Disease oriented work ability assessment in social insurance medicine
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Work ability evaluation:
a piece of cake or a hard nut to crack?

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Abstract

Purpose: To describe what aspects, categorized according to the ICF model, insurance physicians (IPs) take into account in assessing short-term and long-term work ability.

Method: An interview study on a random sample of 60 IPs of the Dutch National Institute for Employee Benefit Schemes, stratified by region and years of experience.

Results: In determining work ability, a wide range of aspects were used. In the case of musculoskeletal disease, 75% of the IPs considered the ‘function and structures’ component important. With psychiatric and other diseases, however, the ‘participation factor’ component was considered important by 85% and 80%, respectively. Aspects relating to the ‘environmental factor’ and ‘personal factor’ components were mentioned as important by fewer than 25 %. In assessing the short-term and long-term prognosis of work ability, the ‘disease or disorder’ component was primarily used with a rate of over 75%.

Conclusions: In determining work ability, insurance physicians predominantly consider aspects relating to the ‘functions and structures’ and ‘participation’ components of the ICF model important. The ‘environmental factor’ and ‘personal factor’ components were not often mentioned. In assessing the short-term and long-term prognosis of work ability, the ‘disease or disorder’ component was predominantly used. It can be argued that ‘environmental factors’ and ‘personal factors’ should also more often be used in assessing work ability.

Work ability evaluation: a piece of cake or a hard nut to crack?
Introduction

Disease manifests itself in many different ways, including in diminished work ability. When this occurs, benefits may be claimed\(^1\). It has been signalised that it is ‘notorious difficult, in practice, to determine what constitutes work disability and work incapacity’\(^2\). Therefore, the process to determine work ability should be elucidated. Physicians are important players in the benefit determination process\(^3\). They assess the functional abilities of an employee and when functional abilities match required work demands, work ability exists\(^4\). Because there are no generally accepted instruments to assess work ability\(^5\), the professional basis for the physicians’ judgments is unclear.

One model that describes determinants of work ability is the WHO’s International Classification of Functioning (ICF) model\(^6\) that is globally agreed-on, aetio logically neutral\(^7\) and nowadays used more and more\(^8,9\). The model stipulates that functioning, or in our terms work ability, depends on six mutually related components.

![Diagram of the ICF model and its components.](image)

**Figure 1**  The ICF model and its components. The content of the components was established in the classification stage of the present study (see method section, classification).
The components are, successively: disease and disorder; functions and structures; activities pertaining to the execution of a task or action by an individual; participation pertaining to the involvement in a life situation; environmental factors; and personal factors (see figure 1).

Krause et al mentioned almost 100 determinants for work ability and divided them into several headings, such as: social-demographic factors; psychological factors; attitudes and beliefs; health behaviours; clinical measures; characteristics of the injury or illness; medical and vocational rehabilitation; barriers for return to work and employer characteristics. The mentioned determinants encompass all components of the ICF model. Whether or not these determinants are used by physicians to assess work ability is unknown.

Most physicians don’t receive any training in the treatment or management of work disability and, although many act as gatekeepers for benefits, it is not their core business. In the Netherlands, unlike other countries, insurance physicians (IPs) are registered medical specialists who carry out their assessments on a daily basis and receive four year training in assessing work ability. Although all the components of the ICF model are addressed in the training of Dutch IPs it still remains the question whether or not they use all ICF components in their assessment of work ability. Therefore the aim of the present study is to determine the aspects, categorized according to the ICF model, that IPs take into account in assessing short-term and long-term work ability.

**Methods**

**Sampling**

An interview study was conducted from January to March 2005. The study population consisted of well over 1,000 insurance physicians (IPs) working in the Netherlands. These IPs were employed by the National Institute for Employee Benefit Schemes. This institute is responsible for all work ability assessments under social security regulations for employees. The IPs were medical specialists and had been trained on the job to assess the work ability of employees unable to perform their jobs because of disease or disorder. A group of 268 IPs, randomly selected out of the four regions (North, East, South and West) of the Netherlands, were asked by letter to participate. One hundred and fifty two responded and 111 signed an informed consent form to which a short questionnaire was attached to compile personal characteristics, such as years of experience. A random
sample of 60 of those willing to participate was selected for the interview. We stratified by region and experience (≤ 5 years and > 5 years) to obtain a wide range of possible answers. To prevent socially acceptable answers, the interview was held by telephone instead of face to face.

