

# Characteristics of Executive Dysfunction Interfering With the Ability of Chronic Schizophrenia Patients to Live Independently



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## Learner's objectives

### Target audience

Psychiatric and mental health nurses interested in cognitive deficit that interferes with the independence of chronic schizophrenia patients.

- Learners will understand the characteristic features of executive dysfunction in chronic schizophrenia patients.
- Learners will be able to measure the most significant aspects of executive dysfunction in chronic schizophrenia.

## Introduction

### Executive dysfunction

- Executive dysfunction is one of the most commonly observed deficits in schizophrenia.
- The four components of executive function are as follows: volition, planning, purposive action, and effective performance;
- Executive dysfunction affects cognitive domain linked to frontal lobe functions, including complex attention, working memory, planning, judgment, and reasoning.

### Characteristics of chronic schizophrenia patients

- They become critical of executive dysfunction;
- They require greater effort or accommodation to maintain independence in conducting instrumental activities of daily living.

## Research question and purpose

We sought to investigate evidence-based practice in nursing focused on executive dysfunction that is relevant to everyday activities in chronic schizophrenia patients.

This study aimed to investigate the characteristic features of executive dysfunction that interfere with the independence of chronic schizophrenia patients.

## Methods

**Study design:** An observational study was conducted.

**Participants:** A total of 8 outpatients with chronic schizophrenia at a psychiatric hospital in Japan were included.

**Diagnosis of schizophrenia:** Diagnosis was based on the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition.

**Inclusion criteria:** (1) Patients with Mini-Mental State Examination (MMSE) score >20; (2) Patients with diagnostic symptoms for >1 year

**Instruments:** Behavioral assessment of dysexecutive syndrome (BADS) (Fig. 1)

- It is a valid battery that assesses problems in the everyday behavior of patients with dysexecutive syndromes; it takes approximately 30 min to complete.
- Each subtest score (from 0 [severely deficient] to 4 [normal performance]) is used to calculate BADS-total profile (BADS-TP) score.
- BADS-TP scores are classified as impaired, borderline, low average, average, high average, and superior.

**Statistical analysis:** Spearman's correlation coefficients were used to determine the relation between BADS and BADS-TP scores.

**Ethical considerations:** This study was approved by the ethics committee of the Tokiwa University, Japan (no. 100085).

**Funding sources:** This study was supported by the Tokiwa University financial support for research projects.

**Table 1.** Baseline characteristics of study participants (*n* = 8)

Subject	Gender	Age, years	MMSE	BPRS	CPEQ
1	M	54	27	39	267
2	M	53	22	39	612.5
3	F	57	24	40	375
4	M	52	30	40	301.5
5	M	65	23	41	200
6	M	46	28	44	225
7	F	46	26	42	1067.3
8	M	65	22	41	626.5
Mean ± SD		54.75 ± 7.36	25.25 ± 2.96	40.75 ± 1.67	459.35 ± 295.73

Note. BPRS = Brief psychiatric rating scale; CPEQ = Chlorpromazine equivalents; F = Female; M = Male; MMSE = Mini-mental state examination; SD = Standard deviation.

**Table 2.** Relationships between the BADS-TP and its subtest scores

	Mean ± SD	BADS					
		1	2	3	4	5	6
1. RSCT	2.50 ± 1.41	1					
2. APT	2.38 ± 1.06	-.35	1				
3. KST	1.00 ± 0.53	.34	-.44	1			
4. TJT	2.00 ± 0.93	.04	-.40	.38	1		
5. ZMT	1.38 ± 0.74	-.62	-.13	-.42	-.34	1	
6. MSET	1.75 ± 0.46	.00	.15	-.58	-.36	-.07	1
7. BADS-TP	11.00 ± 0.93	.86**	-.25	.58	.22	-.86**	.00

Note. Results are based on Spearman's correlation test. APT = Action program test; BADS = Behavioral assessment of dysexecutive syndrome; BADS-TP = BADS total profile; KST = Key search test; MSET = Modified six elements test; RSCT = Rule shift cards test; TJT = Temporal judgement test; ZMT = Zoo map test. \**p* < .05. \*\**p* < .01.

