

EFFICACY OF ATYPICAL-ATYPICAL AND ATYPICAL-TYPICAL ANTIPSYCHOTIC IN INDONESIA PSYCHOTIC MENTAL DISORDER PATIENTS**Mexsi Mutia Rissa***

Diploma III Program Farmasi, Akademi Farmasi Indonesia Yogyakarta, Yogyakarta 55161, Indonesia

Email: mexsi.pharm@afi.ac.id

ABSTRACT

It is approximately 7% of Indonesian people undergo psychotic mental disorder or schizophrenia. Special Region of Yogyakarta in Indonesian is on the second rank as the area whose high number of schizophrenia; for about 10 occurrences per 1000 citizens and 80% of patients treated at psychiatric hospital are caused by schizophrenia. A response of a medication therapy can be measured through doctor diagnosis based on the measurement parameter such as The Positive and Negative Syndrome Scale-Excited Component (PANSS-EC) and Global Assessment of Functioning (GAF). Those two parameters are important variables that will be shown objectively by the assessment results. This research aimed to find out the different value of PANSS-EC and GAF, before and after the therapy of atypical-typical and atypical-typical on the schizophrenia patients at Psychiatric Hospital of Grhasia Yogyakarta. The research design here is Prospective Cohort. The criteria of inclusive patient was adults (18-65 years old), being hospitalized, undergoing atypical-atypical and atypical-typical therapy, and possessing complete medical record. The research data were gained from the medical records which then analyzed using univariate test to illustrate the patient distribution. Bivariate test was conducted to compare and correlate the value of PANSS-EC and GAF. The number of samples were 32 patients which were divided into 2 groups; atypical-atypical (n=16) and atypical-typical (n=16). The results showed that the value of PANSS-EC after therapy in both groups experienced a significant decrease ($p=0.001$). However, there was no significant difference between the two groups of patients with psychotic mental disorders or schizophrenia in a mental hospital and there research no significant difference in effectiveness between doses and frequency of antipsychotic therapy regimens in schizophrenic patients with a significant value of $p>0.05$

Keywords: Psychotic mental disorder, atypical-atypical, atypical-typical, PANSS-EC, GAF

INTRODUCTION

Mental health constitutes one of the most concerned problems in the world recently; that is a change of mental function, which then leads to a disruption causing suffering on an individual or difficulty in implementing social role (Kirkbride et al., 2024). Psychotic mental disorder is a mental disorder which leads to a condition that the individual will lost contact to the reality; it will make the individual could not distinguish the real and unreal situation, commonly will start

with getting difficult to concentrate, irrational talk, and difficult to remember. The sufferer of psychotic mental disorder will seem to be alone with flat emotion that sometimes can be very high or depressed suddenly (Leclerc et al., 2024).

The causes of psychotic mental disorder are not recognized yet. Patients with personality disorder such as borderline, schizoid, schizotypal or paranoid qualities can develop to be psychotic symptoms (Köse & Erbaş, 2020). In some cases, psychotic patients also have history on schizophrenia or mood disorder in the family, even though it cannot be confirmed yet (Valentine et al., 2024). Psychodynamic has been developing a doubling mechanism which is not appropriate and creates possibilities of secondary development on psychotic patients (Hartwich & Northoff, 2018). Psychodynamic theory also appended that psychotic symptoms are defensive mechanism to forbidden thoughts, fulfillment and uncompleted desire, or a way out of a depressing psychosocial situation.

Schizophrenia is one of acute mental disorders which is marked by the decrease or disability of communication, disturbance of reality (hallucination or suspicion), unusual or blunt, cognitive impairment (unable to think abstractly), and also difficulty in completing daily activities (Hariyani, 2016). Schizophrenia is a mental and medical function disorder that affects the function of human brain, cognitive function, emotions and behavior (Depkes RI, 2015). Schizophrenia can happen because there is an abnormality in the brain that can influence perception process, thoughts, emotions, social movement and behavior (Lozano-Goupil et al., 2024).

