase of non-communicable chronic diseases, such as cardiovascular disease, diabetes, obesity, and cancer,\textsuperscript{21} the focus of health care provision should be broadened to include functioning.\textsuperscript{22} Functioning encompasses the main critical factors that play a role in the development of these diseases, including dietary intake, physical activity patterns, and tobacco use. Non-communicable chronic diseases accounted for approximately 68 percent of the 56 million total reported deaths in the world in 2012.\textsuperscript{20} The worldwide incidence of non-communicable chronic diseases is increasing to such an extent that it has been described as epidemic.\textsuperscript{23} Non-communicable chronic diseases travel across countries from one population to another like an infectious disease, affecting disease patterns globally.\textsuperscript{24} In the Netherlands, almost 30 percent of the population has one or more chronic diseases, and this percentage is similar to the mean of other countries of the European Union.\textsuperscript{25} Taking into account the higher average life expectancy in Western countries,\textsuperscript{26} this prevalence will be slightly higher compared with the global mean prevalence. However, the proportion of the disease burden of chronic diseases for the global population is expected to increase with 17 percent by the year 2025.\textsuperscript{27} Next to the appropriate medical treatment for those already affected, the health approach of primary prevention that induces
changes in functioning is assumed to be the most cost-effective, affordable, and sustainable course of action to cope with the worldwide epidemic of chronic diseases. To realize to focus on functioning in health care, all of the parties involved, including health care professionals, policy makers, health insurers, and educational institutes, need to be committed. Additionally, the inclusion of functioning as a focus in health care affects clinical decision-making, patient roles, guidelines, tools, training of professionals, financial issues, and research. With regard to finances, the discrepancy between the current health care policy and the needs of the increasing aging and chronically ill population is visible in the costs of health care. In the Netherlands, the total health care costs are nearly 90 billion euros a year, of which only 3 billion is spent on prevention. From that amount, 2.5 billion euros goes to disease prevention, such as vaccinations, screening, and preventive medication. Only half a billion (≈ 0.6 percent of the total funding) goes to health promotion measures, such as lifestyle support. In recent years the total health care expenditure has grown much faster at the expense of the prevention part, on which expenditure decreased slightly.

As George Engel stated almost 40 years ago “... nothing will change unless or until those who control resources have the wisdom to venture off the beaten path of exclusive reliance on biomedicine as the only approach to health care”. In an attempt to venture off the beaten path, this thesis aims to explore the inclusion of the concept of functioning as a focus in health care by means of applying the ICF in clinical practice.

1.1.2 Functioning and the International Classification of Functioning, Disability, and Health (ICF)

The World Health Organization (WHO) uses the term ‘functioning’ as a basic concept in the ICF. The ICF was published in 2001 by the WHO as the international standard terminology for functioning and environmental factors. The WHO published the ICF together with the conceptual model of health (Figure 1), which is based on the biopsychosocial model.

The conceptual model of health
The conceptual model of health represents the components of the individuals’ health status in which functioning has been conceptualized as a result of a
dynamic interaction between a health condition (disease or disorder) and contextual factors (environmental and personal factors).

In the conceptual model of health, functioning is presented as a tripartite construct (Figure 1.1) including the components of body functions and structures (what people have: e.g. sensory functions; eyes), activities (what people do: e.g. reading), and participation (the type of relationships in which people are involved: e.g. family, work).\(^1\) The environmental factors include all aspects of the physical, social, and attitudinal world (e.g. devices, family, political opinions). Personal factors include age, gender, race, education, profession and so forth. Personal factors are not classified yet in the ICF; they are currently under construction.\(^31\) Diseases or disorders (i.e. health conditions) are included in the conceptual model of health, but they are classified in the International Classification of Diseases and Related Health Problems (ICD).\(^32\) The ICF and the ICD are complementary; both classifications have to be used to describe an individual’s health status.\(^2\)

![Figure 1.1](image-url)

**Figure 1.1** WHO’s conceptual model of health representing the interactions between the components (disease, body functions and structures, activities, participation, environmental and personal factors) of the health status.\(^2\) ICD: International Classification of Diseases; ICF: International Classification of Functioning, Disability and Health.

The first step in health care provision is to identify the patient’s problems and needs.\(^33\) The conceptual model gives an overview of the relationship between health condition, functioning, and contextual factors.\(^34\) The model can be applied to describe the patient’s problems, capacities, resources, and targets to get a complete picture of the patient’s health status, which is relevant to determining multidisciplinary health care provision.\(^35\-37\) The model represents what affects the patient and addresses those (i.e. the target mediators and abilities) with the most potential for improving the patient’s health.\(^2\,35\-37\) This
model facilitates the process of clinical decision-making by the members of the multidisciplinary team and acknowledges that characteristics and status of functioning of patients with the same health condition may differ more than those between patients with different health conditions.  

