


Description Of Cognitive Function In Schizophrenia Patients In The Dadi Regional Special Hospital, South Sulawesi Province

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Article Info	ABSTRACT
Keywords: Schizophrenia, Cognitive Function, Gender, Education, Occupation, Type of Medication, Duration of Illness.	Schizophrenia is a complex disorder and has a major influence on aspects of the sufferer's life with a decrease in cognitive function which is associated with poor functional outcomes. Therefore, this study aims to determine the description of cognitive function in schizophrenia sufferers at the Dadi Regional Special Hospital, South Sulawesi Province. This research was conducted using a cross-sectional approach and descriptive methods from March to April 2024 at RSKD Dadi, South Sulawesi Province. The research subjects, 113 people suffering from schizophrenia, were tested for cognitive function using the Montreal Cognitive Assessment (MoCA) test sheet. The proportion of schizophrenia patients who experience cognitive impairment at RSKD Dadi, South Sulawesi Province is 73%. Of the 73% of schizophrenia patients who experienced cognitive impairment, 53% were male, 41% had elementary school education, 57% did not work, 64% used atypical antipsychotic therapy, and 46% of patients had an illness lasting more than five years
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INTRODUCTION

Mental health is a serious problem in Indonesia and one of the mental disorders that often occurs in Indonesia is schizophrenia. Based on data from the World Health Organization (WHO) in 2022, schizophrenia affects \pm 24 million people or 1 in 300 people worldwide (0.32%). The incidence of schizophrenia in adults is 1 in 222 people (0.45%).

Schizophrenia is associated with poor lifestyle habits (e.g., obesity, smoking) and high suicide rates, leading to a decrease in life expectancy of approximately 10 to 25 years. In addition, schizophrenia is the third leading cause of disability after blindness and paraplegia. In particular, cognitive impairment has been associated with poor functional outcomes and is present in most schizophrenics, impairing the ability to interact socially, plan, adapt, or solve problems.

Impaired processing in cognition is considered a basic symptom of schizophrenia with mild cognitive deficits appearing before the onset of psychosis, followed by a significant decline in cognitive function in first-episode schizophrenia, which persists into the chronic

stage. Decreased cognitive function in schizophrenia patients is caused by impaired dopamine activity. Disturbances in dopamine may also be associated with decreased glutamate stimulation of N-methyl-D-aspartate (NMDA) receptors and activation of NMDA receptors that is dependent on binding of co-agonists such as D-serine and glycine. In schizophrenia-induced cognitive function decline, there is an obstacle in the binding of glycine to NMDA receptors due to high levels of kynurenic acid in the dorsal prefrontal produced by inflammatory cytokines due to glutamate imbalance. Reduced NMDA transmission causes reduced activity of the prefrontal cortex, which is where the process of cognitive function occurs and worsens cognitive function in schizophrenia patients. It is known that there are seven domains of cognitive function that are closely related to schizophrenia, namely: processing speed, attention/alertness, working memory, verbal learning, visual learning, reasoning and problem solving, and social cognition.

Decreased cognitive function in schizophrenia was found in research conducted by Zenelli (2019) where schizophrenic patients experienced a decrease in IQ and patients with severe symptoms showed a greater decrease in cognitive function than patients with mild or moderate symptoms. Decreased cognitive function in schizophrenia patients, especially in attention, memory, executive function reasoning and processing speed.

METHOD

This research is a descriptive study with a cross sectional study method. The aim is to determine the description of cognitive function in schizophrenia sufferers at RSDKD Dadi, South Sulawesi Province. This research was conducted at RSKD Dadi, South Sulawesi Province, with the research conducted from March to April 2024. The population of this study were inpatients diagnosed with schizophrenia at RSKD Dadi, South Sulawesi Province.

This research was carried out using a total sampling technique and cognitive function tests were carried out on inpatients diagnosed with schizophrenia using the MoCA test sheet and also taking information from secondary data, namely medical records. The data that has been obtained is then processed using Microsoft Word and Microsoft Excel. This research was approved by the Research Ethics Committee of the Faculty of Medicine, Indonesian Muslim University.