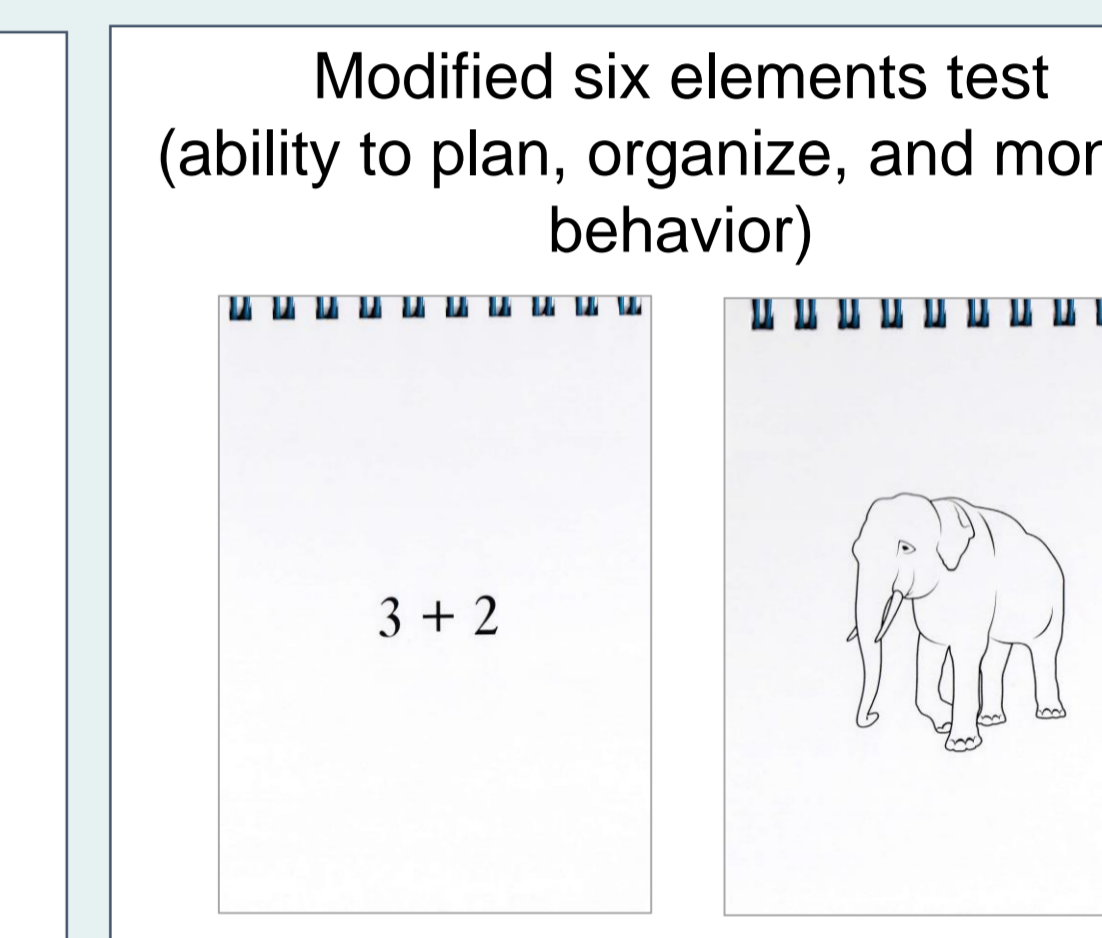
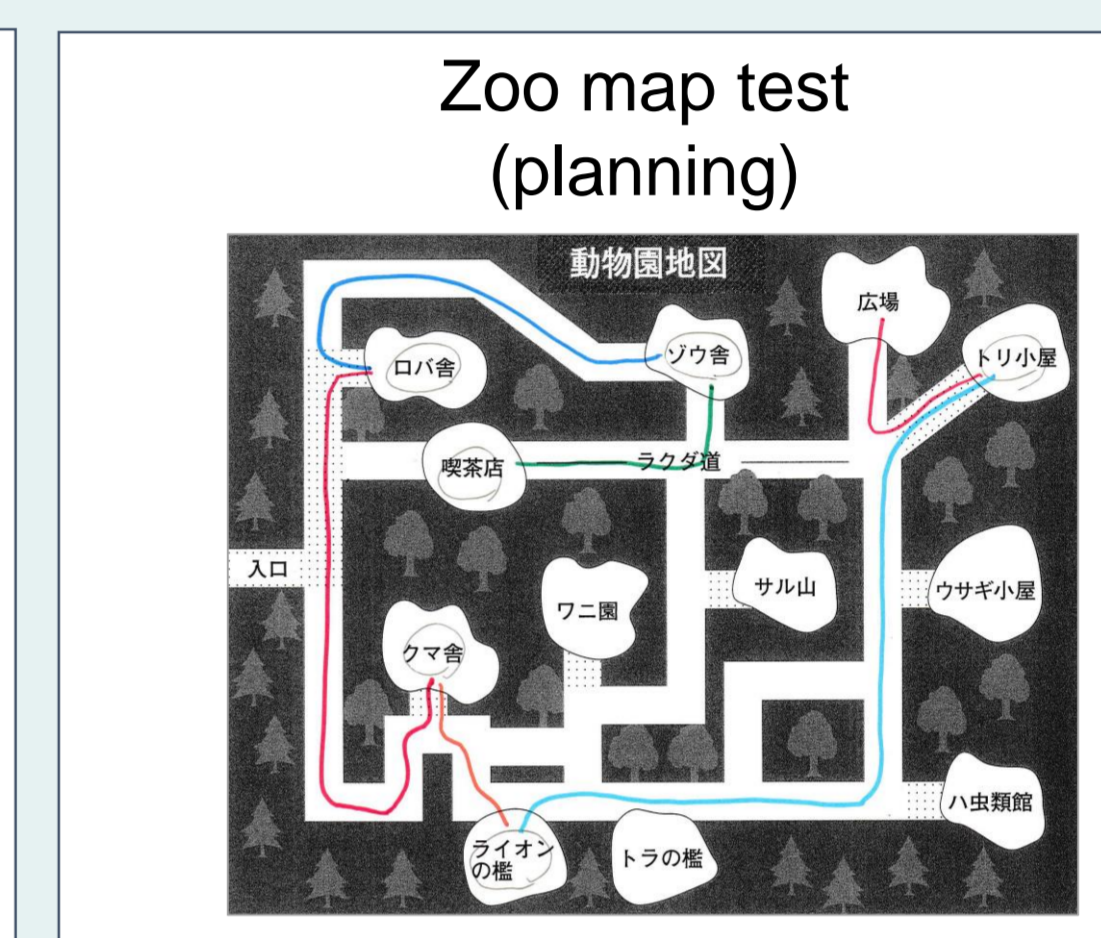