**Standard terminology of the ICF**

The components of functioning and environmental factors are listed in the standard terminology of the ICF. Similar to the conceptual model, in the standard terminology functioning includes body functions and structures, activities and participation. In the standard terminology, however, activities and participation are combined in one list (Figure 1.2).

![Figure 1.2 The hierarchical structure of the ICF. ICF: International Classification of Functioning, Disability and Health.](image)

The standard terminology of the ICF divides the components of functioning and environmental factors into chapters (=1st level) and categories (at different levels). The component body functions and structures contains 16 chapters, activities and participation contains 9 chapters, and environmental factors contains 5 chapters. Over 1400 categories are included in the classification (Figure 1.2).

Functioning has to be understood as a continuum ranging from completely able (non-problematic) to completely disabled (problematic), which can be expressed by qualifiers ranging from 0 (no problem) to 4 (complete...
problem). For example, the ICF code d450.1 describes a person’s (dis)ability to walk as a mild problem. The environmental factors can act as complete barrier (decreasing ability or producing disability) or as complete facilitator (improving ability or eliminating disability). For example, the ICF code e310.2 means that the ‘immediate family’ act as a moderate barrier, and e310+2 means that the ‘immediate family’ act as a moderate facilitator (facilitators are denoted in the code with a plus sign instead of a period).  

Except for the categories in body structures, definitions, inclusions, and exclusions are provided for all categories. These definitions and inclusions provide a detailed description of the meaning of the category and help health care professionals choose the right categories. Because each category has a discrete meaning and unique code, the ICF can be used as a language-independent terminology. The purpose of the standard terminology is to establish a common, unambiguous language and to improve communication related to functioning and environmental factors. The codes are useful in multilingual applications and in health information systems.  

1.2 Aim and research questions  

The aim of this thesis is to explore the inclusion of the concept of functioning as an important focus in health care by means of applying the standard terminology of the ICF and the conceptual model of health in clinical practice. The standard terminology aims to improve communication, and the conceptual model aims to facilitate clinical decision-making. By studying these two topics as two inseparable but distinct aspects of functioning, specific information can be obtained that is relevant to developing effective strategies for the implementation of the concept of functioning in health care. This aim resulted in the following research questions:  

1. To what extent does language ambiguity regarding functioning exist in clinical practice and research and what are the consequences for communication?  
2. To what extent does the use of standard terminology for functioning and the conceptual model of health facilitate clinical decision-making and what are the effects on clinical practice?  
3. To what extent are health care professionals focused on functioning in
health care and what is their opinion on the usefulness of this concept in clinical practice?

1.3  Outline of this thesis

Figure 1.3 presents a schematic overview of the structure of this thesis. Chapters 2, 3, and 4 present studies on the standard terminology.

Chapter 2 explores the use and consequences of ambiguous language related to functioning in clinical practice. Standard terminology aims to improve communication. However, many projects that have attempted to introduce standard terminology in clinical practice, including the ICF, have been unsuccessful.39

Chapter 3 investigates the consequences of ambiguous language use in the assessment of patients’ participation. The impact of different operationalizations of participation on regression models was explored in a sample of 677 patients with a neuromuscular disease.

Chapter 4 describes the development of a set of relevant ICF categories related to the functioning of patients with a neuromuscular disease. This set provides the basis for an assessment instrument and for clinical decision-making. There are over 1400 categories in the ICF, which makes it difficult for health care professionals to identify relevant categories for use in clinical practice.

Chapters 5, 6, and 7 present studies on the conceptual model.

Chapter 5 describes the results of a randomized controlled trial that analyzed how clinical decisions in 81 patients with severe multiple sclerosis differ depending on the type of assessment used. In this trial, outcomes of an ICF functioning assessment were compared with outcomes of a conventional medical assessment. Additionally, the fit of the two assessments with patients’ own perspective of health was analyzed.

Chapter 6 presents a study in which 413 Master of Advanced Nursing Practice graduate theses were analyzed in order to determine to what extent health care professionals are focused on the intersection of cure (disease) and care (functioning) in their health care practice.

Chapter 7 focuses on a randomized controlled trial in 74 Master of Advanced Nursing Practice students that examined the effects of a short
training in using the ICF on perceived usefulness of the ICF.

In Chapter 8, the main findings are summarized, reflections and a synthesis of findings are provided, and the practical implications and directions for future research regarding the focus on functioning in health care are presented.

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**Figure 1.3** Overview of the structure of this thesis (derived from the WHO’s conceptual model). Components in grey are not investigated in the present thesis. The numbers in brackets refer to the separate chapters of the present thesis. ICF: International Classification of Functioning, Disability and Health; ICD: International Classification of Diseases.
References


References


“Maar 40 procent van de medische behandelingen levert aantoonbaar gezondheidswinst op.”

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