RESULTS

The research sample consisted of 113 schizophrenia patients who were hospitalized at Dadi Regional Special Hospital, South Sulawesi Province in the period March 2024 to April 2024. Among the 113 schizophrenia patients, 73% of the patients experienced cognitive impairment and the largest gender was male at 73%. 74% of schizophrenia patients do not work with the highest level of education being elementary school at 42%. The choice of type of drug used for therapy found that 76% of patients used atypical drugs, apart from that, based on the length of illness, the majority of schizophrenia patients reached 55% with a duration of illness of more than 5 years.

Table 1. Description of Schizophrenia Patients based on Cognitive Function, Gender, Education, Occupation, Type of Medication, and Duration of Illness

		Frequency (n)	Percent (%)
Cognitive Function	Disturbed	83	73%
	Not Interrupted (Normal)	30	27%
Gender	Man	83	73%
	Woman	30	27%
Education	elementary school	47	42%
	JUNIOR HIGH SCHOOL	29	26%
	SENIOR HIGH SCHOOL	28	25%
	S1	9	8%
Work	Work	29	26%
	Doesn't work	84	74%
Type of Medicine	Typical	2	2%
	Atypical	86	76%
	Typical and Atypical	25	22%
Long time of illness	< 2 Years	17	15%
	25 years	34	30%
	> 5 Years	62	55%

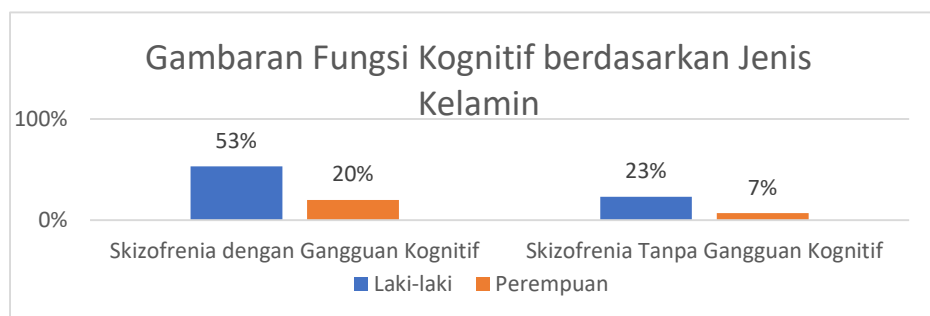


Figure 1. Bar Chart Cognitive Function by Gender

Based on gender (Figure 1), 73% of schizophrenia patients are male and 53% of them experience cognitive impairment. Meanwhile, 20% of 27% of women experienced cognitive impairment.

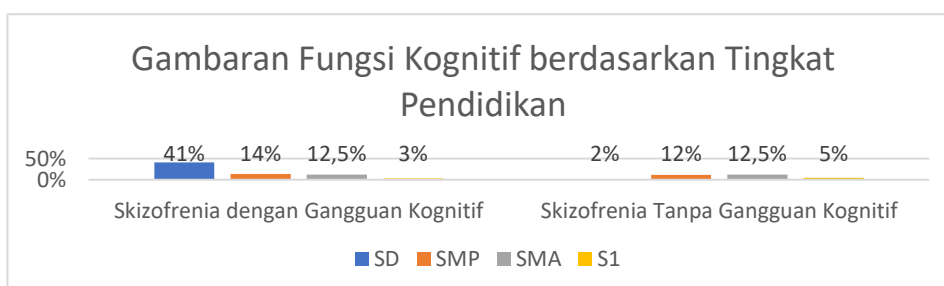


Figure 2. Diagram Stem Cognitive Function by Education Level

The highest level of education for schizophrenia patients is elementary school (42%), followed by middle school (26%), high school (25%), and finally bachelor's degree (8%). 41%

of schizophrenia patients who experience cognitive impairment have an elementary school education level, 14% have a junior high school education level, 12.5% have a high school education level, and 3% have a bachelor's education level, which can be seen in Figure 2.

