

Brazilian version of the Vestibular Disorders Activities of Daily Living Scale (VADL)

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Abstract

The Vestibular Disorders Activities of Daily Living Scale (VADL) assesses the impact of dizziness and body imbalance on the everyday activities of patients with vestibulopathy. The scale encompasses 28 activities divided into three sub-scales (functional, ambulation and instrumental).

Objective: To translate and cross-culturally adapt the VADL to the Brazilian Portuguese language and verify its reliability.

Method: Questionnaire translation methodological research. Eighty elderly subjects (age ≥ 65 years) with chronic dizziness arising from vestibular disorders were enrolled, of which 40 participated in the pre-testing stage and 40 in reliability analysis. Concordance Correlation Coefficient (CCC) analysis was used to assess reliability. Internal consistency was estimated using Cronbach's alpha (α).

Results: Pre-test analysis revealed 15% of incomprehension on two activities; these items had to be adapted. The VADL-Brazil had similar levels of test-retest and inter-rater reliability for total score and presented substantial agreement (CCC = 0.79). Internal consistency was excellent for total score ($\alpha = 0.92$), good for the functional ($\alpha = 0.89$) and locomotion ($\alpha = 0.86$) sub-scales, and poor for the instrumental subscale ($\alpha = 0.56$).

Conclusion: The Brazilian version of the VADL was proven adequate, with good levels of reliability and internal consistency. It might be thus considered as an alternative to assess the functional capacity of vestibulopathy patients.

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INTRODUCTION

Symptoms such as dizziness, vertigo, and body imbalance stem from vestibular disorders^{1,2}. These symptoms become more frequent with aging and are correlated to declining functional capacity³. The vestibular system undergoes a series of structural and functional modifications with aging¹, without necessarily preventing healthy elderly individuals from effectively performing activities of daily living (ADL). However, the presence of vestibular disorders in this population introduces barriers to the realization of the ADL, consequently requiring the use of functional reserves for such activities to be performed adequately⁴. If these reserves are not enough or there is flawed postural control, elderly subjects may face situations of disability, falls, and other injuries.

A study looked into 235 elderly subjects with chronic vestibular disease and their level of performance in 15 activities assessed in the *Brazilian OARS Multidimensional Functional Assessment Questionnaire* (BOMFAQ), and found that 42% of the patients had difficulties performing seven or more activities⁵. A population study enrolled 327 community elderly individuals, assessed them using the BOMFAQ, and verified that 26.3% of the subjects faced severe impairments while performing ADL (values ≥ 7 activities)⁶. This comparison reveals the increased dependency on others and the functional incapacity the elderly with vestibular disorders may encounter. Even though the BOMFAQ was developed to study the elderly, it does not contemplate specific activities to assess dizziness or body imbalance. Other measures used frequently to assess the functional capacity of the elderly and patients in rehabilitation include the Functional Independence Measure (FIM), the Barthel index and others. Nonetheless, given their generic nature, these scales are not suitable for individuals with vestibular disease, as they fail to detect the subtle afflictions these patients face⁷.

A literature review found ten questionnaires developed specifically to assess patients with dizziness or body imbalance⁸. The most commonly used, both in research and clinical practice, are the Dizziness Handicap Inventory (DHI), the Activities-specific Balance Confidence (ABC) scale, and the Vestibular Disorders Activities of Daily Living Scale (VADL)^{1,8}.

The DHI and the ABC scale do not cover activities of self-care or patient mobility in detail; thus, the VADL was developed to remedy the shortcomings of these scales^{4,7}. The VADL stresses the assessment of activities of daily living negatively impacted by vestibular disease. The DHI is the only of these instruments to have a Brazilian Portuguese version⁹; the ABC scale is being translated into Brazilian Portuguese.

The VADL is used internationally and serves as a good alternative to assess the functional capacity of elderly subjects with vestibular disease. Therefore, this study aims to translate and cross-culturally adapt the VADL to the Brazilian Portuguese language and verify its psychometric properties.

METHOD

This is a methodological research to translate, validate, and verify the reliability of the questionnaire. The translation and transcultural adaptation of the VADL into Brazilian Portuguese was carried out with the authorization of the author of the VADL scale in its original version in English. This study was approved by the Research Ethics Committee of the institution # 1925/09.

The VADL instrument

The VADL scale was developed by Cohen & Kimball² to assess the impact of dizziness and body imbalance on the performance of activities of daily living among patients with vestibular impairment. The VADL contemplates 28 activities divided into three sub-scales: functional (12 activities), ambulation (nine activities), and instrumental (seven activities). Each activity is assessed using a qualitative scale (0-10 points) based on the patients' self-perceived level of performance and independence while performing the activities today versus when they were free from vestibular disease². The total VADL score and the scores on each sub-scale are calculated by the median score; the higher the score, the greater the patients' level of dependence and disability. Activities deemed "not applicable" (NA) by the patients are assigned a score of zero. This method prevents extreme or absent scores from interfering with the total score⁴.

Translating the VADL

The translation of the VADL from English into Brazilian Portuguese was carried out in accordance with the recommendations proposed by the Process of Cross-Cultural Adaptation guideline¹⁰.

Initially, two Brazilian translators proficient in the English language translated the original instrument from English into Brazilian Portuguese. In order to enhance the clinical equivalence of the scale, one of the translators had extensive experience on otoneurology. The other translator had no previous knowledge of the concepts assessed by the scale, thus ensuring the translated version would feature language used by the population in general. The translations were analyzed in a meeting between translators and authors and, after consensus

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