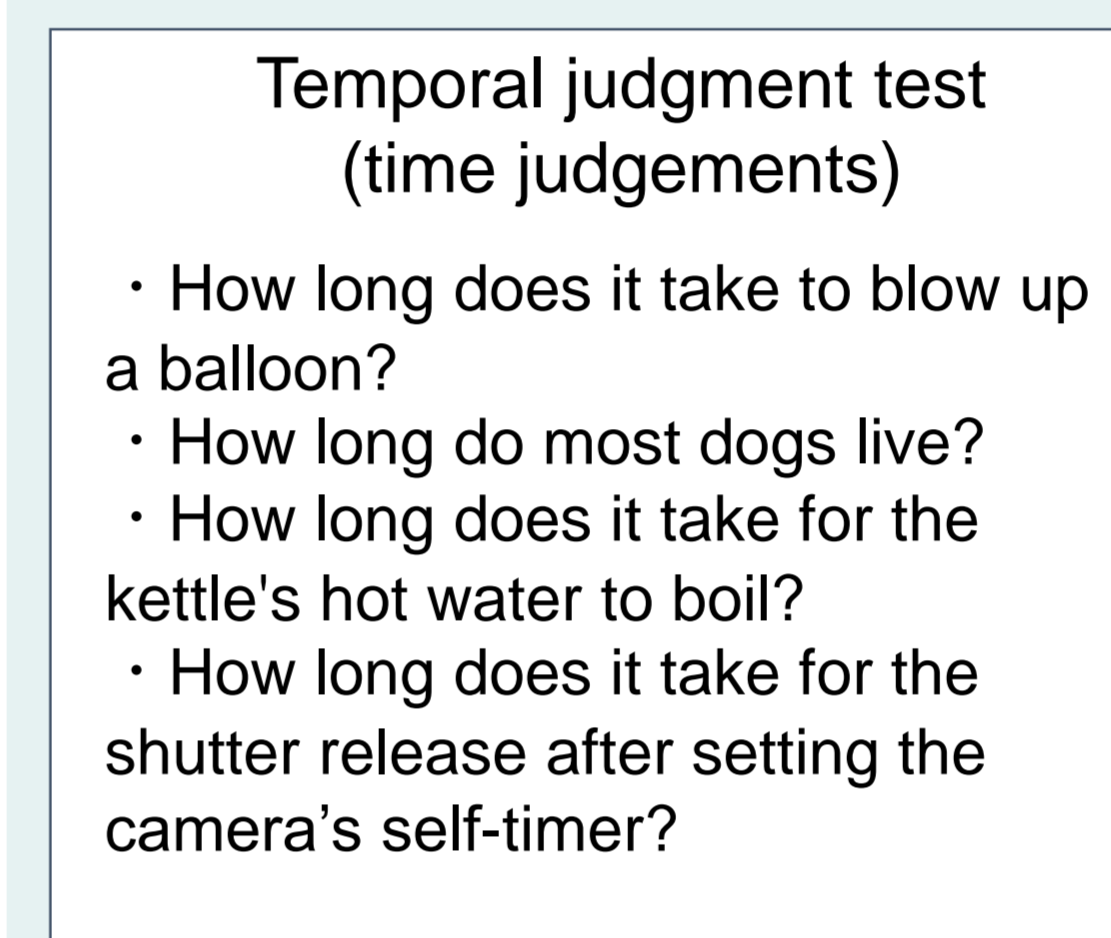
