Validation of the Lebanese Arabic version of the BACS scale (the Brief Assessment of Cognition in Schizophrenia) among schizophrenic inpatients

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Introduction

- Assessment of cognitive disorders in schizophrenia is becoming a part of clinical and research practice by using batteries that differ widely in their content
- The Brief Assessment of Cognition in Schizophrenia (BACS) was developed to cover the main cognitive deficits of schizophrenia.
- In Lebanon, no study have been done before to assess cognitive functions in individuals with neurological or psychiatric diseases.
- The adaptation and validation of the BACS into Arabic would help researchers in assessing cognitive impairment in schizophrenia and guide clinical decisions on cognitive interventions and rehabilitation.

Objectives

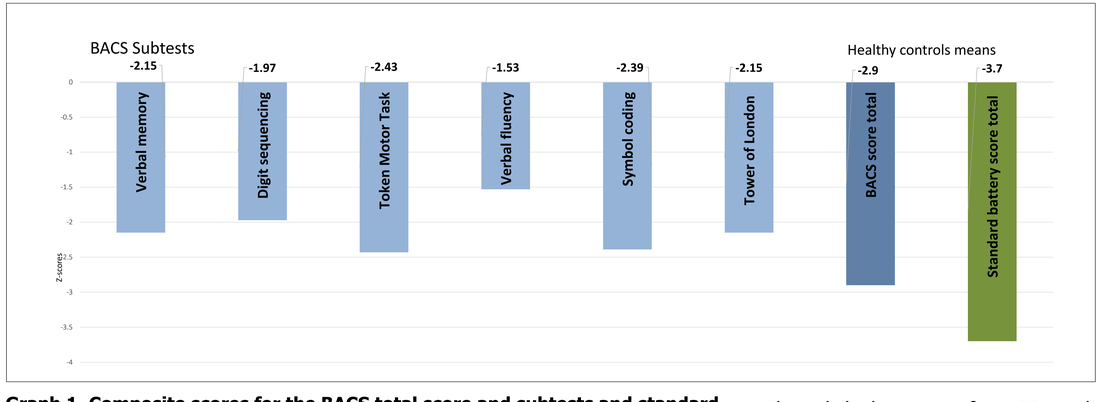
To assess concurrent validity of the Arabic version of the BACS with a standard neurocognitive battery of tests in Lebanese patients with schizophrenia and healthy controls.

Materials & Methods

- Cross-sectional study was conducted at the Psychiatric Hospital of the Cross – Lebanon, between July 2019 and Mars 2020.
- The study enrolled 120 inpatients diagnosed with schizophrenia and 60 healthy controls, matched for age, education and sex.
- Two neurocognitive batteries were administered to the whole sample on two separate days to assess cognition: The BACS and a standard battery.

Results

- The BACS required a mean of 31.2 ± 5.4 min for patients and 30.1 ± 3.1 min for healthy controls.
- A lower mean in all the BACS subtests and total score in patients with schizophrenia was found compared to healthy controls (p<0.001 for all). Also, significant differences were found between the mean composite scores from the BACS and the standard battery (Graph 1).



Graph 1. Composite scores for the BACS total score and subtests and standard battery in patients with schizophrenia standardized to healthy controls

Table 1: Pearson correlations between standard battery domains and BACS measures in patients with Schizophrenia

Cognitive tests	Standard Battery	BACS Battery	r
			0.77
Verbal Memory	RL/RI-16	List learning	0.57
Working Memory	Digit span	Digit sequencing	0.75
Motor Speed	TMT-A	Token motor task	0.51
Verbal Fluency	Semantic, alphabetical	Semantic, alphabetical	0.82
Attention	Digit Symbol Coding	Symbol coding	0.84
Executive function	Block design	Tower of London	0.63

- The global score of BACS and its subtests were strongly correlated to the corresponding standard battery scores (Table 1).
- Factor analysis for the BACS test showed that the subtest items converged over a one factor, explaining a total of 64.8% of the variance.
- The sensitivity of the BACS was .93 and specificity was .86 with a cut-off value of 163 (z score=−1.51) to discriminate between schizophrenia patients and controls .

Discussion

- The mean BACS global score and subscales scores had high deficiency in schizophrenia patients as compared to healthy controls in line with the original version.
- Also, the motor speed was the most deficient cognitive function followed by attention and processing speed.
- Good concurrent validity was found between BACS and standard battery composite scores (r=0.77) similar to correlations found in the original BACS article.
- Factor analysis showed a one-factor solution underlying the BACS subtests, Similarly, a unique factor structure was found in the Spanish and Persian versions.
- Results showed that BACS have high level of sensitivity and specificity to differentiate patients with schizophrenia and controls in line with the German, Chinese and Persian versions.

Conclusions

- The Arabic version of the BACS showed satisfactory psychometric properties, including high internal consistency, acceptable concurrent validity, and good overall discriminant validity
- The Arabic BACS is a reliable and practical tool for assessing cognitive function among inpatients with schizophrenia

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