

Psychometric Properties of the Persian Version of the Multiple Sclerosis Work Difficulties Questionnaire (MSWDQ) Questionnaire

Abstract

Background: Patients with multiple sclerosis (MS) suffer from a wide range of psychological and physical problems. Employment status is a crucial issue for patients with MS as unemployment while it is not completely evaluated in patients with MS. **Objectives:** To assess psychometrical properties of the Persian version of the Multiple Sclerosis Work Difficulties Questionnaire (MSWDQ). **Methods:** One hundred and sixty patients were enrolled. They were asked to fill valid and reliable Persian version of the Fatigue Severity Scale (FSS), social support scale, and Short Form Health Survey (SF-36) and translated version of the MSWDQ questionnaire. Twenty cases filed the questionnaire two weeks later to assess reliability. The intra-class correlation coefficient (ICC), Cronbach's alpha, correlation coefficients were used. **Results:** Mean age and mean duration of the disease were 36.8 ± 9.1 , and 7.5 ± 5.1 , respectively. The Cronbach alpha for psychological/cognitive barriers subscale was 0.87, for Physical barriers was 0.83 and for external barriers was 0.86. The Cronbach α for the whole questionnaire was 0.89. There was a significant positive correlation between FSS and MSWDQ score, and a significant correlation with SF-36 and social support. The ICCs of all questions were acceptable. **Conclusions:** Persian version of MSWDQ questionnaire is a valid and reliable instrument for evaluating work-related problems in patients with MS.

Keywords: Iran, multiple sclerosis, Persian, work

Introduction

Multiple sclerosis (MS) is an autoimmune disease of the central nervous system (CNS) affecting women more than men.^[1] It's the cause of disability in youth resulting in physical disabilities, emotional difficulties, marital problems and social isolation.^[2,3] Physical problems leading to disease-related disability as well as memory problems, and cognition disturbance is associated with work-related difficulties and work loss.^[4-6] Employment status is a crucial issue for patients with MS as unemployment will lead to inactivity and cost impose to the patient and his/her family.^[7] To address these issues, Honan *et al.*^[8] developed the Multiple Sclerosis Work Difficulties Questionnaire (MSWDQ) which is translated and validated in different languages.

As the number of patients with MS in increasing in Iran,^[9] we designed this study to assess the psychometrical properties of the Persian version of MSWDQ.

Methods

This cross-sectional study was conducted in Kashani hospital of Isfahan University of Medical Sciences between March and April 2020.

Inclusion criteria were: Definite MS diagnosis based on McDonald criteria, age more than 18, and being employee.

All enrolled cases were asked to fill informed consent form before study entrance.

Using the forward-backwards translation method, MSWDQ questionnaire was translated into the Persian language by a linguist. Afterward, the Persian version translated into English by another linguist.

The two versions were compared by a neurologist and also a researcher. Five neurologists assessed content validity to determine if all questions were relevant and necessary.

Twenty cases filed the questionnaire two weeks later to assess reliability.

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MSWDQ shortened version of 50 item questionnaire, includes 23 questions, measuring the three domains: Physical, cognitive/psychological, and external work barriers.^[8] It is useful for assessing MS-related occupational difficulties and predicting employment outcomes.

For construct validity, we asked the participants to fill valid and reliable the Persian version of Fatigue Severity Scale (FSS), social support scale, and Short Form Health Survey (SF-36).

FSS is a 9-item questionnaire that is used to assess the severity of fatigue during the past week in various situations. Each question is graded as 1 to 7, where 1 indicates strong disagreement and 7 strong agreements. Summing up all scores will provide the final score. A valid and reliable Persian version was used.^[10]

Perceived Social Support is a 12-item questionnaire that assesses different categories of support. Each item is graded from 1 (very strongly disagree) to 7 (very strongly). The final score is obtained by adding all scores. Valid and reliable Persian version was applied.^[11]

The SF-36 questionnaire consists of 36 questions in eight aspects. All questions are scored on a scale of 0–100, with 100 representing the highest level of functioning possible. The questionnaire consists of eight subscales such as physical functioning, role limitations due to physical health, role limitations due to emotional problems, energy/fatigue, emotional well-being, social functioning, pain, and general health. Higher the score, the better quality of life.^[12]

Data regarding age, sex, marital status, education level, and duration of the disease were recorded for all cases.

All data were analyzed using SPSS software version 22 (SPSS Inc., Chicago, IL, USA). Data is presented as Mean \pm SD for continuous or frequencies for categorical variables. The intra-class correlation coefficient (ICC) was measured for repeatability, and the ICC coefficient more than 0.70 was considered acceptable. Cronbach's alpha was calculated for the questionnaire to assess the internal consistency reliability. Cronbach's alpha coefficient ≥ 0.70 was considered as excellent reliability. Correlation coefficients between MSWDQ score and other scores were calculated. A value of $P < 0.05$ was considered significant.

Results

One hundred and ninety patients were enrolled while only 160 filled questionnaires were collected (response rate = 84.2%). Mean age and mean duration of the disease were 36.8 ± 9.1 , and 7.5 ± 5.1 , respectively. Basic data are summarized in Table 1.

Mean FSS, social support and MSWDQ scores were 3.9 ± 1.5 , 63.5 ± 16.1 , and 29.7 ± 17.8 , respectively [Table 2].

