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The Effectiveness of the Combination Therapy of Risperidone, Group Psychotherapy and Occupational Therapy on Cognitive Functions and the Quality of Life of Schizophrenia Patients

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Abstract

Schizophrenia is a chronic disorder that could cause a high morbidity and mortality. This study aimed to determine the effectiveness of combination therapy of risperidone, group psychotherapy, and occupational therapy on cognitive functions and quality of life of schizophrenia patients. The study compared the score of Schizophrenia Cognition Rating Scale of Indonesian version (SCoRSVI) and the score of the World Health Organization Disability Assessment Schedule (WHODAS 2.0) between schizophrenia patients who received the occupational therapy (occupational therapy group) and those who did not received occupational therapy (control group). This study was a longitudinal analytic study with a prospective cohort approach which was conducted at South Sulawesi Province Special Hospital (RSKD). Each group consisted of twenty-two schizophrenia patients who were hospitalized for the first time from June to August 2018, and were divided by randomized consecutive sampling technique. Our findings indicated that the comparison of SCoRSVI and WHODAS 2.0 scores between Occupational therapy group and the control group were significant on the eighth week ($p = 0.03$ and $p = 0.010$, consecutively). Result showed that the occupational therapy was effective when combined with antipsychotic therapy and the group psychotherapy to improve cognitive function and the quality of life of the schizophrenia patients, especially in long term therapy.

Keywords: *Schizophrenia, group psychotherapy, occupational therapy, cognitive function, quality of life.*

Introduction

Schizophrenia is a clinical syndrome of psychopathology that can be classified into positive symptoms, negative symptoms and disorganize symptoms. In 2013, Indonesian Health Research data showed that the prevalence of severe mental disorders in Indonesia such as schizophrenia reaches approximately 400.000 people or 1.7 per 1000 population. Moreover, 1% of the population in the world suffered from schizophrenia.[1,2] Furthermore, schizophrenia is a chronic disease that could cause quite high morbidity and mortality, which end to a high medical cost. Morbidity and medical costs of relapse schizophrenia patients are greater than in the first episode of schizophrenia. The consequences are loss of daily productivity, poor response to treatment, longer period of treatment, longer time to achieve remission, and greater costs for treatment.

Cognitive function and the severity of negative symptoms are most often associated with the occurrence of dysfunction in the social ability.[3] Cognitive dysfunction has direct impacts on a personal social performance and social function which result in an inability to work or perform daily activities that could cause poorer quality of life. The quality of life itself can be defined as subjective and objective perceptions of individuals regarding their physical, psychological,

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social and environmental conditions which they experience in their daily lives.[4] In fact, the treatment for cognitive dysfunction have not been optimally studied and often ignored in many Health Service Institutions in Indonesia. Previous study indicated that schizophrenia patients who received group psychotherapy as an adjuvant therapy to risperidone showed improvement in clinical symptoms better than the control group who only received risperidone.[5]

Recently, approach to schizophrenia patients includes multi-dimensional interventions to reduce the abnormal behaviors in various domains. Rehabilitation, as one of the approaches, is the process of refunctioning and redeveloping to improve their psychological, social and occupational function.[6,7] Occupational therapy is one of the medical rehabilitation for physical and mental disorders patients which combine the art and science to lead patients to selective activities in order to improve and maintain their health, as well as to prevent disability through various activities and work.[8]

It is believed that the most effective way to handle patients with schizophrenia is by combining psychopharmacology with psychosocial interventions such as psychotherapy, family therapy, and occupational therapy. There have been several studies shown a significant relationship between cognitive function and the quality of life in schizophrenia patients, and many researchers had try to intervene with various modes of therapy to improve cognitive function and the quality of life of schizophrenia patients. However, there is no study has been carried out to assess the effect of occupational therapy on schizophrenias in combination with group psychotherapy, in terms of cognitive function and their quality of life. This study aimed to determine the effectiveness of the combination therapy of risperidone, group psychotherapy, and occupational therapy on cognitive function and the quality of life of schizophrenia patients.