In order to provide a cognitive frame for the determination of work ability, the participants were randomly assigned to one of three disease groups: musculoskeletal disease, psychiatric disease, or ‘other’ as being neither a musculoskeletal nor a psychiatric disease.

According to the regulations of the ethics committee, ethics approval was not required because the study did not concern patients.

**Classification**

The ICF model was used as the research model. To obtain a concrete picture of the components, constructs, domains and categories of ICF, we studied several sources. In the sources, determinants of work ability were identified and categorized according to the components of ICF. The classification was discussed by the authors FS, JS, PK and MF to make the conceptualisations of the components clearer and to identify what their content should be.

**Interviews**

The interviews were conducted by telephone, and had an expected duration of 30 minutes. All the interviews were conducted by one of the authors (FS) who had 15 years experience in interviewing claimants. Answers were classified and written down, using paper and pencil. Two pre-study interviews revealed that the answers were given in short classifiable statements. Six interviews were selected by two of the other authors (JS and PK) in order to listen in to, to classify the given answers and to compare their classification with the classification of FS.

First, the interviewed physicians were instructed to focus themselves to a disease according to one of the assigned disease groups. Then the following questions were asked:

1- What aspects do you assess in order to determine an employee's work ability?
2- Which of these aspects do you consider to be the three most important in assessing work ability?
3- Regarding a prognosis of five days, three months or five years, what aspects do you consider, respectively?
The interviewer obtained in-depth answers with open questions, asking the respondents to explain exactly what they meant with certain statements, to give examples, to specify what they focus on, etc. An answer was accepted as being sufficiently precise when it fit in the content of one of the six components of the ICF model. When it proved impossible to refine an answer and the answer did not fit in one of the six ICF model’s components, the answer was accepted in a ‘remaining’ category.

Analysis

The mean, standard deviation and range of personal characteristics, age and years of experience were calculated. One researcher (FS) then began by categorizing each participant’s answers to the three questions according to the ICF components. The categorisation was subsequently discussed by four authors (FS, JS, PK and MF) and, where necessary, re-categorized based on consensus between these authors. Next, the result of a random sample of 10 IPs, was discussed again and checked for consensus. The number of IPs that used a component in work ability determination was summed up. In this study, a component of the ICF model was considered important if 75% of the IPs prioritized it as such during the interview.

Results

Sixty IPs were interviewed. All were trained in assessing work ability. The personal characteristics of the responding IPs and those selected are presented in table 1.

Table 1  Mean, standard deviation and range of the personal characteristics of the IPs. (F=female, M=male)

<table>
<thead>
<tr>
<th>Responding IPs</th>
<th>Not willing to participate</th>
<th>Willing to participate</th>
<th>Selected for participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=152</td>
<td>N=41</td>
<td>N=111</td>
<td>N=60</td>
</tr>
<tr>
<td>F=43%, M=57%</td>
<td>F=46%, M=54%</td>
<td>F=41%, M=59%</td>
<td>F=37%, M=63%</td>
</tr>
<tr>
<td>Age (years)</td>
<td>Mean 45 Sd 8 Range 26-60</td>
<td>Mean 48 Sd 10 Range 27-60</td>
<td>Mean 45 Sd 8 Range 26-60</td>
</tr>
<tr>
<td>Experience</td>
<td>Mean 11 Sd 7 Range 0-32</td>
<td>Mean 12 Sd 8 Range 0-29</td>
<td>Mean 11 Sd 6 Range 2-32</td>
</tr>
<tr>
<td>(years)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
On average, the interviews in the study lasted 16 minutes (sd: 5, range: 7-28 minutes). Answers could easily be categorized and there were no observed differences in the way answers were categorized between investigators. Much discussion to reach consensus was not necessary. Two of the six interviews intended to be listened in to were not because the two IPs could not be contacted on the settled time.

As can be seen in box 1, all components of the ICF model were mentioned. The aspects mentioned were diverse; for instance, signs and symptoms in comparison to factors, such as job demands and conflicts. Working life was scarcely used as an indicator of work ability, but much more the context of community life, social life and civic life. Some answers that referred to the relation between the components of the ICF model could not be categorized according to one of the components of the ICF model. Consistency and plausibility of facts are examples of those answers.

