Patient Adherence to Rheumatoid Arthritis Medication at an Outpatient Clinic Public Hospital in Padang City, West Sumatera

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ABSTRACT

Rheumatoid arthritis (RA) is a chronic autoimmune disease that attacks the joints and spreads to other organs. Most patients suffer from chronic pain, tissue damage, deformity and can cause risks of mortality. The disease requires long-term and regular treatment to achieve optimal therapeutic results. This study aimed to evaluate the relationship between sociodemographic patients and medication adherence to rheumatoid arthritis drugs. This research was a cross-sectional study using Morisky Medication Adherence Scale (MMAS-8) as a validated assessment tool. At the same time, the data were collected prospectively with consecutive sampling techniques at an Outpatient Clinic Public Hospital in Padang City. The total number of respondents involved in the study were 30 patients. The sociodemographic majority of patients were 29 women (96.67%), 13 senior high school (43.3%) and 18 housewives (60%) patients. According to MMAS-8, the results showed patients in various levels of adherence as high, moderate, and low with 13.3%, 40% and 46.67%, respectively. The majority of patients (83.3%) forgot to take their medicines. The statistical analysis detected no differences between sociodemographic and patients' adherence ($p>0.05$).

Keywords: *rheumatoid arthritis, adherence, Morisky Medication Adherence Scale, MMAS-8, assessment tool*

1. INTRODUCTION

Rheumatoid arthritis (RA) is an autoimmune disease characterized by inflammation of the joint lining as part of the body's immune system activity [1]. Most patients complain of chronic and intermittent pain. If not treated immediately, it will cause permanent joint damage, joint deformity or even lead to death [1,2]. Australia has reported the highest prevalence of RA (2%) worldwide based on self-reported data from the 2014-2015 National Health Survey (NHS). The relative prevalence of RA is about 0.5-1% of the population. The highest prevalence was reported in the Pima Indians (5.3%) and Chippewa Indians (6.8%), while the lowest prevalence or even absence of RA was reported in the South African (0.0026%) and Nigerian (0%) populations [2,3]. In Indonesia, the number of people with RA was estimated to be no less than 1.3 million people with calculations based on the RA prevalence between 0.5-1% of the total Indonesian population, about 268 million in 2020 [2].

Treatment of RA aims to control the symptoms of the disease and suppress disease activity to prevent permanent damage. Treatment should be multi-disciplinary, involving doctors, physiotherapists, patients and others [4]. Effective RA therapy can improve patients' quality of life [5]. In the last 15 years, there have been many developments in RA management so that the quality and life expectancy of RA patients has improved. The understanding that rheumatoid arthritis is associated with other comorbidities and early mortality makes the management of rheumatoid arthritis must be aggressive and as early as possible to improve short and long term outcomes [2].

Adherence can be defined as the patient is taking medication as prescribed, including time, dose, interval and discontinuation of the medication [6,7]. Poor adherence to therapeutic regimens is a common problem, especially for patients with chronic disorders. Many patients with RA showed inadequate adherence to therapy which results in poor health outcomes [8]. According to the study of drug use adherence of RA patients using the Morisky Medication Adherence Scale (MMAS-8) questionnaire, patients had low adherence (90.78%), moderate (9.2%), and there was no percentage

of patients with high adherence. Then, it was found that the patient forgot to take medicine (more than 57.1%), the patient misinterpreted the dose that should be used (66.4%), the patient forgot to bring the medicine when travelling out of the house (70%), and the patient felt uncomfortable using the drug continuously (95%) [9].

The low level of knowledge of the disease and therapy results in a patient's lack of understanding about the importance of the therapy being undertaken, which will lead to patient non-compliance in taking the drug. Non-adherence in treatment impacts non-optimal therapeutic results and reduces the patient's quality of life [4]. This study aimed to determine the sociodemographic characteristics and the medication adherence of RA drugs and their relationship. Given the considerable amount of literature in this field, this updated overview provides a current and compact overall view on this topic.