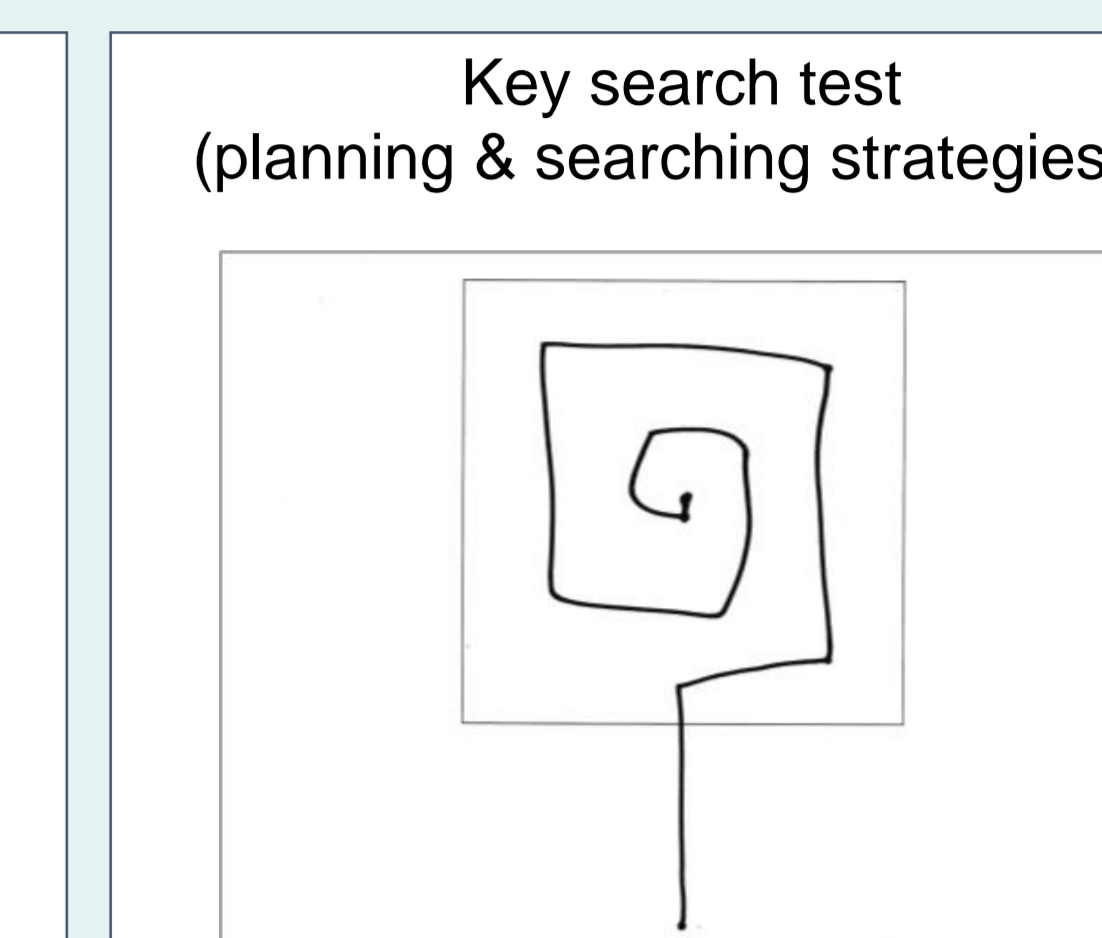
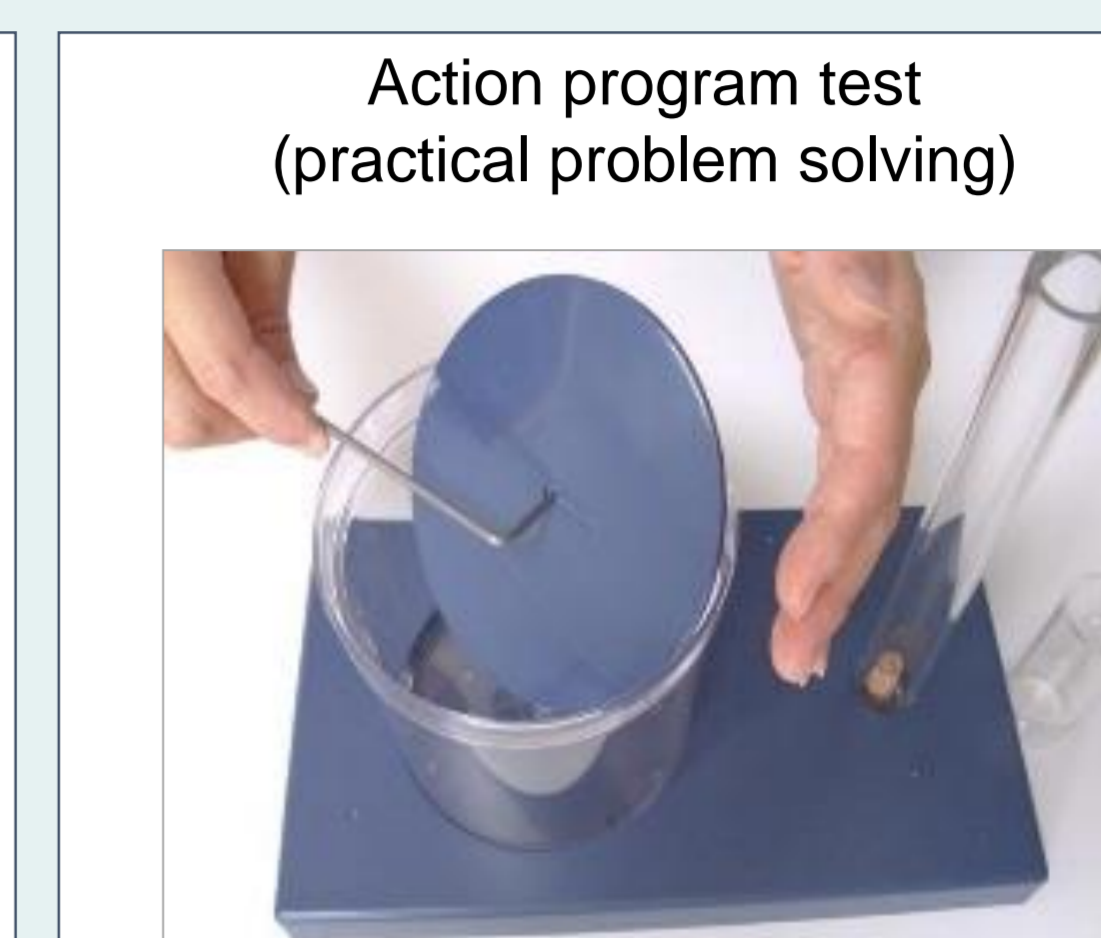