Materials and Method

This study is a longitudinal analytic study with a prospective cohort approach which was conducted at South Sulawesi Province Special Hospital (RSKD) from June to August 2018.

The subject of this study were schizophrenia patients who were hospitalized in the RSKD from June to August 2018 who met the inclusion criteria and were given group psychotherapy and were treated with risperidone.

The demographic data of the subject was collected, then the baseline cognitive function were assessed using the Indonesian version of the SCoRS instrument and the quality of life using WHODAS 2.0. Clinical interviews was conducted to determine abstract thinking abilities and creative talent. The occupational therapy was given by psychologists and occupational therapists from the South Sulawesi Special Hospital. Cognitive function (SCoRSVI) and quality of life (WHODAS 2.0) were assessed on the 4th week or 12 sessions of the occupational therapy and on the 8th week or 24 sessions of the occupational therapy. The differences between the scores of SCoRSVI and WHODAS 2.0 in control group and experimental group were evaluated from the baseline, on the 4th week and on the 8th week of the study. Data were collected and processed using computer programs, using statistical univariate and bivariate analysis.

Results

There were 27 subjects received risperidone therapy, group psychotherapy and occupational therapy and 25 subjects only received risperidone therapy and group psychotherapy who met the inclusion criteria. Five subjects from the occupational therapy group and 3 subjects from the non-occupational therapy group were excluded because the family decided to take them home.

The comparison of SCoRSVI score in the baseline between the occupational therapy group with the non-occupational therapy group was not significant with p = 0.500. After 4 weeks of therapy, the comparison of SCoRSVI score between the occupational therapy group and the non-occupational therapy group remained not significant with p = 0.157. The comparison of SCoRSVI score between the occupational therapy group and the non-occupational therapy group was significant after 8 weeks of therapy with p = 0.03. The decrease in SCoRSVI score between the occupational therapy group and the non-occupational therapy group showed more significant differences after 8 weeks of therapy (Table 1).

Table 1: The Comparison SCoRSVI score between the non-occupational therapy group and occupational therapy group

Variabel	Group	N (n = 44)	SCoRSVI Score Group 1* and Group 2**					
			Mean	Std. Dev	Median	Min	Max	Sig.
SCoRSVI baseline	Group 1*	22	44,41	6,231	40,50	36	57	0,500
	Group 2**	22	45,23	6.676	42.50	58	58	
SCoRSVI 4th Week	Group 1*	22	42.73	6.438	39,50	56	56	0,157
	Group 2**	22	41.14	7.259	37.50	34	55	
SCoRSVI 8th Week	Group 1*	22	38,86	6.635	35,50	31	53	0.03
	Group 2**	22	34.32	6.506	31.00	28	51	

Mann-Whitney test. *non-occupational therapy group, **occupational standard group.

The differences in WHODAS 2.0 score in the baseline between the occupational therapy group and the non-occupational therapy group were not significant with p = 0.055. After 4 weeks of therapy, the differences in WHODAS 2.0 scores between the occupational therapy group and the non-occupational therapy group remained not significant with p = 0.604. The differences in WHODAS 2.0 score between the occupational therapy group and the non-occupational therapy group were significant on the 8 weeks of therapy with p = 0.010. The significant decrease in WHODAS 2.0 score was seen on the 8th week (Table 2).

Table 2: The Comparison WHODAS 2.0 score between non-occupational therapy group and occupational therapy group

Variabel	Group	N (n = 44)	WHODAS 2.0 Score Group 1* and Group 2**					
			Mean	Std. Dev	Median	Min	Max	Sig.
WHODAS 2.0 baseline	Group 1*	22	41.27	4.558	41.00	34	48	0.055*
	Group 2**	22	43.59	3.096	44.50	38	48	
WHODAS 2.0 4th Week	Group 1*	22	37.59	4.339	37.50	31	44	0,604**
	Group 2**	22	38.14	2.642	39.00	34	43	
WHODAS 2.0 8th Week	Group 1*	22	32.50	4.172	32.50	26	39	0.010**
	Group 2**	22	29.18	1.402	29.00	27	32	

*T-Test Independent, **Mann-Whitney Test*. *non-occupational therapy group, *occupational therapy group.

