The Development of the Screening of Visual Complaints Questionnaire for Patients with Neurodegenerative Disorders: Evaluation of Psychometric Properties

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Background
Approximately 75% of patients with Parkinson’s disease (PD), 33% of patients with multiple sclerosis (MS) and 50% of early dementia patients tend to suffer from visual problems\textsuperscript{1-3}. Nevertheless, visual complaints are little recognized in clinical care and there is a lack of clinical instruments that can be used to assess visual complaints. A 21-item Screening of Visual Complaints (SVC) questionnaire was developed to assess visual complaints in patients with PD, MS or early dementia.

Methods
1,461 healthy Dutch participants (18-95 years) were assessed with:
- Screening of Visual Complaints questionnaire (SVC)
- Cerebral Visual Disorders questionnaire (CVS)
- National Eye Institute Visual Function Questionnaire–25 (VFQ-25)
- Behavior Rating Inventory of Executive Function-A (BRIEF-A)
- Depression Anxiety Stress Scale-21 (DASS-21)
- Questionnaire for Experiences of Attention Deficits (FEAD)
- Structured Inventory for Malingered Symptomatology (SIMS)

Analyses:
- Exploratory (subsample 1; n=730) and confirmatory factor analyses (subsample 2; n=731) to evaluate the factor structure of the SVC
- Correlation analyses to assess convergent and divergent validity
- Reliability analyses to evaluate internal consistency and test-retest reliability

Results
- Exploratory and confirmatory factor analyses resulted in a three-factor structure (Figure 1):
  - Altered visual perception ($R^2=28.6\%$)
  - Reduced visual perception ($R^2=7.7\%$)
  - Ocular discomfort ($R^2=6.8\%$)
- Sufficient convergent and divergent validity (Figure 2)
- High internal consistency (Cronbach’s alpha = 0.85) and test-retest reliability (ICC=0.82)

Discussion
The SVC can be used to screen for the degree of visual complaints and to define change over time in case of repeated assessments. Subscale scores can support a more detailed evaluation and might guide further assessment of visual functioning. The SVC needs further validation in clinical groups of patients with PD, MS or early dementia.

Conclusion
The SVC is a valid and reliable tool for the assessment of subjective visual complaints in a community-sample and appears promising for use in clinical practice of patients with PD, MS or early dementia.

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Figure 1. Factor structure of the SVC

Figure 2. Scatterplots of correlations of convergent validity (A-B) and divergent validity (C-F)