According to World Health Organization (WHO, 2016), there are about 35 million people undergo depression, 60 million people suffer from bipolar, 47.5 million people experience dementia, and 21 million people have schizophrenia disorder. American Psychiatric Association (APA, 2013) stated that 1% of world population undergo schizophrenia and 75% of schizophrenia sufferers are people at age 16-25 years old (Depkes RI, 2015). In accordance with Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR) in the text of Sadock (2007) asserted that the annual incidence of schizophrenia is about 0.5 per 10,000 with some geographic variation.

Based on World Health Organization (WHO, 2012), there are about 450 million people suffer mental disorder, meanwhile the schizophrenia sufferers in the world are about 24 people, which means about 1% of the world population. The results of Basic Health Research (Riskesdas, 2018) of Indonesian also defined that mental disorder cases has been increased significantly from 83,612 to 85,788 cases in 2013 to 2018; that is 1.7 cases or 1-2 people per 1000 Indonesian citizens. This number is considered high enough as it means that 50 million people or 25 % of total population in Indonesia undergo mental disorder. Yogyakarta occupies the second rank associated with the high number of psychotic mental disorder or schizophrenia occurrences, which is 10 occurrences per 1000 citizens (Yusuf et al., 2022).

The implementation of drug therapy for patients with mental disorders or schizophrenia utilizes either single or combination antipsychotics (Poulos et al., 2024). The use of antipsychotic combination therapy is more often compared to the singular therapy, that is 90.6% (Yulianty et al., 2017). The use of the combination between the first generation and the second generation of antipsychotic is the most common given (70.83%) since the first generation of antipsychotic is able to repair positive symptoms, even though it does not repair the negative ones. Meanwhile the second generation of antipsychotic is able to repair both positive and negative symptoms which leads to the more effective medication for resistant patients (Cherrie et al., 2018).

(Pamungkas & Arifin, 2021) reported that the most often used antipsychotic prescribed by the doctors of the Grhasia Psychiatric Hospital is the combination of two medicines (atypical-atypical) that is haloperidol-clozapine (42.6%). The pattern of the antipsychotic use given to each patient is not changed, both the medicines and the dosage. The pattern of prescribed antipsychotic use will undergo at least once in change, and mostly about the combination of two medicines (chlorpromazine-haloperidol substituted by haloperidol-clozapine) within 1 week, that is about 15.9%. In accordance with the results of preliminary studies in June, July, and August 2018 at Grhasia Psychiatric Hospital, that was the atypical combination (clozapine-risperidone) and the atypical-atypical combination (clozapine-haloperidol-risperidone) that became the reason for the researcher to conduct this research by analyzing the value difference of PANSS-EC on both groups.

The research was conducted at the Psychiatric Hospital of Grhasia Yogyakarta since this hospital is a referral hospital of Special Region of Yogyakarta Province for which the prevalence of psychotic mental disorder cases happening in this hospital is more numerous compared to any other regional public hospitals. The progress status of the psychotic disorder patients can commonly be measured through PANSS-EC. Meanwhile GAF is an evaluation scale ranging up to 100 (100 means superior function) which can be used to assess psychological function, social, and people's work. This rating scale has been proved to be reliable and valid in the previous research (Forrer et al., 2024).

RESEARCH METHODS

Instrument

The instrument used in this research is a form of data retrieval which is used to collect the patients' demographic data such as age, gender, marital status, education, occupation, hospital admission date, hospital discharge date, the value of PANSS-EC and GAF before and after the therapy (when firstly arrived at the hospital and when leaving the hospital) through medical record.

Research Procedure

Determining the target groups (research population) became the first step in conducting this research. Every patient of the psychotic mental disorder who met the inclusion criteria in the group research will be noted further about his/her identity. The subjects were then divided into two groups; those groups would get a therapy of atypical-atypical and atypical-typical. The next step was recapitulating the value of PANSS-EC and GAF before and after the therapy of atypical-atypical group and atypical-typical group. Processing and analyzing the data statistically using computerized system were the last steps in this research.

