



# β Scale Testing for Self-Sufficiency Assessment in the Patients with Multiple Sclerosis

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## Abstract

The first description of multiple sclerosis as a distinct disease entity from the year 1860. This disease is one of the most common causes of neurological disability in young adults between 20-40 years of age. The aim of the article is to introduce a self-made assessment of self-care in SM patients. The scale can be used to assess the actual self-care level by the patients themselves or the nurses treating these patients. The basis for the β scale was the Kurtzka's Scale of Invalidity (EDSS), Clifton's self-sufficiency scale, and SM diagnostic criteria. Testing a new scale is a prerequisite for its subsequent validation and introduction into nursing practice. The first scale test was conducted at two selected workplaces in the Czech and Slovak Republics. The scale defines 20 needs with a point score of 0 points to 3 points, with 0 points meaning total self-sufficiency, and 3 points means complete dependence of the patient. Introducing the β Scale into nursing practice would have helped nurses and other healthcare workers to assess the self-sufficiency level in patients with MS in an objective way and thus provide the targeted nursing care.

**Keywords:** Multiple Sclerosis; β scale; Self-sufficiency; Assessment; Testing

## Introduction

Multiple Sclerosis (MS) is the most frequently acquired non-traumatic neurological disease in young adults. Today, the MS has been undoubtedly included in the so-called autoimmune diseases having its highest prevalence in Europe, America and Australia [1]. The disease is provably gender-related, with 2- to 3-times higher incidence in women compared to men. The first clinical manifestations of the disease most commonly occur in people aged 20 - 40 years. With its progression the disease remarkably influences man's common daily activities, patient's self-sufficiency and independence. The self-sufficiency assessment is important for independent nursing interventions planning in the care of patients with this type of disease. For disease diagnostics are currently used various criteria, which were further processed in proposed assessment scales. Kurtzke's Scale - EDSS (Expanded Disability Status Scale) - has been so far the best known and most widely used. The scale quantifies the nervous system disorder in patients with MS [2]. Since 2001 have been applied McDonald's criteria prepared by the Multiple Sclerosis Association of America [3]. Patients with MS are in early phases of disease mostly fully self-sufficient and independent in common daily activities. Extent of self-sufficiency changes due to the progression and the duration of the disease. In the nursing practice are available a few scales assessing self-sufficiency of the patients. The best-known scales include Barthel's test of daily activities (ADL), Functional Status Questionnaire (FAQ-CZ), Self-Sufficiency Questionnaire (DAD-CZ), Bristol Activities of Daily Living Scale (BADLS-CZ) and Clifton Self-Sufficiency Scale [4-6]. The MS is the type of disease that prevents an adequate self-sufficiency, due to a wide range of symptoms - domineering the motor ones, affecting gross and fine motor skills, which gradually lead to a partial or complete loss of self-sufficiency and self-individualisation ability in a patient. For this reason, we have decided to design a new scale - called the β Scale. We believe that it could become a relevant tool for assessing the self-sufficiency in patients with MS. Many studies in patients with chronic diseases, including MS, prove that patient's conviction in their ability to handle certain disease-associated problems, are associated with a higher probability of effective adherence, i.e. the patient adheres to the recommended treatment procedures and regime [7].

## Material and Methods

The target group of patients for whom β Scale is intended to, represent the patients with MS at different ages and at various stages of disease. Regarding the space occupation, except for the neurological wards in hospitals, the patient's home environment also allows the β Scale testing.

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**Table 1:** The  $\beta$  Scale for patient's self-sufficiency level assessment (Frčová, Rapčíková).