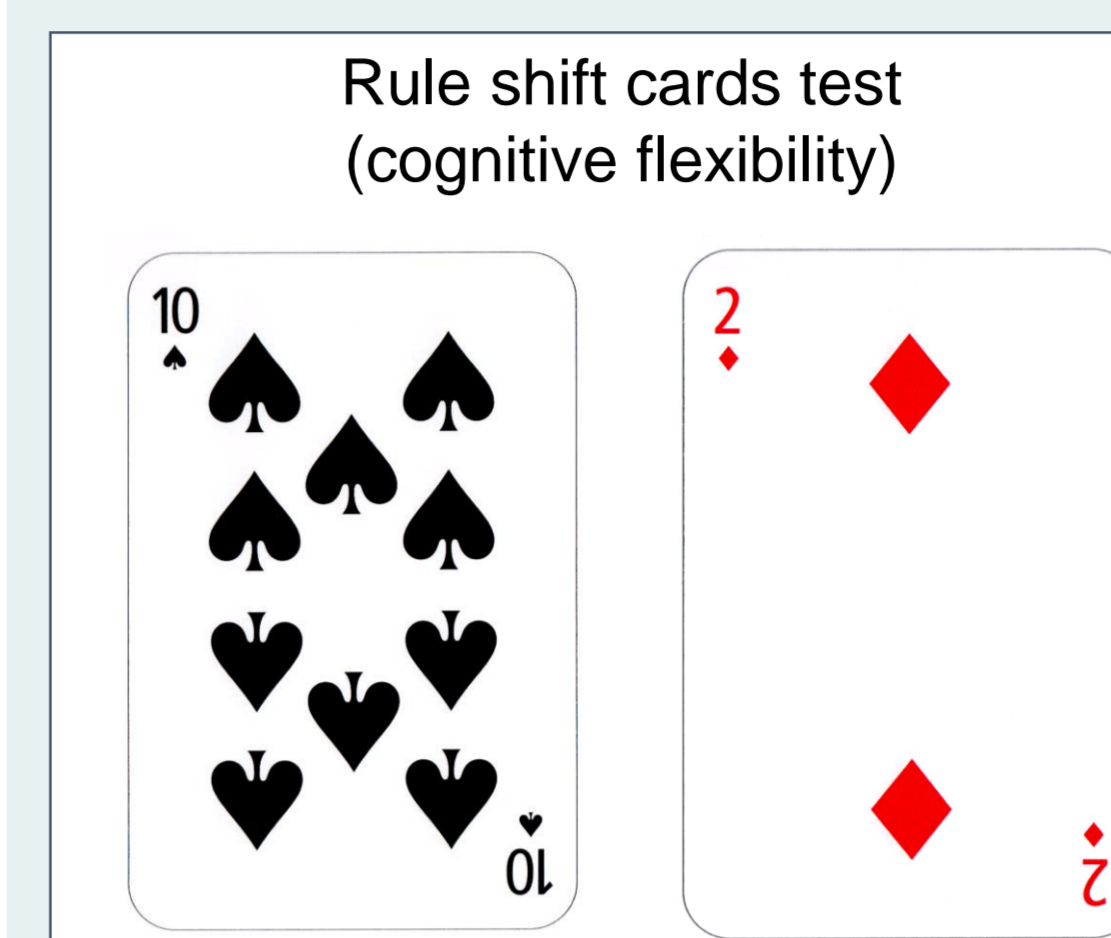