Data Analysis

The frequency distribution and the proportion of socio-demographic subjects in atypical-atypical group and atypical-typical group data were analyzed using Statistical Product and Service Solution (SPSS version 23). Meanwhile the comparative analysis of numerical data in pairs was used to know the difference average of PANSS-EC and GAF value before and after the therapy. It was determined through a test of paired sample t-test for normal-distributed data, and Wilcoxon for abnormal-distributed data. After that, the difference of average value, before and after the therapy was then analyzed using independent sample t-test for normal-distributed data, and followed by Mann-Whitney ($p < 0,05$).

RESULTS AND DISCUSSION

Socio-demographic Characteristics of Subjects

The characteristics of socio-demographic subjects consist of several elements such as age, gender, marital status, education, and occupation (Nugroho et al., 2024). Based on the characteristics of schizophrenia patients profile, tabel I shows that for the adult category (18-40 years old) of atypical-atypical group has more members, which are 13 subjects (81.2%), meanwhile atypical-typical group has only 11 subjects (68.8%). For the old-aged category (41-65 years old), atypical-atypical group has more members, that are 5 subjects (31.2%), meanwhile atypical-typical group has 3 subjects (18.8%). According to the age, most of the subjects are adults. This is in line with what has been explained by (Sadock, 2015), who stated that patients who undergo the medication of acute mental disorder or schizophrenia are about 90% at age of 15-55 years old (Richardson et al., 2024). The research results also indicated the same thing, that the patients were mostly adults, either in atypical-atypical group or atypical-typical combination group.

The results of a research conducted by (Setiati & Rahayu, 2017) at Dr. Tjitrowardojo Hospital in Purworejo Regency show that the prevalence of acute mental disorder or schizophrenia patients at age above 35 years old is more numerous compared to patients at age under 35 years old.

Table 1. The characteristics of socio-demographic subjects treated using atypical- atypical and atypical-typical at Psychiatric Hospital of Grhasia Yogyakarta

Characetristic	Frequency (n. %)	
	A-A (n=16)	A-T (n=16)
Age		
Young (18-40 tahun)	13 (81.2)	11 (68.8)
Old (41-65 tahun)	3 (18.8)	5 (31.2)
Gender		
Male	10 (62.5)	14 (87.5)
Female	6 (37.5)	2 (12.5)
Marital Status		
Unmarried	11 (68.8)	14 (87.5)
Married	5 (31.2)	2 (12.5)
Education		
Elementary (SD-SLTP)	3 (18.8)	5 (31.2)
High (SLTA-Univ)	13 (81.2)	11 (68.8)
Occupation		

Unemployed	9 (56.2)	14 (87.5)
Employed	7 (43.8)	2 (12.5)

Annotation: A-A= Atypical-Atypical; A-T= Atypical-Typical

From the table I, we can infer that the number of male the atypical-typical group is higher (14 subjects, 87.5%) than the atypical-typical group (10 subjects, 62.5%). Meanwhile for the number of female, the atypical-atypical group has higher (6 subjects, 37.5%) than the atypical-atypical group (2 subjects, 12.5%). Comparing the male and female, the female patients usually diagnosed late to have schizophrenia (Abel et al., 2010), and there may be a worse prognosis indicator suffered by the male (Andrade et al., 2015). The prognosis of male is worse than the female's as the negative symptoms are commonly found on the male than the female, meanwhile the social function of the female is better than the male's. This is because of the antidopaminergic estrogen effect in women. The estrogen has dopamine activities in the accumbens nucleus that hampers dopamine release. The increasing number of dopamine receptor in caudate, accumbens, and putamen nucleus is the etiologic reason of the schizophrenia occurrence (Canuso & Pandina, 2007). It is also line with a research of Siegrist et al. (2015) which showed that the majority of schizophrenia patients were males (61.8%).

