Abstract

Background: Negative symptoms are a core feature of schizophrenia and account for much of the long-term morbidity and poor functional outcome of people with schizophrenia. The Brief Negative Symptom Scale (BNSS) was developed to address the main limitations of the existing scales for the assessment of negative symptoms. The BNSS had already been translated into Italian, Spanish, German, Turkish and Mandarin versions with excellent psychometric properties. In this study, a Cantonese version of the Brief Negative Symptom Scale (C-BNSS) is developed and validated to facilitate future research in Chinese population in Hong Kong.

Aims: The present study examined the psychometric properties of the C-BNSS in a cohort of Chinese schizophrenic patients in Hong Kong. Analysis between negative symptoms rating, patients' demographic and illness characteristics were also carried out.

Method: The C-BNSS was developed by forward and backward translations, and reviewed by an expert panel and a focus group. One hundred and forty-nine schizophrenic patients were recruited. The internal consistency, test-retest reliability at two-week interval and inter-rater reliability were examined. Concurrent validity was examined by the correlations between the C-BNSS and negative subscale of the

Positive and Negative Syndrome Scale (PANSS) and the Scale for the Assessment of Negative Symptoms (SANS). Construct validity was examined by both Exploratory and Confirmatory Factor Analysis (CFA), which explored the underlying factor structure of the C-BNSS. The divergent validity was also examined by the correlation of the C-BNSS with the positive subscale of the PANSS, the Calgary Depression Scale for Schizophrenia (CDSS) and the Simpson Angus Extrapyramidal Side Effects Scale (SAS). Analysis was performed to examine the relationship between negative symptoms, gender, clinical characteristics (age of onset, duration of illness, duration of untreated psychosis, medications, family history of psychosis), insight and functioning.

Results: The C-BNSS showed strong internal consistency (Cronbach's alpha 0.96), high inter-rater reliability (intra-class correlation 0.98) and test-retest reliability (Spearman's r 0.96, $p < 0.001$). Concurrent validity was established, with a high correlation of C-BNSS total score with SANS total score (Spearman's $r = 0.957$, $p < 0.01$) and PANSS negative subscale (Spearman's $r = 0.888$, $p < 0.01$). The construct validity of C-BNSS was supported by EFA and CFA which both revealed a five-factor structure. Divergent validity was also established by insignificant correlations between the C-BNSS total score and the PANSS positive subscale score (Spearman's

r = 0.132, p = 0.108) and CDSS score (Spearman's r = 0.081, p = 0.326), as well as weak correlation between C-BNSS total score and SAS score (Spearman's r = 0.179, $p < 0.05$). C-BNSS also demonstrated a strong association with functioning by the negative correlation between C-BNSS total score and GAF score (Spearman's r = -0.867, $p < 0.01$), while there is a modest relationship between the C-BNSS total score with insight score on PANSS (G12) (Spearman's r = 0.369, $p < 0.001$). Significantly higher C-BNSS total scores were found in patients on combined first and second generation antipsychotics treatment (FGA and SGA), with duration of untreated psychosis (DUP) more than 12 months and family history of psychosis.

Conclusion: The C-BNSS is a psychometrically sound and valid measure of negative symptoms in this study. It could be easily applied in clinic to measure the severity of negative symptoms. It is also useful in clinical trials to facilitate research in the treatment of negative symptoms. Negative symptoms were strongly associated with poor functioning and modestly associated with poor insight. Negative symptoms were more severe in patient on combined antipsychotics, with longer DUP and family history of psychosis.

Keywords: negative symptoms, schizophrenia, Brief Negative Symptoms Scale