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論文審査担当者	<p>主査： 村上 信五</p> <p>副査： 松川 則之，明智 龍男</p>

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

Masaki Kondo, Kensuke Kiyomizu, Fumiyuki Goto, Tadashi Kitahara, Takao Imai, Makoto Hashimoto, Hiroaki Shimogori, Tetsuo Ikezono, Meiho Nakayama, Norio Watanabe, and Tatsuo Akechi

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.