



Self-reported quality of life measure is reliable and valid in adult patients suffering from schizophrenia with executive impairment

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ARTICLE INFO

Article history:

Received 13 December 2012

Received in revised form 25 February 2013

Accepted 12 March 2013

Available online 6 April 2013

Keywords:

Executive dysfunction

Schizophrenia

Quality of life

Validity

Reliability

SQoL18

ABSTRACT

Background: Impaired executive functions are among the most widely observed in patients suffering from schizophrenia. The use of self-reported outcomes for evaluating treatment and managing care of these patients has been questioned. The aim of this study was to provide new evidence about the suitability of self-reported outcome for use in this specific population by exploring the internal structure, reliability and external validity of a specific quality of life (QoL) instrument, the Schizophrenia Quality of Life questionnaire (SQoL18).

Methods: *Design:* cross-sectional study. *Inclusion criteria:* age over 18 years, diagnosis of schizophrenia according to the DSM-IV criteria. *Data collection:* sociodemographic (age, gender, and education level) and clinical data (duration of illness, Positive and Negative Syndrome Scale, Calgary Depression Scale for Schizophrenia); QoL (SQoL18); and executive performance (Stroop test, lexical and verbal fluency, and trail-making test). Non-impaired and impaired populations were defined for each of the three tests. For the six groups, psychometric properties were compared to those reported from the reference population assessed in the validation study.

Results: One hundred and thirteen consecutive patients were enrolled. The factor analysis performed in the impaired groups showed that the questionnaire structure adequately matched the initial structure of the SQoL18. The unidimensionality of the dimensions was preserved, and the internal/external validity indices were close to those of the non-impaired groups and the reference population.

Conclusions: Our study suggests that executive dysfunction did not compromise the reliability or validity of self-reported disease-specific QoL questionnaire.

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1. Introduction

Regulatory agencies, such as the Food and Drug Administration (FDA) in the United States, the National Institute for Health and Clinical Excellence (NICE) in England and the National Authority for Health in France, recommend assessing quality of life (QoL) in patients with chronic illness. Self-reported QoL questionnaires are considered valuable tools to evaluate care and treatment, but their validity depends upon the individual's ability to accurately report his or her experience (Orley et al., 1998; Voruganti et al., 1998; Wong et al., 2005; Bell et al., 2007). The use of self-reported QoL questionnaire in patients with cognitive impairment is of particular concern (Riemsma et al., 2001). There

is little evidence concerning the reliability and validity of these measures in cognitively impaired patients. The few studies that have investigated this issue have produced conflicting results. Some authors argue that cognitively impaired individuals are unable to produce valid QoL measures (Nishiyama and Ozaki, 2010), whereas others suggest that individuals with a moderate degree of cognitive impairment can perform reliable QoL assessments (Voruganti et al., 1998; Gold et al., 2003; Marrie et al., 2003; Nishiyama and Ozaki, 2010). Most studies examined patients with multiple sclerosis (Gold et al., 2003; Marrie et al., 2003; Baumstarck et al., 2012a, 2012b), traumatic brain injury (DePalma, 2001), or mental retardation (Finlay and Lyons, 2001), elderly populations (Bureau-Chalot et al., 2002; Hoe et al., 2005), and, to a lesser extent, patients with serious chronic mental illnesses (Orley et al., 1998; Voruganti et al., 1998; Prince and Gerber, 2001; Wong et al., 2005; Nishiyama and Ozaki, 2010).

Cognitive deficits are a core aspect of schizophrenia (Elvevag and Goldberg, 2000; Green et al., 2004). The extent to which patients suffering from schizophrenia with cognitive dysfunction can validly

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Table 1

Internal structural validity/reliability/unidimensionality of the reference population.

	M ± SD	IIC ^a Min–Max	IDV ^b Min–Max	Floor %	Ceiling %	Alpha ^c	INFIT ^d	Missing values %
Psychological well-being	61.5 ± 29.3	0.80–0.81	0.13–0.46	13.9	35.1	0.73	0.91–1.05	2.0
Self esteem	58.5 ± 29.2	0.89–0.90	0.17–0.55	12.3	22.2	0.74	0.98–0.99	2.0
Family relationships	63.5 ± 29.8	0.91–0.92	0.06–0.27	12.8	24.2	0.81	0.96–1.02	4.0
Relationships with friends	48.5 ± 30.8	0.88–0.89	0.16–0.34	21.3	12.8	0.73	0.98–1.00	4.0
Resilience	60.8 ± 26.3	0.80–0.83	0.03–0.49	10.5	24.2	0.74	0.96–1.03	2.0
Physical well-being	51.6 ± 26.4	0.83–0.84	0.13–0.51	13.3	16.0	0.79	0.97–0.99	2.0
Autonomy	61.0 ± 28.4	0.92–0.93	0.07–0.45	10.2	18.7	0.84	0.98–0.99	2.0
Sentimental life	42.0 ± 31.0	0.88–0.89	0.16–0.48	28.8	12.7	0.72	0.98–1.01	4.0

^a Item-Internal Consistency.^b Item Discriminant Validity.^c Cronbach's alpha.^d Rasch statistics.

1. Regarding the construct validity/internal structure:

- The total variance accounted: the result was 'yes' when the total variance was > 0.70 and 'no' for all other cases;
- The proportion of factors identified from the initial 8-factor structure: the result was 100% if all 8 of the initial factors were identified, 87.5% if 7 of the 8 were identified, etc.;
- The proportion of well-projected items: the result was 100% if all the items were projected to their initial dimension;
- The proportion of dimensions with IIC did not deviated > 0.2 from the reference: the result was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;
- The proportion of dimensions with IDV was not > 0.2 from the reference: the score was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;
- The proportion of dimensions with items correlated higher with the dimension they were hypothesised to represent compared to correlations with other dimensions: the score was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;
- The proportion of dimensions with a floor effect was not > 10% from the reference: the score was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;
- The proportion of dimensions with a ceiling effect was not > 10% from the reference: the score was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;
- The proportion of dimensions with a Cronbach's alpha coefficient of at least 0.70: the score was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;
- The proportion of dimensions with INFIT ranged from 0.7 to 1.3: the score was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;
- The proportion of dimensions with percentages of missing values that were not > 10% from the reference: the score was 100% when all 8 dimensions met the condition, 87.5% when 7 dimensions met the conditions, etc.;

The mean of different proportions was calculated to yield a suitability index of 'construct validity'.

Fig. 1. Suitability indices: decision rules for construct and external validity.

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