The Cronbach alpha for psychological/cognitive barriers subscale was 0.87, for Physical barriers was 0.83 and for

Table 1: Basic characteristics of the patients

Variables	Results
Age (mean \pm SD) (year)	36.8 \pm 9.1
Sex	
Female	86 (53.8%)
Male	74 (46.3%)
Marital status	
Single	44 (27.5%)
married	116 (72.5%)
Education level	
≤ 18 years	68 (42.5%)
> 18 years	92 (57.5%)
Disease duration (mean \pm sd) (year)	7.5 \pm 5.1

Table 2: Mean scores of the questionnaires

Questionnaires	Mean \pm SD
FSS	3.9 \pm 1.5
SF-36	
Physical functioning	74.5 \pm 25.9
Role limitations due to physical health	71.1 \pm 34.9
Role limitations due to emotional problem	60.8 \pm 38.5
Energy/fatigue	58.6 \pm 19.1
Emotional well being	58.6 \pm 19
Social functioning	65.7 \pm 27.2
Pain	70.2 \pm 28.9
General health	63.8 \pm 21.5
Social support	63.5 \pm 16.1
Total MSWDQ	29.7 \pm 17.8
Psychological/cognitive barriers	28.3 \pm 17
Physical barriers	30.5 \pm 18
External barriers	30.3 \pm 17.6

external barriers was 0.86. The Cronbach alpha for the whole questionnaire 0.89.

All questions had high ICC (> 0.7) [Table 3].

There was a significant positive correlation between FSS and MSWDQ score, and a significant correlation with SF-36 and social support [Table 4].

Discussion

We aimed to assess the validity and reliability of the Persian version of MSWDQ which is developed for work-related problems in patients with MS.

All 23 questions had high ICC which is indicative of valuable the test–retest reliability of the Persian version of the MSWDQ. The Cronbach alpha for the whole questionnaire 0.89 and the Cronbach alpha for subscales was also high.

These findings could show that the internal consistency of the questionnaire is acceptable.

The mean score of whole MSWDQ in our patients was 29.7 ± 17.8 which is similar to the score of Kahraman

Table 3: ICC scores of all questions

Questions	ICC
I had trouble concentrating on a task	0.87
I struggled to remember a recent conversation	0.84
I forgot what task I had to do next	0.84
I found it difficult to learn something new	0.86
I became sleepy whilst trying to undertake a lengthy task	0.82
I needed to be reminded to do a task at a particular time	0.83
I felt that I could not perform to the level that was expected of me	0.87
I found it difficult to interact with people	0.87
I had difficulty communicating my thoughts to co-workers	0.85
I thought that my manager or work colleagues were not supportive of me	0.82
I thought that my employer was not very understanding of my needs	0.82
I experienced a lack of coordination with my movements	0.82
I found it difficult to maintain my balance	0.79
I found it difficult to write or type	0.8
I found accessing my office or worksite difficult	0.83
I feared that I would be incontinent	0.8
I experienced pain whilst undertaking a task	0.8
I felt that disturbances in my bowel or bladder function distracted me from doing a task	0.78
I found it difficult to tolerate the temperature at work	0.8
I felt that it was more difficult to balance work and home duties	0.78
I felt that work was becoming harder due to responsibilities at home	0.8
I feared I would not be able to support myself if I could no longer work	0.85
I found it difficult to reduce my work hours because my pay would also be reduced	0.82

Table 4: Correlation coefficients

	<i>r</i>	<i>P</i>
FSS	0.78	<0.001
Social support	-0.74	<0.001
SF-36	-0.8	<0.001

et al.^[13] who enrolled 124 patients with MS in Turkey. Like our findings, they reported higher ICC score for all subscales and also the whole questionnaire.

The questionnaire needs to be stable during the time while correct and true conclusions could be done using the questionnaire.

Honan *et al.*^[8] who develop the questionnaire reported the mean score of the questionnaire as 32.1 ± 18.1 and the mean scores of psychological, physical and external subscales as 29.7, 32.7, and 34. They also reported a positive correlation between Modified Fatigue Impact Scale (*r* = 0.68) and a negative correlation between Social Support Scale and MSWDQ (*r* = -0.24) which is in agreement with our findings. We found a significant negative correlation between MSWDQ and social support as well as the quality of life score. There is also a positive correlation between MSWDQ and FSS which indicates that patients with higher fatigue experience have more work-related problems.

Fatigue is one of the most symptoms in patients with MS, without known etiology, which interferes with quality of

life, daily activities, and intellectual functions.^[1,14] This also could affect work life of patients with MS.

Social support is an important issue for patients with MS, which helps them to cope with the disease easily and manage their stress.^[15] The social support is one of the crucial items in the quality of life status of the patients.^[16]

Quality of life in patients with MS is multidimensional and a wide range of factors influence it. Depression level, anxiety, sleep problems, disability status, and fatigue have important roles.^[17] The significant negative correlation between SF-36 and MSWDQ shows that work-related problems affect the quality of life.

Although the number of patients with MS is significantly increasing in recent years, the work-related problems is ignored and most patients may lose their work based on disease complications.

The Multiple Sclerosis Work Difficulties Questionnaire is a self-administered questionnaire that evaluates the impact of MS on patients' work. The initial version includes 50 questions and the revised version includes 23 questions. There was a need for providing the Persian version of this questionnaire to assess work-related difficulties of Iranian patients with MS.

This study had some limitations. First, it was done in one center. Second, we did not follow the patients to see how they act in their workplace and how they interact with work-related problems.

Conclusions

The Persian version of MSWDQ is a valid and reliable instrument to assess work-related difficulties in patients with MS.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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