



Psychometric validations and comparisons of schizophrenia-specific health-related quality of life measures

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ABSTRACT

To compare schizophrenia-specific quality of life measures, this study examined an 18-item Chinese version of 41-item Quality of Life Questionnaire in Schizophrenia (S-QoL; S-QoL-18-C) using 41 patients. The S-QoL-18-C was validated and compared with Schizophrenia Quality of Life Scale-Revision 4 (SQLS-R4). Index scores of S-QoL-18-C showed nearly identical psychometrics to S-QoL-C and S-QoL-18. No significant ceiling/floor effects were found, except with psychological and self-esteem subscales. Internal consistency was acceptable for whole scale and all subscales, except family relationships and sentimental life. Test-retest reliability was moderate to high (ICC=0.58–0.87). Score distributions and reliability of S-QoL-18-C were slightly lower than those of S-QoL-C. Convergent validity was supported by satisfactory correlations between subscales/index scores of S-QoL-18-C and similar scales ($r=|-0.35|$ to 0.80) and between corresponding subscales in S-QoL-18-C and S-QoL-C ($r=0.85$ –0.97). S-QoL-18-C and SQLS-R4 demonstrated discriminant validity by differentiating among 30 patients with symptom remission, 30 patients without symptom remission, and 30 healthy individuals. Two patient groups were classified by criteria proposed by Remission in Schizophrenia Working Group. Three groups were controlled for five factors. Furthermore SQLS-R4, but not S-QoL-18-C, differentiated between patient groups with different hospitalization frequencies. Overall, S-QoL-18-C and SQLS-R4 show different advantages psychometrically.

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1. Introduction

Schizophrenia is characterized by early episodes and multidimensional symptoms that can be effectively monitored using measures of health-related quality of life (HRQoL), also a multidimensional construct. Because the Quality of Life Questionnaire in Schizophrenia (S-QoL) compares favorably to other disease-specific and generic HRQoL instruments (Bobes et al., 2005; Reine et al., 2005), it is recommended for assessing HRQoL in patients with schizophrenia (Reine et al., 2005).

The S-QoL is a self-report measure of disease-specific HRQoL developed for disease of schizophrenia (Auquier et al., 2003). The ratings of the S-QoL assess the current status of HRQoL levels. The S-QoL has 41 items rated on a five-point Likert-type scale, encompassing eight subscales. The total score is the index score, represented by the mean of the eight subscale scores, transformed to a scale of

0–100. The S-QoL has sound psychometrics and unidimensionality within each of the eight subscales (Auquier et al., 2003).

To enhance feasibility, Boyer et al. shortened the S-QoL to 18 items (Boyer et al., 2010). The item reduction has been validated by both classical test theory and item response theory. As a result, the S-QoL-18 still includes the same eight subscales but retains only 18 items, which is less than the half of the original number of items. The reduced number of items requires less time and facilitates administration. The S-QoL-18 has a high degree of comparability with the original S-QoL (Boyer et al., 2010). Therefore, the brief S-QoL-18 is currently suggested for use. The original S-QoL has been cross-culturally translated into Chinese (S-QoL-C) and is psychometrically valid (Chou et al., 2011).

This study aimed to validate a Chinese (Taiwanese) version of the S-QoL-18 (S-QoL-18-C) and to compare the S-QoL-18-C to other disease-specific HRQoL instruments, including another schizophrenia-specific measure: the Schizophrenia Quality of Life Scale-Revision 4 (SQLS-R4) Chinese version (Kuo et al., 2007; Wilkinson et al., 2000). Similar to the S-QoL-18-C, the SQLS-R4 can be

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completed within 5–10 min. To compare the S-QoL-18-C, SQLS-R4, and S-QoL-C (41 items) (Chou et al., 2011), subjects from an earlier study of the S-QoL-C, having the same sociodemographic characteristics, were employed (Chou et al., 2011). Of note, the psychometrics of these three instruments have not been compared simultaneously before. Furthermore, the S-QoL-18-C was compared with international reports of the S-QoL-18 (Auquier et al., 2013; Boyer et al., 2010), with the hypothesis that the S-QoL-18-C would show better psychometric properties than the others would. These findings can help guide researchers and clinical practitioners in selecting instruments for monitoring HRQoL levels in patients with schizophrenia. This study was conducted in Taiwan, where all citizens receive needed health care, including psychiatry services, through the National Health Insurance administration.

2. Methods

2.1. Subjects

The sample was taken from a former project (Chou et al., 2011) in which 41 patients were recruited to examine the reliability and convergent validity of the measure. Recruitment was by convenience sampling in a community hospital in central Taiwan, and subjects completed the baseline test and post-test within a 2-week interval. The inclusion criteria were as follows: (1) diagnosis of schizophrenia based on DSM-IV (1994) criteria, (2) age 18–65 years, (3) sufficient reading or listening comprehension to complete HRQoL self-report measures, (4) provision of informed consent, and (5) stable symptom severity status, defined by change values < 10 on the Positive and Negative Syndrome Scale (PANSS) (Zheng et al., 1996) and PANSS cut points as defined by Levine et al. (2008).