<table>
<thead>
<tr>
<th>ICF component</th>
<th>Examples of given answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease or disorder</td>
<td>Diagnosis, course, treatment, medication, severity</td>
</tr>
<tr>
<td>Functions or structures</td>
<td>Signs and symptoms, function, apathy, mood, attention, results from tests, objective findings, condition, anxiety, concentration</td>
</tr>
<tr>
<td>Activities</td>
<td>Sitting, standing, walking, lifting, undressing, eating, cycling</td>
</tr>
<tr>
<td>Participation</td>
<td>All activities during a day, working, functioning at home, holidays, shopping, care for children, walking the dog, limitations in social life, sports, hobbies, family life, social life</td>
</tr>
<tr>
<td>Environmental factors</td>
<td>Assistance, workplace factors, composition of the family, job demands, conflict with employer, conflicts with family, internal guidelines of the National Institute for Employee Benefits Schemes</td>
</tr>
<tr>
<td>Personal factors</td>
<td>Coping, compliance to therapy, illness behaviour, motivation, age</td>
</tr>
</tbody>
</table>

Table 2 shows that 58 of the 60 IPs mentioned aspects pertaining to the ‘participation’ component. Fifty-two and 53 IPs mentioned ‘disease or disorder’ and ‘functions or structures’ components, respectively. Twenty-four, 27 and 38 IPs mentioned ‘activities,’ ‘environmental factors’ and ‘personal factors,’ correspondingly. An overall look at this group of 60 IPs would reveal that ‘participation’ was considered the most important aspect (73%). ‘Functions or structures’ ranked second with 60%. However, both were below the 75% that we had defined in advance as determining importance.
Seventy-five percent of the IPs considered ‘functions or structures’ important in musculoskeletal disease. For psychiatric and ‘other’ diseases, ‘participation’ was considered important by 85% and 80%, respectively. The ICF components: ‘activities’, ‘environmental factors’ and ‘personal factors’ were mentioned by fewer than 25% of the IPs. In total 20 IPs

<table>
<thead>
<tr>
<th>ICF component</th>
<th>Total N=60</th>
<th>Musculoskeletal disease N=20</th>
<th>Psychiatric disease N=20</th>
<th>‘Other’ disease N=20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease or disorder</td>
<td>52 (87%)</td>
<td>26 18 (90%) 8 5</td>
<td>17 (85%) 5</td>
<td>16 (80%) 10</td>
</tr>
<tr>
<td>Functions and structures</td>
<td>53 (88%)</td>
<td>36 20 (100%) 15*</td>
<td>17 (85%) 11</td>
<td>16* 0</td>
</tr>
<tr>
<td>Activities</td>
<td>24 (40%)</td>
<td>5 10 (50%) 2 2</td>
<td>4 (20%) 2 2</td>
<td>8 (40%) 1</td>
</tr>
<tr>
<td>Environmental factors</td>
<td>27 (45%)</td>
<td>4 10 (50%) 2</td>
<td>20 (100%) 17*</td>
<td>20 (100%) 16*</td>
</tr>
<tr>
<td>Personal factors</td>
<td>38 (63%)</td>
<td>15 14 (45%) 4 4</td>
<td>15 (75%) 8</td>
<td>9 (45%) 3</td>
</tr>
</tbody>
</table>

* Over 75% of the IPs labelled the aspect as important; 1 percentage of N=60; 2 percentage of N=20.
gave answers like plausibility and consistency that referred to the relation between the different components of the ICF model. The answers could therefore not be categorized in one of the components. Ten IPs thought these answers as important in assessing work ability.