The Table 1 also shows that based on the marital status, the percentage of unmarried patients in atypical-typical group is higher (4 subjects, 87.5%) for atypical-typical group, and 11 subjects (68.8%) for atypical-atypical group. Meanwhile the percentage of married patients in atypical-atypical group is higher (5 subjects, 31.2%) than in atypical-typical group, which is only 2 subjects (12.5%). Durand & Barlow (2007) asserted that schizophrenia patients tend to be unable to establish and maintain a relationship. Most of schizophrenia patients have difficulty in socializing with society, especially their ability to interact with others so that the patients tend to never get married or having kids. Moreover, the symptoms of schizophrenia appear since teenage age or productive period, which also become a reason why the schizophrenia patients are not married for a next time. This is intended to avoid problems in marriage (Oktaviana, 2009). It is also in line with what has been stated by Mallet et al. (2002) that people who live alone have bigger risk to experience acute mental disorder or schizophrenia. Therefore, it can be concluded that the results of this research are in accordance with the existing theories.

The table 1 also shows that the number of patients who took elementary education in atypical-typical group are higher than in atypical-atypical group; that is 5 subjects (31.2%) for atypical-typical group, and 3 subjects (18.8%) for atypical-atypical group. Meanwhile for the patient with higher education, the number in atypical-atypical group is higher, which is 13 subjects (81.2%) than in atypical-typical group, which is only 11 subjects (68.8%). According to Sutejo (2017), education is one of the factors that can trigger acute mental disorder or schizophrenia. The characteristic of subjects based on the last education shows that most of the subjects are senior high school graduates. This results are in line with the theory explaining that the age of 15-20 which is considered as the age of senior high school graduates, especially those who are at risk for schizophrenia, will experience prodromal stage where the schizophrenia symptoms begin to appear (Stahl, 2008). In addition, the higher the level of education, the higher the social function of schizophrenia patients will be.

The occupation variable was included in this research in order to know the proportion of the diagnosed patients of schizophrenia who are employed and unemployed. The results of this

research show that the number of unemployed patients in atypical-typical group is higher than in atypical-atypical group; that is 14 subjects (87.5%) for atypical-typical group, and 9 subjects (56.2%) for atypical-atypical group. Meanwhile the number of employed patients in atypical-atypical group is higher, that is 7 subjects (43.8%) than in atypical-typical group, which is 2 subjects (12.5%). In accordance with Kaplan & Sadock's (2010) concept, there are about 75% of acute schizophrenia patients cannot work and do not have occupation. This fact is also supported by a research conducted by Saputri (2016) explaining that the highest distribution based on the occupation characteristic is unemployed as the patients of mental disorder have some limitations. Since the ability of socializing on the patients of mental disorder is low, their ability to complete the work tasks will also be low. This also can be seen from the prognostic progress which is not good enough (40-60% will be disordered continuously).

The results of Shapiro Wilk test (test of normality) are presented in the following Table 2.

Table 2. The statistical analysis of Normality test on the data of psychotic mental disorder or schizophrenia patients treated using atypical-atypical dan atypical-typical at Psychiatric Hospital of Grhasia Yogyakarta

Parameter	Group	Score Value $\bar{X}$ SD		<i>p-value</i>
		<i>Pre</i>	<i>Post</i>	
PANSS-EC	A-A	2,750±0,447	1,310±0,479	0,333
	A-T	2,620±0,500	1,060±0,250	0,164
GAF	A-A	2,750±1,065	4,000±1,211	0,186
	A-T	2,880±0,619	4,310±0,704	0,054

Annotation: A-A = *Atypical-Atypical*; A-T= *Atypical-Typical*; *pre*= before; *post*= after

Since this reasearch used only 32 subjects as the data, thus it is appropriate to be implemented to this research as the normality test. The table above shows that p-value of atypical-atypical group towards the value of PANSS-EC is higher than on atypical-typical group; that is 0.333 for atypical-atypical group, and 0.164 for atypical-typical group. Meanwhile the value of GAF on atypical-atypical group is higher, that is 0.186 compared to the value of GAF on atypical-typical group, which is only $p=0.054 > 0,05$. Referring to p-value as the parameter of decision-making related to the normality test, it will have a normal distribution if (p-value 0.05). From the Table 2, we can recognize that ($p=0.05$), hence it can be concluded that the value of PANSS-EC and GAF is normal-distributed on both atypical-atypical group and atypical-typical group.