Fig. 1. Six subtests of the behavioral assessment of dysexecutive syndrome and executive abilities assessed by each subtest

## Results

### Features of executive functions

- Mean BADS-TP score among patients with chronic schizophrenia was classified as "impaired."
- The mean values of modified six elements test (MSET), zoo map test (ZMT), and key search test (KST) were each <2.
- The rule shift cards test, KST, and ZMT scores were statistically correlated with BADS-TP score.

## Conclusions and implications for nursing practice

- Mean BADS-TP score among chronic schizophrenia patients was lower than that of Japanese controls of same age (mean = 16.2, standard deviation = 3.0).
- On the basis of the results of MSET, ZMT, and KST, Chronic schizophrenia patients are especially impaired in terms of their planning ability.

### Key points of emphasis

- Deficits in planning ability, which is included in purposive action, are likely to interfere with independence in everyday activities of chronic schizophrenia patients.
- Executive dysfunction in chronic schizophrenia patients may contribute to treatment and medication nonadherence.
- In future, we will develop an evidence-based intervention program to improve executive function and enhance the abilities of planning and purposive action in chronic schizophrenia patients.

## References

- 1) Wilson, B.A., & Burgess, P. (1996). *Behavioural Assessment of the Dysexecutive Syndrome: Test Manual*. Bury St Edmonds, UK: Thames Valley Test Company.
- 2) Lezak, M.D., Howison, D.B., & Loring, D.W. (2004). *Neuropsychological assessment, 4th ed*, New York, NY; Oxford University Press.