To validate the discriminant validity, a total of 90 participants were recruited by consecutive sampling into two patient groups and a healthy control group, each with 30 participants. The three groups were adjusted to have comparable gender ratios, age, years of education, sample size, and site of recruitment (i.e., county in Taiwan). The age proportions of all three groups were consistent with those of a 2008 official annual report on schizophrenia (Taiwan National Department of Health, 2008).

The inclusion criteria of the patient groups to examine the discriminant validity were: (1) diagnosis of schizophrenia by attending psychiatrists, (2) age between 18 and 65 years, (3) reading or listening comprehension ability sufficient to complete the self-report QoL measures, and (4) willingness to participate in the study. The patients were classified into groups (symptom-remission and non-symptom-remission) according to standardized symptom remission criteria (Andreasen et al., 2005). The symptom-remission group consisted of those with equal to or less than three on each of the eight core items of the PANSS Taiwan version (Zheng et al., 1996).

The control group of healthy individuals was recruited via convenience sampling from the hospital staff or residents in the county, as was the case with the patients. Participants in the control group met the following criteria: (1) healthy individuals without any formal diagnoses, (2) residence in the same county as the patient group, (3) age 18–65 years, (4) sufficient reading or listening comprehension to complete the self-report HRQoL measures, and (5) willingness to participate in the study.

2.2. Instruments

2.2.1. Development of the S-QoL-18 Chinese (Taiwanese) version (i.e., S-QoL-18-C)

The S-QoL-18-C is composed of the items retained in the S-QoL-18 when the S-QoL [Boyer et al., 2010] was shortened, [Auquier et al., 2003] with no new items added. The S-QoL-C (Chou et al.,

2011), written in traditional Chinese characters, was translated from the S-QoL following the international protocol of translation (Acquadro et al., 2004; Herdman et al., 1998). In the shortened version, the resilience and psychological subscales have three items each, and the other subscales have two items each, including the sentimental life subscale in which the items are unchanged. The S-QoL-18-C uses a five-point Likert-type scale and an index score representing the mean of the eight subscale scores. The scores are all transformed to a scale of 0–100. Higher scores indicate higher levels of subjective HRQoL. The S-QoL-18-C was administered to both the patient groups and the healthy controls since the items of the S-QoL-C do not involve any illness-relevant terms and reflect the concerns of general people.

2.2.2. Instruments used to test discriminant validity

The Positive and Negative Syndrome Scale (PANSS) Taiwan version is a standardized tool for assessing psychiatric symptoms and is the only measure that covers all three dimensions of the standard symptom remission criteria (Andreasen et al., 2005). Thus, the PANSS was selected to evaluate the symptom status of patients in the current study. Similarly, the PANSS can be used to differentiate multiple dimensions of symptoms according to Lambert et al. (2006). The full-length version of the PANSS has three subscales and 30 items scored on a 7-point scale. Higher scores indicate greater severity of symptoms. The eight core items proposed by the Remission in Schizophrenia Working Group (Andreasen et al., 2005) are P1, P2, P3, N1, N4, N6, G5, and G9, and these items are representative of the three core dimensions of psychopathology. Scores equal to or less than 3 (Andreasen et al., 2005) on each of the eight core items were used to group patients into the symptom-remission group. In this cross-sectional study design, the time-based criterion of symptom remission (a period of at least 6 months) was not employed. The PANSS Taiwan version has been shown to have acceptable psychometric properties (Zheng et al., 1996).

The self-report 5-item Brief Symptom Rating Scale (BSRS-5) (Lee et al., 2003) was used to screen for healthy individuals with no psychiatric symptoms. A five-point (0–4) Likert-type scale is used, with higher scores indicating greater severity of symptoms. In Taiwan, total scores equal to or less than five have been suggested as cut points for having no psychiatric symptoms (Chen et al., 2005).

2.2.3. Instruments used to validate and compare convergent validity

A Chinese version of the Schizophrenia Quality of Life Scale (SQLS-R4) (Oxford Outcomes Ltd., 2004) was developed from the SQLS (Wilkinson et al., 2000). The SQLS-R4 is a schizophrenia-specific HRQoL instrument. The original self-rated SQLS included 30 items divided into three subscales: psychosocial, motivation and energy, and symptoms and side effects. Martin and Allan (2007) later found a two-factor structure and modified the SQLS-R4 to include 33 items. A five-point Likert scale (0–4) is used. Lower scores indicate higher levels of subjective HRQoL. A Chinese version of the SQLS-R4 has been validated in Taiwan and shown to have acceptable psychometrics (Kuo et al., 2007).

The World Health Organization Quality of Life-BREF (WHOQoL-BREF) Taiwan version (Yao et al., 2002; Yao, 2005) is a generic type of HRQoL instrument that was used to validate the convergent validity of the S-QoL-18-C and SQLS-R4. The WHOQoL-BREF involves rating HRQoL compared with one's expectations, as in the S-QoL. All scores of the WHOQoL-BREF are also transformed to a range of 0–100. Higher scores indicate higher levels of subjective HRQoL. The WHOQoL-BREF Taiwan version contains 28 items divided into four subscales: physical, psychological, social, and environment. This version of the WHOQoL questionnaire has

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