Table 3 shows that ‘disease or disorder’ was considered the most important component for the prognosis of work ability for five consecutive days, as well as for three months and five years. For the five-day prognosis, 55% of the IPs considered ‘environmental factors’ with regard to musculoskeletal disease and 55% considered ‘participation’ in the case of psychiatric disease. For the short-term and long-term prognosis, the other components were mentioned by fewer than 30% of the IPs.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>The components of the ICF model and the number of IPs who used them in determining the prognosis of work ability for five days, three months and five years.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Musculoskeletal disease (N=20)</strong></td>
</tr>
<tr>
<td></td>
<td>5 days</td>
</tr>
<tr>
<td>Disease or disorder</td>
<td>19</td>
</tr>
<tr>
<td>Functions and structures</td>
<td>6</td>
</tr>
<tr>
<td>Activities</td>
<td>1</td>
</tr>
<tr>
<td>Participation</td>
<td>5</td>
</tr>
<tr>
<td>Environmental factors</td>
<td>11</td>
</tr>
<tr>
<td>Personal factors</td>
<td>4</td>
</tr>
</tbody>
</table>

The IPs believed that the five-year prognosis was only possible for very severe diseases, such as some forms of cancer, or amyotrophic lateral sclerosis. Three IPs gave answers that referred to the relation between the components and not to the components themselves.
Discussion

Aspects regarding the ‘disease or disorder,’ ‘functions or structures’ and ‘participation’ components of the ICF model were mainly mentioned to assess work ability in the benefit determination process. In the case of musculoskeletal disease, the ‘function and structure’ component was mentioned most frequently as being important. By contrast, the ‘participation’ component was cited most with regard to psychiatric and other diseases. In determining the short-term and long-term prognosis of work ability, IPs mostly referred to the ‘disease or disorder’ component.

‘Environmental and personal factors’ were not often mentioned in the assessment of work ability and its prognosis. Any barriers individuals may have in themselves or in their environment to remain in the workforce may be considered irrelevant, and therefore, unimportant. This view is open to argument, as there are many determinants of work disability, only one of which is disease. In a recent review, de Croon et al found that biomedical variables did not consistently predict work disability in rheumatoid arthritis patients. However, there was strong evidence that physical job demands, low functional capacity, old age, and low education did predict work disability. Detaille et al mapped factors that helped currently employed people with rheumatoid arthritis, diabetes mellitus or hearing loss to continue working. They found that factors enabling employees to continue working were the ability to cope with the illness, support from management and colleagues, adequate working conditions, support from patients’ organizations and society, support from medical professionals and facilities, and benefits. Krause et al mentioned almost 100 determinants of the duration of disability and return to work. Most of these were related to personal and environmental aspects. The articles cited here illustrate that the factors that hinder work ability are not necessarily direct consequences of disease. By checking for those non-disease factors that can play a role in diminished work ability but are no direct consequences of disease, the association between disease and work ability can be made clearer. Because it is often just the strait consequence of disease on work ability that is insured, insurance physicians should investigate environmental and personal factors in order to ensure themselves that those factors do not hinder work ability.

Because disease, functions or structures are weak indicators of work ability, it is logical that IPs take other considerations into account. Hobbies, sports, social life and family life were frequently mentioned in the present study. Like work ability, these fall under the participation component. IPs probably think that the effects...
of disease will not only manifest themselves in work, but also in other social areas. Since participation implies an environment in which one is involved, it is questionable whether participation in itself is a good indicator of work ability. In our view, participation can only be seen as an indicator of work ability if the circumstances in which participation takes place are comparable with those at work. Thus IPs should also investigate environmental factors when they use participation as an indicator in assessing work ability. Moreover, participation implies social involvement, and the personal qualities associated with that. Marginal participation may not necessarily be caused by disease. Personal factors, such as the individual’s capacity to cope, can also diminish work ability. In light of that, these factors should also be investigated.

The ICF model’s components make it possible to identify more barriers for return to work than those pertaining to the disease component. As mentioned earlier this will lead, not only to the elucidation of the relation between disease and work ability, but also to a fairer assessment: the employee is described as a person and not as a disease. Therefore, not only professional guidelines for assessing work ability should address the environmental and personal factors, but these factors should also be used in practice in work ability evaluation.

**Conclusion**

In determining work ability, insurance physicians predominantly consider aspects relating to the ‘functions and structures’ and ‘participation’ components of the ICF model as important. The ‘environmental factor’ and ‘personal factor’ components were not often mentioned. In assessing the prognosis of work ability, the ‘disease or disorder’ component was predominantly used. It can be argued that ‘environmental factors’ and ‘personal factors’ should more often be used in work ability assessments.
References