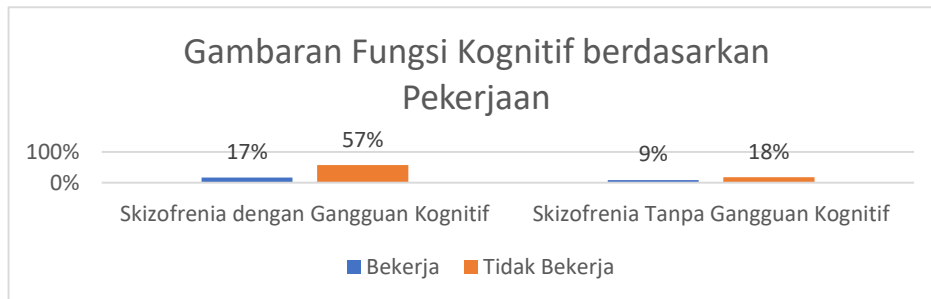


Figure 3. Diagram Stem Cognitive Function by Occupation

Based on Figure 3, 74% of schizophrenia patients do not work and 57% of them experience cognitive impairment. Of working patients, 17% of them had cognitive impairment.

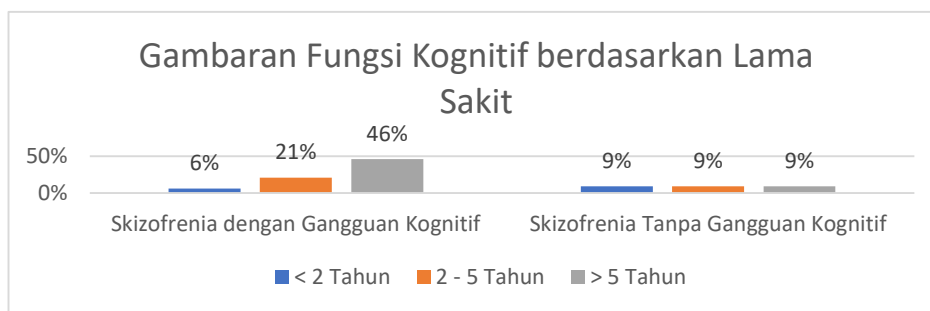


Figure 4. Diagram Stem Cognitive Function by Type of Drug

The most common treatment options given to schizophrenia patients are atypical antipsychotics with 76%, followed by a combination of typical and atypical antipsychotics with 22%, and finally typical antipsychotics with 2%. Patients with cognitive impairment were found to be 64% with atypical types of medication, 9% with atypical and typical, and 1% with typical. 46% of patients experienced cognitive impairment with an illness duration of >5 years, 21% with an illness duration of 2-5 years, and 6% with an illness duration of <2 years (Figure 5).

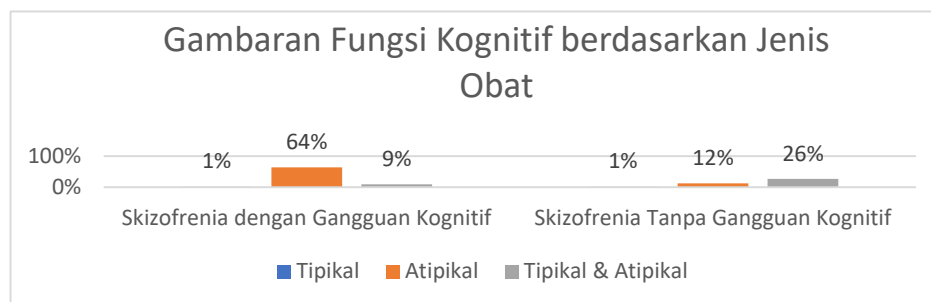


Figure 5. Diagram Stem Cognitive Function Based on Duration of Illness

Discussion

Schizophrenia is a multifaceted clinical challenge, with a significant disability burden. Cognitive impairment is a major feature of schizophrenia, occurring in more than 80% of schizophrenia patients, and is a major determinant of functional disability and indirect outcomes of schizophrenia. The results of this study showed that 73% of patients experienced cognitive impairment. These results are in accordance with research conducted by Selma (2023) using the MoCA test which found that 74.1% of schizophrenia patients experienced impaired cognitive function.^{8,9}

