Validity And Reliability Of Mars-10 Questionnaire On Antipsychotic Adherence In Schizophrenia Patients

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ABSTRACT

Non-adherence in schizophrenia treatment is still a major problem in the successful treatment of schizophrenia. MARS-10 (Medication Adherence Report Scale-10) questionnaire is a self-reported questionnaire to measure patient's adherence which has been implemented in some disease. However, there is still no study investigated the application of MARS-10 into schizophrenia patients in Indonesia. The purpose of this study was to determine the reliability and validity of the MARS-10 questionnaire in schizophrenia cases in Indonesia. This design of this study was a prospective, descriptive quantitative analysis approach with a cross-sectional design. Thirty schizophrenia patients from Saiful Anwar Hospital Malang, Lawang Mental Hospital, and UMM Hospital were used as research samples. Determining the validity of the questionnaire using the Pearson Product Moment correlation test, the correlation coefficient value r count is greater than the r table value, which is 0.361. In determining the reliability of the questionnaire, an analysis was carried out using the Cronbach's Alpha coefficient which showed the Cronbach's Alpha coefficient of 0.742. The results of the validity and reliability tests show that the MARS-10 questionnaire that has been translated into Indonesian is valid and reliable for measuring the level of compliance of schizophrenia patients with antipsychotic treatment in Indonesia.

Keywords : Adherence; MARS-10; reliability test; schizophrenia; validity test

INTRODUCTION

Schizophrenia is becoming one of the most disabling diseases worldwide (Strassnig *et al.*, 2021) which may affect around 24 million people or 1 in 300 people (0.32%) worldwide (WHO,2020) and occurs in about 400,000 people or 1.7 per 1,000 Indonesians (Depkes, 2019). Schizophrenia is a severe, chronic, and debilitating mental disorder with clinical manifestations of positive symptoms (delusions and hallucinations, disorganization of thoughts), negative symptoms (dulled affect, alogia,

asociality, anhedonia, and avolition), and cognitive symptoms (reduced working memory and cognitive flexibility) (Bègue, Kaiser and Kirschner, 2020; McCutcheon, Krystal and Howes, 2020).

Pharmacological therapy is a major part of the management of schizophrenia and antipsychotics are used as the first line for psychiatric disorders as they are effective in reducing the severity of psychotic symptoms as well as preventing relapse in the first year of acute psychotic episodes, while maintenance therapy is used in the long term once the patient is stabilized (Aubel, 2021; Correll *et al.*, 2022; Kule and Kaggwa, 2023). Antipsychotics are generally divided into typical (first generation) and atypical (second generation) antipsychotics (Carli *et al.*, 2021). Atypical antipsychotics are more often recommended as the primary treatment option as they have the advantage of addressing both positive and negative symptoms, as well as having a lower risk of extrapyramidal side effects (EPS) when compared to typical antipsychotics (Meilina, Cahaya and Putra, 2022).

Adherence to antipsychotic medication is very important, as poor medication adherence is a clinical problem in psychiatry that can lead to poor outcomes in schizophrenia (Leijala *et al.*, 2021; Lieslehto *et al.*, 2022). Adherence is the extent to which a person's behavior when taking medication, following a diet, making lifestyle changes is in accordance with health care provider recommendations (Mir, 2023). Non-adherence is associated with worse clinical outcomes i.e. greater risk of hospitalization, longer duration of hospitalization, greater risk of suicide and is associated with psychotic relapse as non-adherent schizophrenic patients have a 5-fold increased risk of relapse (De las Cuevas and de Leon, 2020; El Abdellati, De Picker and Morrens, 2020).

Several methods have been used for monitoring medication adherence, such as patient and clinical reports, pill counts, and biologic measures. Self-report methods are generally the most cost- and time-effective way to obtain an indication of compliance (Yılmaz, Calikoglu and Kosan, 2019). Self-report and informant report is the most commonly used (Roemer et al., 2016) including the use of the MMAS-8 questionnaire in research De las Cuevas and Peñate (2015) and (Alhalaiqa *et al.*, 2016) is used to determine patient compliance which is related to how often patients have difficulty remembering to take all their medications such as psychiatric drugs. In the study by (Caqueo-Urízar *et al.*, 2020) the DAI-10 questionnaire was used to assess experiences, attitudes and beliefs about antipsychotic drugs.

The use of the Medication Adherence Report Scale (MARS) questionnaire is one type of questionnaire that can be used to assess the level of patient medication adherence. However, the use of the MARS questionnaire in cases of psychosis are rarely used. This questionnaire is mostly used in several hypertension diseases, such as hypertension (Mebrahtu *et al.*, 2021), tuberculosis (TB) (Perwitasari *et al.*, 2022), and diabetes mellitus (Mishra *et al.*, 2021) whose validity and reliability have been established tested. So far, there is still no research evidence regarding the use of the MARS-10

questionnaire in schizophrenia patients in Indonesia. Thus, this research aims to assess the validity and reliability of the Indonesian version of MARS-10 questionnaire in schizophrenia patients.