Value of PANSS-EC and GAF Before and After the Therapy on Atypical-Atypical Group and Atypical-Typical Group

Table 3. Statistical analysis of Paired Sample T-Test test on the data of psychotic mental disorder or schizophrenia patients treated using atypical-atypical and atypical-typical at Psychiatric Hospital of Grhasia Yogyakarta

Parameter	Group	Score value $\bar{X}$ SD		95% confidence interval of the difference		p-value
		Pre	Post	Lower	Upper	
PANSS-EC	A-A	2,750±0,447	1,310±0,479	1,004	1,871	0,001
	A-T	2,620±0,500	1,060±0,250	- 1,663	- 0,837	0,001
GAF	A-A	2,750±1,065	4,000±1,211	1,289	1,836	0,001
	A-T	2,880±0,619	4,310±0,704	- 1,871	- 1,004	0,001

Annotation: A-A = Atypical-Atypical; A-T= Atypical-Typical; pre=before; post=after

The table 3 show that both of average score of PANSS-EC value after the therapy on atypical-atypical (1.310±0.479) and atypical-typical groups (1.060±0.250) were significantly decreased (p=0,001). The average both of average score of GAF value after the therapy on atypical-atypical (4.000±1.211) and atypical-typical groups is (4.310±0.704) were significantly increase (p=0,001). It means there were influence the therapy of atypical-atypical and atypical-typical to reduce PANSS-EC score and increase GAF score the schizophrenia patients.

In the therapy, each group was given clozapine therapy, for which it belongs to the selected antipsychotic for the schizophrenia patients whose high score value of PANSS-EC. This therapy is also supported by a research result of Goodwin et al. (2008) stating that the use of clozapine will be safer if it is prescribed as a monotherapy since it gives a good tolerability. A research of Ravanic et al. (2009) comparing the effectivity of the use of clozapine, chlorpromazin, and haloperidol by referring to the score reduction of PANSS within 5 years of research period, asserted that the low dosage of clozapine showed better effectivity on chronic schizophrenia patients along with typical positive and negative symptoms. Meanwhile the second generation of antipsychotic (atypical) did not reduce acute psychopathology and severity of schizophrenia patients compared to perphenazine by referring to the score reduction of the patients' PANSS score (Swanson et al., 2008).

Therapy of antipsychotic combination will be more excellent than monotherapy as it can be proved by the score reduction of the patients' PANSS score. The less effectivity of monotherapy is the main reason to switch and begin to the therapy of antipsychotic combination continuously which can also lead to the reduction of positive symptoms and behavior disorder on the patients

(Correll et al., 2009; Barbui C et al., 2003). The research results on both groups, atypical-atypical and atypical-typical group, show that there was score reduction of PANSS-EC value, and increased score of GAF value of the patients of psychotic mental disorder or schizophrenia. Another supporting result is also proposed by Huang et al. (2015) which explained that there is no significant difference on PANSS-EC value between the two groups (olanzepin -10.2 p-value<0.001; haloperidol + lorazepam -9.9 p-value<0.001) for which haloperidol combined with lorazepam cannot be defeated by olanzepin in agitation testing in 2 hours and there is also no significant difference on PANSS-EC value between those two groups within 2 hours after first injection.

Comparative Analysis of Unpaired Numerical Data Using Independent Samples t-test Test

Independent sample t-test test is a statistical analysis of comparative test or difference test in order to find out whether there is any difference of mean or average or not, meaning that those two groups are independent or unpaired each other. In this research, there were two groups, atypical-atypical group and atypical-typical group.