Need	0 points	1 points	2 points	3 points
Receiving food and fluids	Independently without any help	Independently, difficulty grabbing objects	Help required (cutting, table manners)	Fed by another person
Emptying the bladder	Independently, without problems	Occasional need for help, occasional spontaneous urinary or stool leakage	Frequent, spontaneous urinary leakage using the compensatory aids	Incontinence
Emptying the bladder	Independently, without problems	Occasional problems with constipation	Frequent problems with constipation	Incontinence
Dressing, undressing	Independently without any help	Independently, the tasks take longer time	Other person's help required	Full help from another person required
Fine motility	Without problems, without reduced sensitivity	Reduced sensitivity of the fingers and upper extremities	Significant paresthesia, great effort in grabbing objects	Intentional tremor
Appearance care, aesthetics	Independently, with interest in own appearance	Independently, without a stronger interest in own appearance	Requires occasional other person's help	Other person's help required
Body hygiene	Independently	Independently, using the safety utilities	Partial independence, other person's assistance required	Other person's help required
Active exercises, rehabilitation	Independently, several times a day	Independently, once a day	Regularly, other person's help required	Immobile
Orientation in time and space	Fully oriented	Occasional disorientation (especially in the afternoon), help required	Frequent confusion and disorientation during a day	Total confusion and disorientation
Visual perception	Unlimited	Loss of visual acuity, double vision	Reduction of field of view, oculomotor nerve paresis	Blind
Hearing perception	Unlimited	Objectively assessed reduced audibility without the need for compensatory aids	Loss of hearing, the need for compensatory aids	Deaf
Rest and sleep	Quality sleep with no interruption	Night waking, 1- to 3-times	Night waking, over 3-times	Insomnia
Communication	Active, adequate, fully-preserved non-verbal expressions	Poor articulation, slightly limited non-verbal expressions	Significantly impeded, poor, nonverbal expressions, mourning prevails	Both verbal and non-verbal communication inability
Occupation, employment:	No limitations	Full-time employee, burden causes problems	Part-time employee	Full disability
Learning, receiving new information	Active, No-limitations	Adequate interest, limited activity	Reduced interest in activities depending on moods and their person's help required	Inactivity
Leisure activities	Spending leisure time actively,	Spending leisure time actively, occasional help required	Spending leisure time actively, continuous assistance required	Inactivity
Cultural events attendance	Regularly, independently	Sometimes assistance required	Very rarely and limited	Inactivity due to associated symptoms
Club visiting ROSKA	Frequent, active help in organizing events	Occasional, sporadic help in organizing events	Rare visit assistance necessary	Not attending any club activities

Grounding for the scale designed by authoress was formed by Kurtzke's Scale - EDSS, Clifton's Self-Sufficiency Scale and the diagnostic criteria.  $\beta$  Scale (Table 1) includes 20 items - the activities scored from 0 to 3 points score scale, where 0 points stand for full independence, 1 point stands for partial dependency, 2 points stand for considerable dependence and 3 points stand for patient's full dependence. The individual items include common daily activities, fine and gross motor skills, aesthetics of appearance, exercise, space and time orientation, sensory perception, communication, work, learning, leisure-time activities and self-supporting groups.

Assessment of self-sufficiency based on the number of gained points:

0 - 15 points - independent patient

16 - 30 points - patient partially dependent on the help from another person

31 - 30 points - patient considerably dependent on the help from another person  
46 - 60 points - patient fully dependent on the help from another person

## Results

The proposed scale shall undergo further testing in several more workplaces. Previous testing had taken place in two healthcare facilities, namely in the Centre for the demyelinating diseases

treatment, Thomayer Hospital, Prague, the Czech Republic, and Neurology Department of the Healthcare, Žiar nad Hronom, the Slovak Republic. The testing altogether included 110 MS patients. Out of them-up to 74.54% of the patients were assessed as independent patients, not requiring help from another person, 13.63% of them were partially dependent, 8.18% of them total were considerably dependent and 3.65% were fully dependent patients. The previous assessment of scale applicability in Thomayer Hospital, Prague, proved that the scale is appropriate for the self-sufficiency assessment in the patients with MS, since its individual items reflect the problems of the patients with MS. We believe that the scale as a whole is from patients' perspective, processed in an intelligible and clear way. We assume that the scale should have been considered either by the nurses and/or other healthcare workers involved in patient healthcare, as an appropriate objective tool assessing the self-sufficiency of patients with MS.

## Conclusion

The chronically ill encounter different problems which result in a decline of independence and the quality of their lives. These can also result in severe consequences in the form of a high mental load, loss of autonomy, reduction of patient's self-acceptation or contemplations of the meaning of their lives [8,9]. No doubt that the aspects of the health changes in the patients suffering from chronic diseases should be monitored via the relevant measuring instruments in particular the scales, which has also been currently justified in the medical practice. This has been one of the key reasons why the article

intends to introduce the new  $\beta$  assessing scale for self-assessment in the patients with MS. The file of 110 patients took part in the  $\beta$  Scale assessment within two workspaces. However, further testing is required to prove the validity of the assessment tool. For this reason, we welcome the initiative of the clinical workplaces showing an interest in testing the scale in question. We are not only interested in the opinion of the patients themselves, but also of the nurses, whom the scale would have helped in improving and making nursing processes more effective.

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