METHODS

This research methods is analytic observational using a prospective cross-sectional approach using a research instrument in the form of a Medication Adherence Report Scale -10 (MARS-10) questionnaire. The MARS-10 questionnaire was administered face-to-face at the hospital outpatient installation. This study has received ethical approval from the Health Research Ethics Commission (KEPK) of Muhammadiyah University of Malang with No.E.5.a/222/KEPKUMM/VIII/2023. The population in this study were schizophrenia patients at the outpatient installation of Saiful Anwar Hospital, Muhammadiyah Malang Hospital, and Lawang Mental Hospital who had received treatment from November 2023 to January 2024. The study sample was 30 respondents who met the inclusion criteria, namely patients who had been diagnosed with schizophrenia, received antipsychotic therapy, were under control and could be invited to communicate, had outpatient treatment, and patients or companions / families who were willing to fill out the questionnaire. The validity test of the questionnaire in this study used Pearson Pearson Product Moment correlation. Questions are considered valid if they have a value of r count $\geq$ r table (N = 30, R table = 0.361), while the questionnaire reliability test uses the Cronbach's Alpha coefficient test, the research instrument is considered reliable if it has a Cronbach's Alpha value> 0.60.

RESULTS AND DISCUSSION

The study was conducted on 30 schizophrenia patients at Saiful Anwar Hospital, Muhammadiyah Malang Hospital, and Lawang Mental Hospital who met the inclusion criteria.

Table 1. Characteristics of Schizophrenia Patients

Patient Characteristics	n	%
Age		
17-25 years	1	3,3
26-35 years	13	43,3
36-45 years	7	23,3
46-55 years	6	20,0
56-65 years	3	10,0
Gender		
Male	16	53,3
Female	14	46,7
Education Level		

Elementary school	6	20,0
Junior high school	9	30,0
Senior high school	11	36,7
D1/D2/D3/D4	1	3,3
S1/S2/S3	3	10,0
Profession Status		
Unemployed	21	70,0
Employed	9	30,0
Asurance		
JKN	20	66,7
Personal	10	33,3
Duration of Antipsychotic Consumption		
Less than 6 Months	2	6,7
6-12 Months	2	6,7
1-2 Years	4	13,3
More than 6 Months	22	73,3
Use of Antipsychotic		
Typical	1	3,3
Atypical	11	36,7
Typical+Atypical	4	13,3
Atypical+Atypical	12	40,0
Typical+Atypical+Atypical	2	6,7

Based on table 1 shows that the most dominant data in patients is the age of 26-35 years (43.35%). The age of onset of schizophrenia has become a concern in recent decades and can be defined as the age when the first "observable" signs of psychosis appear (Zhan *et al.*, 2023). In the schizophrenia group, the number of patients aged 26-35 years (43.35%). This result is in accordance with the research of Chafi *et al.*, (2021) that schizophrenia patients experience disease attacks in their late twenties and early thirties (age 26-35). In recent decades, great attention has been paid to the age of onset of psychiatric disorders. Schizophrenia patients with an earlier age tend to have more severe clinical symptoms and a more unfavorable prognosis (Zhan *et al.*, 2023).

In individuals who experience schizophrenia, more than half are male (53.3%). This is in line with the research of Li *et al.*, (2022), that the incidence of schizophrenia is higher in men than in women related to biological mechanisms, namely brain morphology, genetic risk factors and neuroprotective functions of estrogen effects facilitated by gonadal and adrenal hormones. Female schizophrenia patients have a better prognosis than male patients, including a lower frequency of rehospitalization, fewer negative symptoms, and lower levels of disability. In contrast, male patients

with schizophrenia were found to have higher levels of positive symptoms and slightly lower functioning (Zhao *et al.*, 2022). Regarding cognitive dysfunction, female patients performed better on measures of executive function, verbal memory and information processing speed than male patients (Li, Zhou and Yi, 2022).

Individuals with schizophrenia have lower educational attainment than the general population (Tesli *et al.*, 2022). The results of this study found that most had a high school / equivalent educational background as many as 11 (36.7%). According to research by Dickson *et al.*, (2020) ower educational attainment is associated with schizophrenia. The level of education is related to cognitive function, individuals suffering from schizophrenia experience cognitive impairment so that they show poorer academic achievement and are less likely to enter higher education (Zhu *et al.*, 2023).

Occupation has an association with schizophrenia. This study showed that the dominant respondents did not work (70.0%). This result is in accordance with the research of Lin *et al.*, (2022), that schizophrenia is associated with higher unemployment rates of around 90% for working age patients with schizophrenia. Unemployment is associated with lower cognitive and social functioning, higher levels of negative symptoms and depression, and lower levels of education in individuals with schizophrenia (Holm *et al.*, 2021).