2. METHODS

2.1. Study Design

This study was a descriptive and cross-sectional study in an outpatient clinic of a Public Hospital in Padang City. The data were collected prospectively in six months period.

2.2. Study Population

Using a consecutive sampling technique, all the patients who meet the inclusion criteria were part of the sample. Patients eligible for participation in the study needed to be at least 17 years old, diagnosed with RA, and willing to become a respondent by filling out informed consent first.

2.3. Study Tool

Interviews based on Questionnaires were conducted directly to patients. The questionnaire was used to collect data covering the following items.

Part I: sociodemographic data consists of name, age, gender, address, telephone number, education and occupation. Medication data was directly obtained patients and from their medical records.

Part II was a medication adherence test using Morisky Medication Adherence Scale (MMAS-8) as a validated assessment tool. The MMAS-8 is an ordinal scale with a range from 0 to 8. MMAS-8 is a modification of the MMAS-4 questionnaire, which contains questions with yes/no answers. Each question aims to determine the patient's habits towards the use of specific drugs. MMAS-8 has advantages compared to other instruments because it can be used widely in various diseases and populations and contains easy questions for patients to understand [10]. Different from MMAS-4, which only contains questions with yes/no answers so that it does not identify the reasons for patient non-adherence to the use of their drugs in-depth, while MMAS-8 has questions with a better approach to patient non-adherence factors [11].

2.4. Ethical Consideration

Approval of study conduction was obtained from the committee of the medical research ethics of the Public Hospital. Administrative approvals from the head of education and research department at the hospital were obtained. In addition, all respondents were asked to fill out informed consent as a sign of their willingness to be included in the study, and their data will be kept confidential.

2.5. Statistical Analysis

A descriptive analysis of sociodemographic and medication data included in the study was performed. Data were analyzed using SPSS 23 to determine the relationship between sociodemographic characteristics and medication adherence to rheumatoid arthritis drugs. The level of adherence in this study can be grouped into three. High adherence if the patients have 8 points; moderate adherence if they have 6 - <8 points; and low adherence if they have <6 points.

3. RESULTS AND DISCUSSION

There were 30 patients involved in the study as respondents. Table 1 showed the sociodemographic characteristics and the medication adherence of RA drugs and their relationship. Most of the respondents were female, as many as 29 people (96.67%). A total of 13 respondents from this study were in the late adult age group around 36 – 44 years (43.3%). In addition, it can be seen that the highest education level was senior high school, as many as 13 people (43.3%) and the majority of the respondents were housewives (60%).

Table 1. The relationship between sociodemographic characteristics and medication adherence to rheumatoid arthritis drugs

Characteristics	Sociodemography n (%)	Medication Adherence			Test of Significance*
		Low n (%)	Moderate n (%)	High n (%)	
Respondents (n = 30)		14 (46.67)	12 (40)	4 (13.33)	
Gender					0.533
Male	1 (33.3)	0 (0)	1 (100)	0 (0)	
Female	29 (96.67)	14 (48.3)	11 (37.9)	4 (13.3)	
Age (y)					0.152
Late teens (17 – 25)	4 (13.3)	2 (50)	2 (50)	0 (0)	
Early adult age (26 – 35)	3 (10)	0 (0)	2 (66.7)	1 (20)	
Late adult age (36 – 44)	13 (43.3)	8 (57.1)	6 (42.9)	0 (0)	
Early old age (45 – 54)	6 (20)	3 (60)	1 (20)	1 (33.3)	
Late old age (55 – 65)	3 (10)	1 (33.3)	1 (33.3)	1 (33.3)	
Elderly (over 65)	1 (3.3)	0 (0)	0 (0)	1 (100)	
Education					0.920
Elementary school	2 (6.67)	1 (50)	1 (50)	0 (0)	
Junior high school	3 (10)	2 (66.7)	1 (33.3)	0 (0)	
Senior high school	13 (43.33)	6 (46.2)	6 (46.2)	1 (7.7)	
Higher education	12 (40)	5 (41.7)	4 (33.3)	3 (25)	
Occupation					0.287
Nonemployed / retired	2 (6.67)	0 (0)	1 (50)	1 (50)	
Civil servant	6 (20)	3 (50)	1 (16.7)	2 (33.3)	
Entrepreneur	1 (3.33)	0 (0)	1 (100)	0 (0)	
Private employee	1 (3.33)	0 (0)	1 (100)	0 (0)	
Housewife	18 (60)	10 (55.6)	7 (38.9)	1 (5.6)	
Student	2 (6.67)	1 (50)	1 (50)	0 (0)	

