

## Classification and action rules in identification and self-care assessment problems

*Małgorzata Zdrodowska<sup>1</sup>, Agnieszka Dardzińska-Głębocka<sup>2</sup>*

*Institute of Biomedical Engineering, Bialystok Technical University, Poland<sup>1</sup>*

*Institute of Mechanical Engineering, Bialystok Technical University, Poland<sup>2</sup>*

### ABSTRACT

**BACKGROUND:** Disability, especially for children is a very important and present problem. Lack of proper diagnosis and care increases the difficulty for children to adapt to disabilities. Disabled children have many problems based on basic activities of daily living. Therefore, it is very important to assist diagnosticians and physiotherapists in diagnosing self-care problems in children.

**OBJECTIVE:** The aim of this paper is to extract classification and action rules, useful for diagnosticians and physiotherapists working with children with disabilities.

**METHODS:** First, features and their impact on the accuracy of classification are determined. Then, two models are built: one with all features and one with selected ones. For these models the classification rules are extracted. Finally, action rules are mined and the next step in treatment process is predicted.

**RESULTS:** Seventeen features with the greatest impact on classifying a child into a particular group of self-care problems were identified. Based on the implemented algorithms, decision and action rules were obtained.

**CONCLUSIONS:** The obtained model, selected attributes and extracted classification and action rules can support the work of therapists and direct their work to those areas of disability where even a minimal reduction of features would be of great benefit to the children.

**KEYWORDS:** disability, ICF-CY, self-care problem, classification rules, action rules, feature selection, classification, data mining.