



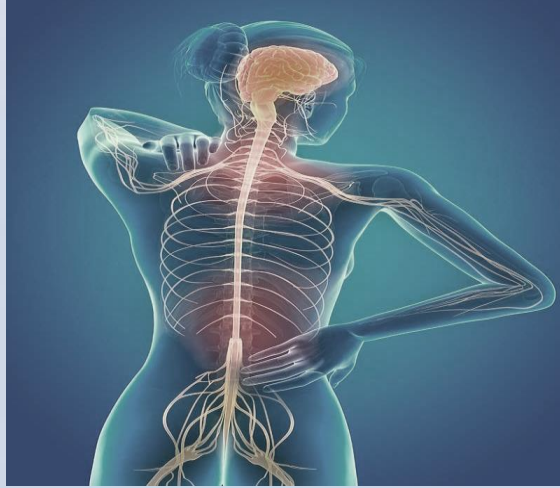
ABSTRACT

Neurogenic dysfunction of the lower urinary tract following neurological diseases such as Multiple sclerosis or stroke is one of the most challenging problems in urology.

The guidelines of the European Urological Association emphasize the use of valid questionnaires for patients with neurogenic bladder.

Welk et al. designed the NBSS (Neurogenic Bladder Symptom Score) questionnaire in 2013, a conceptual questionnaire that assessed lower urinary tract symptoms in men and women with congenital or acquired neurological disorders.

The current study aimed to translate the Neurogenic Bladder Symptom Score (NBSS) questionnaire considering linguistic and cultural differences and evaluate the validity and reliability of the Persian version.



METHODS

Translation and back-translation process

After obtaining permission from Welk et al., two Persian native speaker urologists, translated the questionnaire separately. The final Persian version was back-translated into English by two professional translators, who were not medical staff and were not familiar with the NBSS. Following an agreement with Welk et al, the Persian version was checked by ten expert urologists for simplicity, comprehensibility, and accuracy of the content.

Validation of the Persian version of the NBSS

First, a urologist interviewed virtually 10 participants (MS, or stroke) who completed the final Persian version NBSS, to assess their comments on the content, clarity, and simplicity of the questionnaire parameters. Then patients over 18 years of age with multiple sclerosis or stroke with neurogenic bladder filled out the questionnaire.

Validity

Content and face validity was assessed considering expert opinions. Both quantitative and qualitative methods were used to determine the content validity.

Internal consistency

Internal consistency was assessed using Cronbach's alpha. Values between 0.70 and 0.90 were considered to be acceptable.

Reliability

To determine the NBSS reliability, we assessed the test-retest reliability results completed by participants within a 15 days interval.

Statistical analysis

First, all data were inputted into EXCEL (2013), and then analyzed using IBM SPSS 24.0 software.

The data normality was evaluated using descriptive evidence. The quantitative and qualitative data used "mean ± SD" and frequencies and percentages respectively, and Spearman analysis was used to calculate the correlation coefficient.

RESULTS

In the current study 186 MS patients, and 93 patients with stroke, completed the questionnaire.

Most of the participants were female (73.1%). The mean (SD) age was 45.8 (17. 6) years (minimum 19, maximum 90). For question 24, which evaluates the impact of NGB on QoL, the median score was 2 [1-4], indicating a predominance of patients dissatisfied with the QoL about their bladder condition. The median total score was 15 [4 to 51]. The median for the incontinence subdomain was 1 [0-29], for storage and voiding were 11 [1-18], and for the consequences subdomain, was 2 [0-12].

Validity

For face validity, we interviewed 10 participants with different ages (range: 32–70 years old) and occupations (housewife, teacher, nurse, student, or physician) who had completed the NBSS questionnaire. Most of them found the NBSS is easy to complete.

Internal consistency

Our results showed Cronbach alpha of 0.85. Cronbach alpha coefficient was 0.96 for the incontinence subdomain, 0.78 for storage and voiding, and 0.73 for the consequences subdomain.

All of the parameters achieved a score greater than 0.7, indicating good internal consistency.

Reliability

Ninety subjects completed the NBSS twice with a 15 days interval. The test-retest reliability was assessed by intra-class correlation coefficients (ICCs) for each subdomain (Table 1). The ICCs were high for all subdomains, indicating good agreement between the first and second tests.

Table 1

Comparison of test-retest parameters (n = 90)

NBSS	ICC (95% CI)
Overall Score	0.851 (0.824, 0.875)
Subdomains	
Incontinence	0.953 (0.945, 0.961)
Storage and Voiding	0.787 (0.745, 0.825)
Consequences	0.736 (0.676, 0.786)

Table 2

Evaluation of the item content validity index (I-CVI), and content validity ratio (CVR) of the NBSS by ten experts.

Items	Necessity (CVR)	Simplicity (CVI)	Transparency (CVI)	Relevancy (CVI)
NBSS has clear assessment purposes	1	1	1	1
NBSS has a clear form	0.78	1	1	1
NBSS's content is easy to understand	1	0.89	0.78	1
NBSS can help diagnose	1	1	1	1
NBSS is recommended as a basic assessment tool for neurogenic lower urinary tract symptoms	1	0.89	1	1

CONCLUSIONS

Considering linguistic and cultural differences, Persian version NBSS questionnaire is a valid and reliable tool to assess neurogenic bladder for clinical and research purposes.



REFERENCES

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