** = fisher exact test*

These study findings showed the number of patients with a high, moderate and low adherence was four patients (13.33%), 12 patients (40%) and 14 patients (46.67%), respectively. These results are in line with the research conducted by Bakry et al., where 58.5% of patients had low adherence to the use of RA drugs [12]. Medication adherence in rheumatic and other chronic diseases is influenced by many factors, including patient beliefs about the need for treatment and concerns about potential side effects [13].

Table 2. Adherence Assessment Using The MMAS-8 questionnaire (n=30)

No	Questions	Answer	
		Yes n (%)	No n (%)
1	Have you ever forgotten to take your rheumatoid arthritis medication?	25(83.3)	5(16.7)
2	Sometimes people forget to take their medicine for some reason (other than forgetting). Was there a day in the last two weeks when you did not take rheumatoid arthritis medication?	10(33.3)	20(66.7)
3	If you feel that your condition is getting worse/bad by taking rheumatoid arthritis medication. Have you stopped taking the drug without the doctor's permission?	6(20)	24(80)
4	When you travel/leave home, have you sometimes forgot to bring your rheumatoid arthritis medicine?	7(23.33)	23(76.7)
5	Did you take your rheumatoid arthritis medicine yesterday?	23(76.7)	7 (23.33)
6	If you feel that your condition is getting better, have you ever stopped / did not use rheumatoid arthritis drugs?	3(10)	27(90)
7	Taking medicine every day sometimes makes people uncomfortable. Have you ever been bothered by having to take medicine every day?	19(63.3)	11(36.7)

The MMAS-8 questionnaire (Tables 2 & 3) showed that patients' non-adherence to medication mainly was caused by forgetting as many as 25 respondents (83.33%). Then 19 respondents (63.3%) stated that they felt disturbed by using RA drugs continuously. A small proportion of respondents stated that they forgot to take their RA medication while travelling around 23.33% and stopped taking medication when their condition got worse around 20% and when their condition got better around 10%. In a study conducted by Kim et al. (2018), the reasons for patients not complying with the use of rheumatoid arthritis drugs included forgetting (45.8%), not feeling the symptoms of the disease (24.7%), using alternative medicine (14.6%) and being uncomfortable in using the drug (13.1%) [14]. Similarly, research conducted by Lee (2017) found that the most commonly mentioned reasons for non-adherence were forgetfulness, the low perceived need for treatment, actual or perceived medication side effects and intentional delay due to busyness [15].

Table 3. Adherence Assessment Using The MMAS-8 questionnaire (n=30), specially question number 8

8	How often did you forget to take your medicine this week?	Frequency (n=30)	Percentage
a.	Never	20	66,67
b.	Occasional (1 time)	6	20,00
c.	Sometimes (2-3 times)	3	10,00
d.	Usually (4-6 times)	1	3,33
e.	Always (7 times)	0	0

Information score question number 8: Never (1), Occasional (0.75), Sometimes (0.5), Usually (0.25), and Always (0)