Cognitive impairment in schizophrenia is also associated with gender. Based on research conducted by Sommer (2020), it was found that cognitive impairment was higher in men than in women. This is attributed to genetic factors and the protective effect of estrogen, but the high rate of premorbid substance abuse in men is also another important factor. This research is in accordance with the results obtained with the level of cognitive impairment in men reaching 53% and 20% in women. Apart from that, in research conducted by Zhang (2017), men with schizophrenia experienced worse cognitive function disorders than women, especially in verbal and visual learning.^{10,11,12}

Educational level also plays a significant role in the course of schizophrenia. Research conducted by Mariia (2017) states that there is a relationship between the level of education in patients with schizophrenia and the decline in cognitive function and the research results obtained are that schizophrenic sufferers with a low level of education have more severe cognitive symptoms than schizophrenic sufferers with a lower level of education. tall one. The results of this study are in line with this study with the number of patients 41% of those with schizophrenia who experience cognitive impairment have an elementary school education level, 14% have a junior high school education level, 12.5% have a high school education level, and 3% have a bachelor's degree education level.¹³

Schizophrenia also affects the patient's ability to work, so many of them are unemployed. Individuals with schizophrenia often have been unemployed for years before they are hospitalized. Research conducted by Hakulinen (2019) found that the level of employment in schizophrenic patients was 20 times higher, with a 20 times higher risk of not working. This is in line with the results obtained, namely that 74% of schizophrenia patients were unemployed and 57% of them experienced cognitive impairment.^{14,15}

In treating schizophrenia, antipsychotic drugs are effective in treating acute manifestations of schizophrenia, reducing the risk of relapse, and improving cognitive function. Typical antipsychotics such as haloperidol or chlorpromazine are D2 receptor antagonists that are effective in treating positive symptoms but less effective in treating negative symptoms and decreased cognitive function. Typical antipsychotics such as clozapine, olanzapine, and risperidone inhibit D2 and 5-HT_{2A} receptors, modulating glutamatergic and dopaminergic neurotransmission in the prefrontal cortex. This causes atypical antipsychotics to help improve cognitive function. This statement is in accordance with the results of research conducted by Fernandes (2019) and Baldez (2021) that atypical antipsychotics provide a better effect in treating decreased cognitive function. However, the results obtained for schizophrenia patients with cognitive impairment were 64% with atypical

antipsychotics, 9% with a combination of both antipsychotics (atypical and typical), and 1% with typical antipsychotics.^{16,17,18,19}

The results obtained are not in accordance with the two studies because this study only looked at the overall use of therapeutic drugs without taking into account other factors such as education level, gender, and also the length of the patient's illness. Of the 64% of schizophrenia patients who experienced impaired cognitive function and were treated with atypical antipsychotics, 48 patients were patients with a duration of illness of more than 5 years, and 37 patients were patients with elementary school education. Thus, these results do not specifically assess the effectiveness of atypical antipsychotics in treating decreased cognitive function in schizophrenia patients. ¹⁸

Decreased cognitive function does not only occur in the acute phase but also persists throughout the course of the disease, especially in the chronic phase, causing serious cognitive impairment. In this study, 46% of schizophrenic patients experienced cognitive impairment with an illness duration of >5 years, 21% with an illness duration of 2-5 years, and 6% with an illness duration of <2 years. In accordance with research conducted by Yang (2019), cognitive impairment was found to be more severe in chronic schizophrenia patients compared to schizophrenia patients experiencing their first episode. ¹⁹

CONCLUSIONS

The conclusion of this study was that the proportion of schizophrenia patients in RSKSD Dadi, South Sulawesi Province was 73%. Schizophrenia patients with cognitive impairment are mostly male and have elementary school education. In terms of employment, schizophrenia patients who experience cognitive impairment are more likely to be unemployed. The most common drug use is atypical antipsychotics and based on the longest duration of illness, namely more than 5 years. For further research, the data used should be data obtained from patients who were first diagnosed with schizophrenia so that risk factors, the course of the disease and the effectiveness of therapy on the cognitive function of schizophrenia sufferers can be seen. It is also hoped that the treatment of schizophrenia therapy will be improved by not only providing antipsychotics but also therapy to improve cognitive function such as cognitive remediation, especially in schizophrenia sufferers who are at high risk of experiencing impaired cognitive function (men, low education level, and long illness).

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