Table 4. The results of statistical analysis using Independent Sampel T-Test test on the research data of psychotic mental disorder or schizophrenia patients treated using atypical-atypical and atypical-typical at Psychiatric Hospital of Grhasia Yogyakarta

Group	Parameter	Score $\bar{X}$	95% confidence interval of the difference		p-value
			Lower	Upper	
A-A ; A-T	PANSS-EC pre	2,750-2,620	-0,217	0,467	0,462
A-A ; A-T	PANSS-EC post	1,310-1,060	-0,030	0,530	0,077
A-A ; A-T	GAF pre	2,750-2,880	-0,760	0,510	0,688
A-A ; A-T	GAF post	4,000-4,310	-1,028	0,403	0,379

Annotation: A-A = *Atypical-Atypical*; A-T= *Atypical-Typical*; pre=before; post=after

Table 4 is used to find out whether there is any different average of PANSS-EC and GAF score between those two groups, atypical-atypical group and atypical-typical group, or not. The average score of PANSS-EC value before the therapy on atypical-atypical group is 2.750, whereas on atypical-typical group is 2.620. For the average score of PANSS-EC value after the therapy, it is 1.310 on atypical-atypical group, and 1.060 on atypical-typical group for which it is lower than the score of atypical-atypical group. The average score of GAF before the therapy on atypical-atypical group is 2.750, meanwhile on atypical-typical group is 2.880. For the average score of GAF after the therapy, it is 4.000 on atypical-atypical group, and 4.310 on atypical-typical group which is higher than the score of atypical-atypical group.

The significancy value of PANSS-EC shows that before the therapy, p-value is 0.462, and after the therapy, p-value is 0.077. Meanwhile the value of GAF reflects that before the therapy, p-value is 0.688, and after the therapy, p-value is 0.379. From the results, it can be indicated that all p-value is higher than 0.05, thus it can be concluded that there is no significant difference between the score value of atypical-atypical group and atypical-typical group in this reserach. This is also in accordance with a research of Wahlbeck (2000) which proposed that the comparison of the results of clozapine and risperidone therapy reffering to the general function in a short period towards GAF value (the higher the score of GAF, the better the result will be) will have no significant difference among those two groups (1 RCT, n=19; MD-9.00; CI-18.44-0.44), but there will be a significant difference, before and after the therapy.

Frequency of use of antipsychotics found that there was no significant difference in the effectiveness of decreasing PANSS-EC values pre and post therapy and increasing GAF values pre and post between the antipsychotic groups. This is caused by several factors, namely the relatively short observation time, the disease severity level of the research subjects involved on average has been at a mild level (entered the stable phase), and the relatively small number of research subjects. In accordance with research conducted by Nasikha (2020) that there is no significant difference between typical and atypical antipsychotics in improving the overall symptoms of schizophrenia.

Research Limitation

The unbalanced proportion of age became one of limitations in this research. This is because the age of the subjects was not same. The research subjects in both groups, atypical-typical and atypical-typical group had different age for which it gave difficulty to find out the real difference of PANSS-EC reduction score and GAF increased score since the subjects had different psychological factor. Other influencing factors in the relevant research are also stated by Dimsdale (1995) which mentioned that there are some confounding factors in a research such as social status, economic status, occupation, education, types of disease, types of medication, severity of a disease, and also different duration and dosage of medication.

CONCLUSION

The score of PANSS-EC value after the therapy on both atypical-atypical group and atypical-typical group of psychotic mental disorder or schizophrenia patients at Psychiatric Hospital of Grhasia Yogyakarta was reduced significantly ($p=0.001$), meanwhile the score of GAF after the therapy was significantly increased ($p=0.001$) on the both groups, atypical-atypical group and atypical-typical group of psychotic mental disorder or schizophrenia patients at Psychiatric. The

results of the study did not find a significant difference in effectiveness between antipsychotic therapy regimens in schizophrenia patients with a significant value of $p > 0.05$