In addition, many studies report that factors such as socioeconomics, disease-specific factors, and psychological factors are associated with drug adherence in RA patients [14]. Based on Table 1, it can be seen that 29 respondents were female, and only one was male. According to the Ministry of Health of the Republic of Indonesia, three to four times more women with RA than men [1]. The results of this study also showed that female patients had a high level of adherence. These results align with research conducted by Ragab (2016), which states that 80% of female patients with RA have higher adherence [16]. According to Sundbom & Bingefors (2012), adherence to drug use in female and male patients cannot be ascertained, but male patients tend to discontinue drug use when the symptoms have been resolved [17]. The results of assessing the relationship between gender and the level of patient compliance using the Fisher exact test statistical test showed $p>0.05$. It can be implied that there was no influence of gender on drug use compliance. These results are in line with research conducted by Suh (2018), where there is no significant relationship between patient compliance with gender [18].

Most of the respondents in the study were in the late adult age group (36-45 years). This result is in line with other studies that more patients were under 60 years old [4]. This age group is a productive. The Indonesian Rheumatology Association (2014) states that rheumatoid arthritis is more common in productive ages [2]. The results showed that patients who had the highest adherence were over 45 years old, as many as three people and one person was in early adulthood. Thunla & Yallamla (2017) said that patients who had high adherence were in the age range of 35-50 years [19]. Based on the Fisher exact test results, which links the patient's age with the level of compliance, it shows that there is no significant relationship between age and the level of compliance of RA patients, so it can be said that patient compliance was not influenced by age.

For the education level of the respondents, the data showed Senior High School (56.52%) and academy/college (52.17%), while Junior High School (10%) and Elementary School (6.67%). The study results showed that three patients who had high compliance had the latest education in academy/college and one patient had the last education of senior high school. Educational factors also affect the level of knowledge of each individual. The higher the level of education, the more comprehensive a person's knowledge which will impact the way a person receives information. This can be interpreted that the higher the level of patient education, the easier it is for patients to receive information about everything that will happen, primarily related to RA disease. Based on the test results using the Fisher exact test, statistical test the relationship between patient education and the level of adherence was not significant ($p>0.05$) so it can be said that the patient's education level did not influence the patient's adherence to RA drugs. Suh's research (2018) also shows the same results, where there is no significance between adherence with

patient education [18]. This can happen because patients who have a high level of education do not always have good drug habits and self-efficacy abilities.

In this study, the majority of respondents' occupations were housewives, as many as 18 respondents (60%). Patients who have the highest level of compliance are patients who have jobs as civil servants as many as two people, housewives, and one person did not work each. This is different from the study conducted by Wee (2016) in Malaysia; patients who do not work and patients who work together have higher adherence [20]. According to the statistical test results Fisher exact test, the relationship between work and the level of patient compliance is not significant ($p>0.05$), so it can be said that the patient's job does not affect patient compliance. Based on the study results, respondents who work tend to be disobedient compared to patients who do not work; this is due to patients who work, do not have time to go to health services and tend to forget to take their medicine. Work will affect the patient's socioeconomic factors that can affect the patient compliance in using drugs because work can affect family stability, family support, living environment, limited access to health, limited health costs related to adherence to patient drug use [21].

This study has several strengths. First, we assessed patient compliance using the MMAAS-8 as a validated assessment tool. MMAS-8 has questions with a better approach to patient non-adherence factors than the previous version. Second, we analyzed sociodemographic characteristics as one of the factors associated with medication adherence in RA patients. However, we also have some limitations. First, since our study had a cross-sectional design, we could not report definite causal relationships between several associated factors and non-adherence. Second, this study was conducted on the population in only one hospital with limited time for conducting the study. Further studies are needed in larger groups of patients to be representative of the RA population.

4. CONCLUSION

In conclusion, the patients of this study were in various levels of adherence as high, moderate, and low with 13.3%, 40% and 46.67%, respectively. The majority of patients forgot to take their medicines. Moderate and low levels of patient adherence may be influenced by other factors such as forgetting, feeling uncomfortable using the drug continuously, the absence of unwanted effects from RA drugs. There were no differences between sociodemographic and patients' adherence to RA medication.

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