

# Impact of using the ICF framework as an assessment tool for students in paediatric physiotherapy: a preliminary study

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## Abstract

**Objective** To determine if clinical assessment of children with neurological conditions by physiotherapy students was improved through the overt use of the International Classification of Functioning, Disability and Health (ICF).

**Design and participants** A retrospective, pragmatic audit of practice using written patient assessments completed by third-year physiotherapy students. Assessments completed by third-year students in 2008 were compared with assessments completed by third-year students in 2009. The assessment format used in 2008 was very loosely based on the ICF model, while the 2009 assessments made rigorous use of the ICF approach.

**Setting** Two schools for children with special needs to which physiotherapy students from the Department of Health and Rehabilitation Sciences, Faculty of Health Sciences, Division of Physiotherapy, University of Cape Town are sent for clinical exposure.

**Method** A score sheet was drawn up to evaluate specific criteria in each assessment, using a five-point marking scheme. The mark sheet was tested for reliability. All assessments were evaluated independently using the score sheet by two external physiotherapists who were blind to the purpose of the exercise.

**Results** There was a significant difference between the scores obtained on the score sheet for the 2008 group and the 2009 group. The 2009 group obtained a median score of 60, compared with a median score of 50 for the 2008 group (median difference between groups 9.2, 95% confidence interval 4.2 to 14.1). The overall impression mark given to the 2009 group was also higher than that given to the 2008 group, with a median difference between the groups of 5.9 (95% confidence interval 3.2 to 12.7). It would appear that the 2009 students, using the ICF framework for assessing patients, were able to include more function-related information in their assessments, resulting in a more holistic assessment.

**Conclusion** Teaching students to use the ICF framework when assessing paediatric patients encourages clinical reasoning and an improved holistic approach to identifying the patient's problems in context. This, in turn, enables the student to plan a more appropriate intervention treatment, to the patient's benefit.

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## Introduction

The training of health professionals is complex as different cognitive and handling skills need to be taught and then applied in a clinical context. This clinical reasoning is one of the most difficult skills that a physiotherapy student has to learn [1], and there are several theories regarding the methods utilised by physiotherapists [2]. In the training of physiotherapy students, various different clinical reasoning strategies are used. These include hypothetico-deductive reasoning [3], which arises from a cognitive science perspective and focuses on the accessibility of stored

knowledge in the student's memory; and narrative reasoning, which is used to understand the patient's experiences of their disability and their needs, as explained by them [3].

In order to meet the needs of a patient, the student needs to know what the needs of the patient are, analyse these needs and the problems that are causing them, choose and apply suitable techniques, and assess whether or not the intervention has been effective [4]. Several models of the clinical process have been developed, but the most common model is a cyclical model in which assessment leads to appropriate treatment which then leads to changes in the condition of the patient [5]. These changes need to be assessed and the cycle begins once more. An example of this 'rehab cycle' has been presented by various authors [6,7].

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The problem lies in the amount of information that needs to be gathered. Some of it is not important and some ends up being essential. The inexperienced clinician needs to learn how to gather all relevant data, but not to waste time by gathering information that has no bearing on the planning of the patient's management [8]. This is particularly difficult in paediatrics in which the health condition, impairments and activity limitations are mediated by the developmental stage that the child is undergoing and the associated alteration in relevant environmental factors [9].

A useful framework to manage the information gained during patient assessment is the International Classification of Functioning, Disability and Health (ICF) [10]. The ICF was published in 2001 by the World Health Organization. The purpose of the ICF is to 'provide a unified and standard language and framework for the description of health and health-related states'. It defines health in terms of various health-related domains. These domains include areas of physiological function and anatomical structures, as well as actions, tasks and involvement in social situations. The domains are described from bodily, individual and societal perspectives within a given context [10]. The ICF defines health in terms of health domains of well-being (e.g. walking, self-care abilities, communication) and other domains of well-being (e.g. ability to learn, participation in social activities) [10].

The ICF can be used to describe all aspects of a patient's functioning, disability and health. This information can be used to ensure a holistic approach to managing the patient [4]. The ICF is divided into two main categories: functioning and disability, and contextual factors. Under functioning and disability, there are body functions and structure, which are organised according to body system and include changes in the physiological and anatomical structures. Also in this category are activities and participation, both from an individual and societal perspective. These are interpreted by capacity and performance. The second category of the ICF classification includes environmental and personal factors. These can either facilitate or hinder functioning [10].

As the education of physiotherapists is increasingly based on the biopsychosocial approach to disability and management of health conditions, the ICF model can provide the conceptual linkages between management of disability (activity limitations and participation restrictions) and other basic, cognitive sciences taught in the curriculum as anatomical sciences (impairments), clinical sciences (health conditions), psychology (personal factors) and environmental sciences (socio-economic factors) [4]. Similarly, it can be used in conjunction with the rehab cycle as a clinical reasoning tool to guide students in bridging the gap between cognitive knowledge and interaction in the clinical setting, as the ICF approach is an interaction between the health condition and contextual factors [3], and to plan holistic management [7]. The advantage of teaching students to assess patients using the ICF approach is that it provides the student

with a conceptual framework which guides their questioning of a patient, assists them in organising the information gained from both subjective and objective assessments, and prompts them to integrate the information into the various components of the ICF [4]. In this way, clinical reasoning is enhanced to provide a full and complete picture of the patient in his/her own context [3].

This approach is also useful in generating outcome-based assessments which focus the student's treatment interventions on improving function [11]. Palisano presented a very useful application of the ICF to the multidisciplinary management and treatment planning of children [12]. The process suggested entails the identification of all problems that the child experiences under the different components of the ICF. The next step is to use the ICF framework to map out the inter-relationships and causal chains between these components. On this basis, treatment can be planned and monitored.

Similar challenges in educating physiotherapy students are highlighted in an article which investigates the alignment of a South African physiotherapy curriculum and the expectations of the healthcare system [13]. Two main themes emerged: relating physiotherapy theory to practice, and interpersonal relationships around different cultural practices and caring. The author suggests that encouraging students to use the ICF approach might assist in overcoming these challenges as it is a valuable tool in linking theory to practice. The ICF also has 11 ethical provisions which can be divided into three main categories: respect and confidentiality, clinical use of ICF information and social use of ICF information [14]. Under social use, ICF information can be used to 'develop social policy and political change to enhance and support the participation of individuals' [14] as is needed to meet the healthcare expectations of post-apartheid South Africa. The ICF encourages users to determine an individual's interpersonal, organisational and societal spheres of living [14]. With this understanding, people with a disability can be rehabilitated back into their own societal culture.

#### *Research setting and description of intervention*

In the third year of study, physiotherapy students attend clinical practice at sites which include special schools. The third-year students whose assessments were evaluated for this research were at two different primary schools for children with special needs. One school caters specifically for children with cerebral palsy, and the other school is for children with congenital abnormalities, muscular dystrophy and other physical conditions. The students are supervised by the same clinical educator who spends one morning per week with each group of students. The students are required to assess and treat the children assigned to them, and to write up a full assessment including treatment planning and functional goals of intervention. This written assessment is handed in to the clinical educator each week for marking and further input. At the end of each clinical block, the student is awarded a

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