The comparison of the differences SCoRSVI score between the occupational therapy group and the non-occupational therapy group on the 4 weeks of therapy and on the 8 weeks of therapy were significantly different with p = 0.000. The comparison of the differences in WHODAS 2.0 score between the occupational therapy group and the non-occupational therapy group on the 4 weeks of therapy and on the 8 weeks of therapy was significantly different with p = 0.000 (Table 3).

Table 3: The Comparison Score difference of SCoRSVI dan WHODAS 2.0 between non-occupational therapy group and occupational therapy group

Variabel	Group	N (n = 44)	SCORSVI score Group 1* and Group 2**			WHODAS 2.0 score Group 1* and Group 2**		
			Mean	Std. Dev	Sig.	Mean	Std. Dev	Sig.
Score Diff. baseline -4th Week	Group 1*	22	1.68	0.839	0.000	3.68	0.477	0.000
	Group 2**	22	4.09	1.065		5.45	0.912	
Score Diff. 4th Week-8th Week	Group 1*	22	3.86	0.640	0.000	5.09	0.426	0.000
	Group 2**	22	6.82	2.805		8.95	1.786	
Score Diff. baseline -8th Week	Group 1*	22	5.55	1.101	0.000	8.77	0.752	0.000
	Group 2**	22	10.91	2.793		14.41	2.443	

Mann-Whitney test. *non-occupational therapy group, **occupational therapy group.

Wilcoxon Sign Rank test showed significant differences in the SCoRSVI score between the baseline and the 4th week (p = 0.000) and between the 4th week and the 8th week (p = 0.000), either in the occupational therapy group or in the non-occupational therapy group (Table 4).

Table 4: The Comparison of SCoRSVI score at baseline to 4th week, and 4th week to 8th week at non-occupational therapy group and occupational therapy group.

Variabel	Group	N (n = 44)	SCoRSVI Score Group 1* and Group 2**					
			Mean	Std. Dev	Median	Min	Max	Sig.
SCoRSVI baseline -4th Week	Group 1*	22	44.41	6.231	40.50	36	57	0.000
	Group 1*	22	42.73	6.438	39.50	35	56	
SCoRSVI 4th Week-8th Week	Group 1*	22	42.73	6.438	9.50	55	56	0.000
	Group 1*	22	38.86	6.635	35.50	31	53	
SCoRSVI baseline -4th Week	Group 2**	22	45.23	6.676	42.50	38	58	0.000
	Group 2**	22	41.14	7.259	37.50	34	55	
SCoRSVI 4th Week-8th Week	Group 2**	22	41.14	7.259	7.50	34	55	0.000
	Group 2**	22	34.32	6.506	31.00	28	51	

Wilcoxon Sign Rank Test. *non-occupational therapy group, **occupational therapy group.

Wilcoxon Sign Rank test showed significant differences in the WHODAS 2.0 score between the baseline and the 4th week (p = 0.000) and between the 4th week and the 8th week (p = 0.000), either in the occupational therapy group or in the non-occupational therapy group (Table 5).

Table 5: The comparison of WHODAS 2.0 Score at baseline to 4th week, and 4th week to 8th week at non-occupational therapy group and occupational therapy group

Variabel	Group	N (n = 44)	WHODAS 2.0 Score Group 1* and Group 2**					
			Rerata	Std. Dev	Median	Min	Max	Sig.
WHODAS 2.0 baseline -4th Week	Group 1*	22	41.27	4.558	41.00	34	48	0.000
	Group 1*	22	37.59	4.339	37.50	31	44	
WHODAS 2.0 4th Week-8th Week	Group 1*	22	37.59	4.339	37.50	31	44	0.000
	Group 1*	22	32.50	4.172	32.50	26	39	
WHODAS 2.0 baseline k-4th Week	Group 2**	22	43.59	3.096	44.50	38	48	0.000
	Group 2**	22	38.14	2.642	39.00	34	43	
WHODAS 2.0 4th Week-8th Week	Group 2**	22	38.14	2.642	39.00	34	43	0.000
	Group 2**	22	29.18	1.402	29.00	27	32	

Wilcoxon Sign Rank Test. *non-occupational therapy group, **occupational therapy group.

