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Analysis of vestibular-balance symptoms according to symptom duration: dimensionality of the Vertigo Symptom Scale-short form

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Abstract

Dizziness or vertigo is related with both vestibular-balance and psychological factors. A common questionnaire is the Vertigo Symptom Scale (VSS) -short form that has two subscales: vestibular-balance and autonomic-anxiety. however, the factor structure of this tool has not been confirmed. The aim of this study is to clarify the factor structure of the VSS-short form, and to examine the reliability and validity of the VSS-short form Japanese version. The questionnaire was translated into Japanese and cross-culturally adapted. We conducted a multicenter, cross-sectional, psychometric evaluation of adult patients with non-central vertigo or dizziness lasting over 1 month. Patients answered the VSS-short form, the Dizziness Handicap Inventory, and the Hospital Anxiety and Depression Scale. They also answered the VSS-short form again 1–3 days later. We conducted a confirmatory factor analysis, and an exploratory factor analysis if necessary. Internal consistency, test-retest reliability and Convergent/discriminant validity were assessed. A total of 159 participants completed three questionnaires, and 79 of them also completed the retest questionnaire. A two-factor structure was poor-fitting in a confirmatory factor analysis. A three-factor structure was verified in an exploratory factor analysis: long-lasting vestibular-balance symptom, short-lasting vestibular-balance symptom, and autonomic-anxiety symptom. All hypotheses of convergent/discriminant validity were confirmed. Cronbach's α coefficients of the total score and subscales were high, which were from 0.758 to 0.866. Test-retest reliability was verified because total score and subscale interclass correlation coefficients ranged from 0.867 to 0.897. Thus, The VSS-short form has a three-factor structure, which was cross-culturally well-matched with previous data of the VSS-long version. Vestibular-balance symptoms may be divided by symptom duration, which may relate to pathophysiological processes. Replication study should be required in other languages and populations.