The complexity of human functioning and disability in relation to various environments poses major challenges to scientific understanding. On the country level, economic resources and investment in infra- and support structures play a major role in producing inequalities in functioning between higher and lower-resourced settings. Before we can address these inequalities, evidence regarding the association of the different aspects involved in functioning needs to be generated. A prerequisite for this are functional profiles which can be compared across countries. Moreover, methodologies suited to study differential association between aspects of functioning as the basis for rational intervention planning in disability policy and clinical practice are needed.

Therefore, the objective of the study was to examine whether functioning levels and underlying association patterns differ between lower- and higher-resourced settings. To examine whether functioning levels and association patterns of ICF categories differ between lower- and higher-resourced countries, a two part approach was chosen. Firstly, we compared relative frequencies of ICF categories between the settings in order to examine differences in the importance of problems. Secondly, we analysed and compared association structures of the ICF categories with the help of graphical models, i.e. visual representation of a network of variables. Nodes represent ICF categories. Edges between two nodes stand for conditional dependency between the categories. Bootstrap aggregated LASSO regression was applied to identify the stable associations of each node to the remaining nodes.

**Methods & Materials**

**Design**

A secondary analysis of the observational cross-sectional data, collected in the context of the ICF Core Set development project for spinal cord injury (SCI), was performed.

**Sample**

Data from 1048 adults with SCI from 18 study centres in 14 countries were collected. For further analysis, the sample was divided into lower- and higher-resourced countries based on their per capita gross domestic product for 2007 (see figure 1).

**Measurement**

The functional problems of individuals with SCI were assessed using a Case Record Form (CRF) comprising of 264 second-level ICF categories. Information on the ICF components *body functions* and *body structures* was mostly based on the health professionals’ assessment; information on the ICF component *activities and participation* was reported both by professionals and patients. Environmental information was obtained from the patients.

**Data Analysis**

To examine whether functioning levels and association patterns of ICF categories differ between lower- and higher-resourced countries, a two part approach was chosen. Firstly, we compared relative frequencies of ICF categories between the settings in order to examine differences in the importance of problems. Secondly, we analysed and compared association structures of the ICF categories with the help of graphical models, i.e. visual representation of a network of variables. Nodes represent ICF categories. Edges between two nodes stand for conditional dependency between the categories. Bootstrap aggregated LASSO regression was applied to identify the stable associations of each node to the remaining nodes.

**Results**

Sample characteristics are reported in table 1. Frequency analysis did not show an univocal picture. Some problems were reported more often in lower-resourced settings, while others in higher-resourced settings. Figure 2 shows the association patterns in an overall graphical model. These patterns differed significantly between settings. For example, in lower-resourced settings assisting others was associated with caring for household objects, including animals, while in higher-resourced countries it was associated with non-remunerative employment (p<0.001). Generally, clusters representing environmental facilitators and barriers were only marginally associated with clusters representing functioning domains.

**Conclusions**

The graphs illustrate the complexity and multidimensionality of functioning. Relevant distinctions as well as commonalities between higher- and lower-resourced countries could be elaborated. Patient and health professional perceptions seem largely unrelated, which may be due to a difference between capacity assessments on the side of the professionals and perceptions of performance on the side of the patients.