Discussion

In this study, the occupational therapy group received risperidone therapy, group psychotherapy and occupational therapy 24 times over 8 weeks. In the non-occupational therapy group, only received risperidone therapy and group psychotherapy. Occupational therapy is generally given 1-3 times a week, 1-3 hours per session from 6 weeks to 6 months.[9,10,11] Gender distribution showed more male (68.2%) in the occupational therapy group, and the same percentage between men and women (50%) in the non-occupational therapy group. This was in accordance with the literature that schizophrenia was more commonly occur in men than in women.[12,13]

Wilcoxon Sign Rank test showed a significant differences in the SCoRSVI score between the baseline and the 4th week (p = 0.000), as well as between the 4th week and the 8th week (p = 0.000), either in the occupational therapy group or in the non-occupational therapy group. Wilcoxon Sign Rank test showed significant differences in WHODAS 2.0 score between the baseline and the 4th week (p = 0.000) as well as between the 4th week and the 8th week (p = 0.000),

either in the occupational therapy group or in the non-occupational therapy group. This describes that from the baseline, the 4th week and the 8th week, either in the occupational therapy group or in the non-occupational therapy group, had shown significant improvements in cognitive function and the quality of life. According to the Wilcoxon Sign Rank test, there were significant differences in the SCoRSVI score at the baseline to the 4th week ($p = 0.000$) and at the 4th week to the 8th week ($p = 0.000$), either in the occupational therapy group or in the non-occupational therapy group. Similarly, Wilcoxon Sign Rank test showed significant differences in WHODAS 2.0 scores at the baseline to the 4th week ($p = 0.000$) and at the 4th week to the 8th week ($p = 0.000$), either in the occupational therapy group or in the non-occupational therapy group. This indicates that from the baseline to 4th week then to the 8th week, either in the occupational therapy group or in the non-occupational therapy group, had shown significant improvements in cognitive function and the quality of life.

However, comparison of the mean scores difference between SCoRSVI and WHODAS 2.0 in the occupational therapy group and the non-occupational therapy group, from the baseline and from the 4th week to the 8th week, showed a significant results were $p \leq 0.000$. This showed that treatment with risperidone therapy group psychotherapy combined with occupational therapy was more effective in improving the clinical symptoms of schizophrenia disorder than if it were only given risperidone therapy with group psychotherapy. This support the theory that our brain stores information by modifying neuronal connections

Conclusion

It was concluded that there was an improvement in cognitive function and the quality of life in both the occupational therapy group given risperidone therapy combined with group psychotherapy and occupational therapy, as well as the non-occupational therapy group given risperidone therapy with only group psychotherapy combination. The improvement of cognitive function and the quality of life in the occupational therapy group was better than the non-occupational therapy group. Occupational therapy was effective when combined with antipsychotic therapy and group psychotherapy in improving cognitive function and the quality of life. Further study was recommended in comparing occupational therapy on schizophrenia patients between hospitalized and non- hospitalized ones. It is important to conduct study in comparing the effectiveness of occupational therapy with other psychotherapeutic modalities in schizophrenia patients. It was also important to evaluate patient condition after therapy and how they interact with their environment. Hospital and government health insurance needs to consider carrying out occupational therapy in hospitalized schizophrenia patients because it could shorten the length of stay in the hospital.

Ethical Clearance: The research data and experiment has taken the approval from South Sulawesi Province Special Hospital (RSKD) and Hasanuddin University Makassar

Funding Source: This research was privately funded.

Confict of Interests: There are no conflict of interest

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