Treatment of schizophrenia entails relatively high costs, which has a significant economic impact on patients, families, and health financing institutions, especially if schizophrenia patients experience relapse and have to be re-hospitalized (Herlina Pratiwi, Raymondalexas Marchira and Hendrartini, 2017). Thus treatment of schizophrenia patients in Indonesia has been covered by BPJS health, including the use of medicines that have been implemented since the establishment of BPJS health in 2015 (Fatihah, Dinda Mitra and Bhakti Natari, 2023). Based on the results of the study, respondents predominantly used JKN financing (66.7%) during the treatment process. The existence of Indonesia's national health insurance (JKN) shows that the government has made efforts to ensure optimal health services to the community by implementing comprehensive health policies, including pharmaceutical policies (Anggriani *et al.*, 2020).

This study shows that most respondents have been on treatment for more than 2 years (73.3%). According to research by Tiihonen *et al.*, (2018), antipsychotic treatment should be continued for 1-5 years. Schizophrenia disorder requires long-term treatment to manage symptoms, prevent relapse, and maintain optimal quality of life (Rubio *et al.*, 2021). With the most treatment using a combination of atypical + atypical antipsychotics (40.0%).

Validity and reliability are among the most important in the assessment of measurements using data collection methodologies. Careful assessment of validity and reliability is used in order to provide good results for interpreting data. Data collection errors in terms of validity and reliability not only jeopardize the ability to obtain important results, but can also undermine the significance of scores in preparing good research (Ahmed and Ishtiaq, 2021). Validity means the accuracy and accuracy of

a measuring instrument in performing its measuring function. A scale or measuring instrument is considered to have high validity if the instrument can provide results that are in accordance with the purpose of the measurement, meanwhile instruments that have low validity will produce data that is not relevant to the measurement objectives (Erlinawati and Muslimah, 2021).

Table 2. MARS-10 Questionnaire Validity Test Results

No.	Question	n	r table	r count	Description
1	Do you ever forget to take your medication?			0, 659	Valid
2	Are you careless at times about taking your medicine?			0,698	Valid
3	When you feel better, do you sometimes stop taking your medicine?			0,547	Valid
4	Sometimes if you feel worse when you take the medicine, do you stop taking it?			0,389	Valid
5	I take my medication only when I am sick	30	0,361	0,469	Valid
6	It is unnatural for my mind and body to be controlled by medication			0,447	Valid
7	My thoughts are clearer on medication.			0,396	Valid
8	By staying on medication, I can prevent getting sick.			0,424	Valid
9	I feel weird, like a 'zombie', on medication			0,709	Valid
10	Medication makes me feel tired and sluggish			0,702	Valid

Based on the results of the validity of the MARS-10 questionnaire based on the Pearson Product Moment test using a sample size of 30 with an r table value (0.361) show that the calculated r value of each question item is greater than the r table value (0.361). So that the MARS-10 questionnaire adapted for use in Indonesia can be said to be valid for measuring compliance with antipsychotic use in schizophrenia patients.

Table 3. Reliability Test Results of MARS-10 Questionnaire

Cronbach's Alpha	n Question
0,742	10

Reliability test is used to assess the extent to which the measurement results remain consistent or stable when measurements are made several times on the same symptoms using the same measuring instrument (Sugiarta, Arofiati and Rosa, 2023). Reliability analysis of the MARS-10 questionnaire calculated using the Cronbach alpha method. The results show that the MARS-10 questionnaire has a Cronbach alpha of 0.742. This indicates the validity of the MARS questionnaire

in the Indonesian adaptation to measure compliance with antipsychotic use in schizophrenia patients. In this study, the Cronbach Alpha coefficient was used as an indicator of reliability.

Whereas reliability is the power of a measuring instrument to provide consistent results from one condition to another and to show time invariance (Demirgöz Bal, Dişsiz and Bayri Bingöl, 2021). The reliability analysis of the MARS-10 questionnaire was calculated using the Cronbach alpha method. The results show that the MARS-10 questionnaire has a Cronbach alpha of 0.742. This indicates the validity of the MARS questionnaire in the Indonesian adaptation to measure compliance with antipsychotic use in schizophrenia patients. In this study, Cronbach Alpha coefficient was used as an indicator of reliability.

CONCLUSION

The validity and reliability test results show that the Indonesian version of the MARS-10 questionnaire is considered valid and reliable for measuring the level of compliance of schizophrenia patients in taking antipsychotics. The significance of the validity and reliability test results is very important because the higher the validity and reliability values of an instrument, the more valid the data obtained from the study. Since this study imply cross-sectional nature of the sampling, which does not allow assessing compliance over time, additional research is needed to assess these psychometric properties in a broader clinical setting. Despite these limitations, our data provide evidence of reliability and validity, and support the use of Indonesian version of MARS-10 questionnaires to obtain patient reports about how they actually use antipsychotic medications.

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