Sigma's 30th International Nursing Research Congress

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

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Purpose:

Impairment of executive functions is one of the most commonly observed deficits in schizophrenia. Executive dysfunction has been linked to frontal lobe function, and executive functions can be conceptualized as having four components: volition, planning, purposive action, and effective performance. Executive functions require complex attention, working memory, planning, judgment, and reasoning. In patients with chronic schizophrenia, executive dysfunction becomes critical, and greater effort or accommodation are required to maintain independence in the complex instrumental activities of daily living in their everyday life. However, little attention has been paid to evidence-based practice in nursing focused on executive dysfunction that is relevant to everyday activities in patients with chronic schizophrenia. By clarifying the most significant aspects of executive dysfunction in chronic schizophrenia in everyday activities, it may become possible to create a means of nursing intervention that enhances executive functions to support patients' independence based on patient-centered care. The aim of this study was to investigate the characteristic features of executive dysfunction that interfere with the independence of patients with chronic schizophrenia.

Methods:

Participants

Eight outpatients with chronic schizophrenia at a psychiatric hospital in Japan were recruited to participate in this observational study. The diagnosis of schizophrenia was made using criteria from Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. The inclusion criteria were as follows: (1) a Mini–Mental State Examination (MMSE) score >20 and (2) a patient who has had the diagnostic symptom for longer than 1 year.

Instruments

Behavioral Assessment of Dysexecutive Syndrome (BADS)

BADS is a valid battery that assesses problems in the everyday behavior of patients with dysexecutive syndromes. BADS includes six subtests, namely the Rule Shift Cards Test (cognitive flexibility), the Action Program Test (practical problem solving), the Key Search Test (planning and searching strategies), the Temporal Judgement Test (time judgements), the Zoo Map Test (planning), and the Modified Six Elements Test (ability to plan, organize, and monitor behavior). A profile score, from 0 (severely deficient) to 4 (normal performance), is determined for each subtest, and the sum of each subtest is calculated as the total profile score (BADS-TP). BADS-TP is classified into impaired, borderline, low average, average, high average, and superior. BADS takes approximately 30 min to complete.

Statistical analysis

The relationships between the BADS-TP score and its subtest scores were analyzed using Spearman's correlation test.

Ethical considerations

This study was approved by the ethics committee of the Tokiwa University, Japan. All participants provided written informed consent before the initiation of any research procedures. To ensure that they had enough information before making this decision, the participants were informed about the possibility of opting out of the study and that their anonymity would be guaranteed during the data analysis and reporting.

Results:

Description of the sample

The participants' backgrounds were: age (mean = 54.8, SD = 7.4), MMSE score (mean = 25.3, SD = 3.0), Brief Psychiatric Rating Scale (BPRS) score (mean = 40.8, SD = 1.7), and chlorpromazine equivalents (mg/d) (mean = 459.4, SD = 295.7).

Features of executive functions

The mean BADS-TP in the patients with chronic schizophrenia in this study was classified into the 'impaired' category (mean = 11.0, SD = 0.9). Further, the mean values were lower than two points for the Modified Six Elements Test (mean = 1.8, SD = 0.5), Zoo Map Test (mean = 1.4, SD = 0.7), and Key Search Test (mean = 1.0, SD = 0.5). The Rule Shift Cards Test ($r = 0.86$, $p < 0.01$), Key Search Test ($r = 0.58$), and Zoo Map Test ($r = -0.86$, $p < 0.01$) results were statistically correlated with BADS-TP.

Conclusion:

One of the main findings in this study was that the mean BADS-TP of the patients with chronic schizophrenia was lower than that of Japanese controls of the same age as measured in a previous study (mean = 16.2, SD = 3.0). It was assumed that patients with chronic schizophrenia are especially impaired in terms of "planning" ability from the results of the Modified Six Elements Test, Zoo Map Test, and Key Search Test. An important point to emphasize is that planning ability is likely to interfere with independence in everyday activities for patients with chronic schizophrenia. Thus, BADS is a useful battery for evaluating executive dysfunction in patients with chronic schizophrenia. Furthermore, the results of the relationships between the BADS-TP score and three of its subtests, in addition to planning ability, suggest that decline in cognitive flexibility, which is included in "purposive action," interferes with independence in the everyday activities of patients with chronic schizophrenia. Moreover, we believe that these specific aspects of executive dysfunction in chronic schizophrenia may affect patients' non-adherence to treatment and medication. Our future direction for studying this topic is to develop an evidence-based intervention program to improve executive functions and to enhance the abilities of planning and purposive action in patients with chronic schizophrenia.

Title:
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Keywords:
Executive dysfunction, Independence and Schizophrenia

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Abstract Summary:
The aim of this study was to investigate the characteristic features of executive dysfunction that interfere with the independence of patients with chronic schizophrenia. Learners attending this session will be able to understand the most significant aspects of executive dysfunction in patients with chronic schizophrenia in everyday activities.

Content Outline:
I. Introduction

1. Executive dysfunction in patients with chronic schizophrenia becomes critical, and greater effort or accommodation are required to maintain independence in the complex instrumental activities of daily living in their everyday life.
2. By clarifying the most significant aspects of executive dysfunction in chronic schizophrenia in everyday activities, it may become possible to create a means of nursing intervention that enhances executive functions to support patients' independence based on patient-centered care.
3. The aim of this study was to investigate the characteristic features of executive dysfunction that interfere with the independence of patients with chronic schizophrenia.

II. Body

1. Main point #1. Methods

1) Study design: an observational study

2) Participants: eight outpatients with chronic schizophrenia

3) Setting: a psychiatric hospital in Japan

4) Inclusion criteria

a) a Mini–Mental State Examination (MMSE) score >20

b) a patient who has had the diagnostic symptom for longer than 1 year

5) Instruments: Behavioral Assessment of Dysexecutive Syndrome (BADS)

a) six subtests of BADS

・The Rule Shift Cards Test (cognitive flexibility)

・The Action Program Test (practical problem solving)

・The Key Search Test (planning and searching strategies)

・The Temporal Judgement Test (time judgements)

・The Zoo Map Test (planning)

・The Modified Six Elements Test (ability to plan, organize, and monitor behavior)

b) The total profile score (BADS-TP): a profile score, from 0 (severely deficient) to 4 (normal performance), is determined for each subtest, and the sum of each subtest is calculated.

c) Classification: impaired, borderline, low average, average, high average, and superior

6) Statistical analysis: Spearman's correlation test

2. Main point #2. Results

1) The mean BADS-TP score was classified into the 'impaired' category (mean = 11.0, SD = 0.9).

2) The mean values were lower than two points for the Modified Six Elements Test, Zoo Map Test, and Key Search Test.

3) The Rule Shift Cards Test ($r = 0.86$, $p < 0.01$), Key Search Test ($r = 0.58$), and Zoo Map Test ($r = -0.86$, $p < 0.01$) results were statistically correlated with BADS-TP.

III. Conclusion

1. The planning abilities in executive dysfunction interfere with independence in the everyday activities of patients with chronic schizophrenia.

2. The abilities of planning and cognitive flexibility of executive dysfunction in chronic schizophrenia may affect patients' non-adherence to treatment and medication.

3. A future direction for this study is to develop an evidence-based intervention program to improve executive functions in patients with chronic schizophrenia based on patient-centered care.

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