BIBLIOGRAPHY

- Cherrie, J. W., Apsley, A., Cowie, H., Steinle, S., Mueller, W., Lin, C., Horwell, C. J., Sleenwenhoek, A., & Loh, M. (2018). Effectiveness of face masks used to protect Beijing residents against particulate air pollution. *Occupational and Environmental Medicine*.
- Forrer, M. L., Oosterman, M., Tharner, A., & Schuengel, C. (2024). Testing reliability and validity of practitioner-rated parental sensitivity: A novel tool for practice. *Infant Mental Health Journal*.
- Hartwich, P., & Northoff, G. (2018). Schizophrenia and other Psychoses. *Neuropsychodynamic Psychiatry*, 171–218.
- Kirkbride, J. B., Anglin, D. M., Colman, I., Dykxhoorn, J., Jones, P. B., Patalay, P., Pitman, A., Sonesson, E., Steare, T., & Wright, T. (2024). The social determinants of mental health and disorder: evidence, prevention and recommendations. *World Psychiatry*, 23(1), 58.
- Köse, S. S., & Erbaş, O. (2020). Personality disorders diagnosis, causes, and treatments. *Demiroglu Science University Florence Nightingale Journal of Transplantation*, 5(2), 22–31.
- Leclerc, P., Gamache, D., & Cailhol, L. (2024). Time to put aside the false dichotomy between personality disorders and psychotic symptoms. *Journal of Clinical Psychology*.
- Lozano-Goupil, J., Marin, L., Aubin, L., Decombe, A., Serré, H., Capdevielle, D., Mostafaoui, G., & Raffard, S. (2024). Impaired perception of a partner's synchronizing behavior reduces positive attitude toward humanoid robot in schizophrenia patients. *Schizophrenia Research*, 264, 511–518.
- Nugroho, I., Widyasari, D. C., & Syakarofath, N. A. (2024). Sociodemographic Factors and Stress Levels Among Health Workers in Malang During Covid-19 Pandemic. *KnE Social Sciences*, 391–406.
- Pamungkas, W. S. D., & Arifin, A. (2021). *Pengaruh Belanja Modal terhadap Kinerja Keuangan Daerah dengan Pendapatan Asli Daerah sebagai Variabel Intervening pada Kabupaten dan Kota di Provinsi Jawa Timur Tahun 2017-2019*. Universitas Muhammadiyah Surakarta.
- Poulos, J., Horvitz-Lennon, M., Zelevinsky, K., Cristea-Platon, T., Huijskens, T., Tyagi, P., Yan, J., Diaz, J., & Normand, S. (2024). Targeted learning in observational studies with multi-valued treatments: An evaluation of antipsychotic drug treatment safety. *Statistics in Medicine*.
- Richardson, K., Petukhova, R., Hughes, S., Pitt, J., Yücel, M., & Segrave, R. (2024). The acceptability of lifestyle medicine for the treatment of mental illness: perspectives of people with and without lived experience of mental illness. *BMC Public Health*, 24(1), 171.
- Sadock, B. J. (2015). *Kaplan & Sadock's synopsis of psychiatry: behavioral sciences/clinical psychiatry* (Vol. 2015). Wolters Kluwer Philadelphia, PA.
- Setiati, A. R., & Rahayu, S. R. S. (2017). Faktor yang mempengaruhi kejadian BBLR (Berat Badan Lahir Rendah) di ruang perawatan intensif neonatus RSUD dr Moewardi di Surakarta. (*JKG Jurnal Keperawatan Global*, 2(1).
- Valentine, M. J., Kayastha, A., Newsome-Cuby, T. R., Nguyen, A. T. N., Fisher, R. G., Pham, H. M., Meimon, S. A., Phu, A., Parry, C. A., & Nelson, J. J. (2024). A Clinical Suspicion of Quetiapine-Induced Psychosis: A Case Report and Literature Review. *Cureus*, 16(1).
- Yulianty, M. D., Cahaya, N., & Srikartika, V. M. (2017). Studi penggunaan antipsikotik dan efek

sampling pada pasien skizofrenia di rumah sakit jiwa Sambang Lihum Kalimantan Selatan. *JSFK (Jurnal Sains Farmasi & Klinis)*, 3(2), 153–164.

Yusuf, H., Subardhini, M., Andari, S., Ganti, M., Esterilita, M., & Fahrudin, A. (2022). Role of family and community support in the eliminating restraint of persons with mental illness. *International Journal of Health Sciences*, 6(2), 987–1000.

Copyright holder:

Mexsi Mutia Rissa (2024)

First publication rights:

Syntax Transformation Journal

This article is licensed under:

