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Does Medication Belief Influence Medication Adherence? A Study of Malaria Patients in Serui Kota Public Health Center

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ABSTRACT

Malaria is a serious infection and always requires treatment with medicine. Medication adherence is needed in this disease therapy to prevent recurrence and resistance. Medication adherence is influenced by many factors, such as medication beliefs. This study aimed to analyse the influence of medication beliefs on medication adherence of malaria patients in public primary health care in Serui City, Papua, as one of the districts with high malaria endemicity. This study was a cross-sectional study conducted using Belief about Medication questionnaire and the MMAS-8 questionnaire. This study found out that necessity and concern about medication influenced medication adherence of malaria patients in Serui Kota primary public healthcare (P-value < 0.05). The intervention to increase medication adherence of malaria patients can be performed through good communication among doctors, pharmacists and patients.

KEYWORDS: Malaria, Medication Adherence, Medication Beliefs, Papua, Serui Kota

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I. INTRODUCTION

Malaria is a life-threatening disease spread to humans by some types of mosquitoes. It is mostly found in tropical countries. It is preventable and curable. The infection is caused by a parasite and does not spread from person to person. Symptoms can be mild or life-threatening. Mild symptoms are fever, chills and headache. Severe symptoms include fatigue, confusion, seizures, and difficulty breathing. Infants, children under 5 years, pregnant women and girls, travellers and people with HIV or AIDS are at higher risk of severe infection. Malaria is a serious infection and always requires treatment with medicine. Malaria is prevented and treated using a variety of medications. Doctors will determine one or more malaria medicines based on the type of malaria, pregnancy status, age and weight of the patient, as well as the drug resistance status of certain malaria parasite ((World Health Organization, 2024).

Antimalarial resistance is defined as the ability of a parasite strain to live and/or proliferate even when a drug is administered and absorbed at dosages that are higher or equivalent to those typically advised, but within the subject's tolerance (Fitri et al., 2023). The first chloroquine-resistance reported case was in East Kalimantan and West Irian (now known as Papua). The emergence of drug-resistant parasites and insecticide-resistant mosquitoes has underscored the need for innovative and sustainable strategies to combat the disease effectively (Obeagu & Obeagu, 2024)

The Ministry of Health of the Republic of Indonesia has been preparing a comprehensive strategy to eliminate malaria nationally, with a particular focus on Papua. The Minister of Health emphasized that success in Papua will be a key factor in achieving Indonesia's target of being malaria-free by 2030. The malaria elimination and prevention program for reinfection is outlined in a roadmap that has been prepared for the implementation period 2025-2045.The fourth pillar contains Strengthening health systems, health security and leadership to achieve a malaria elimination program based on justice, human rights and leaving no one behind. In the third sub-pillar, namely Diagnosis, Management, Chemoprevention, and Vaccination, interventions that can be implemented include ensuring all malaria cases receive standard treatment according to national guidelines. This ensures the quality, efficacy, and adherence to treatment. Monitoring adherence to treatment and post-treatment follow-up according to guidelines is also necessary, especially in low-endemic areas and malaria elimination areas, to ensure complete medication

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administration and prevent resistance (Kementerian Kesehatan Republik Indonesia, 2024)

Medication adherence is influenced by many factors like treatment complexity, duration of treatment, health care system (patient and healthcare provider beliefs), adverse reactions to medications, interruption in routines, and family support (Gow et al., 2024). Horne proposed that medication beliefs, which are the most important predictor of medication adherence, area cognitive factor that can be changed. The beliefs encompass perceptions regarding the pros and cons of adhering to prescribed medication, incorporating both the perception of benefits (necessity beliefs) and concerns about potential drawbacks (concern beliefs). (Horne et al., 2013), in their study of the impact of medication beliefs on treatment adherence in patients with chronic diseases, pointed out that the higher the belief in necessity, the greater the perceived benefits of medication and the greater the likelihood that the individual will adopt adherence behaviors. In contrast, the higher the belief of concern, the more the individual worries about problems such as adverse reactions to medications, the more barriers are perceived during medication administration, and consequently, the emergence of low adherence behaviors.

This study aimed to analyze the influence of medication beliefs on medication adherence of malaria patients in primary health care in Serui Kota, Papua, as an intervention attempt to eliminate and prevent the recurrence of malaria.

II. METHODS

A. Inclusion and Exclusion Criteria

A total of 305 participants participated in this study. All of whom were at least 18 years old and had indicated that they had a malaria-positive diagnosis, were prepared to take part in the study, and had given their oral consent to be interviewed. In the course of doing this research, essential data about demographics were gathered. This study involved 305 participants in all. They were all enrolled in the study if they were at least 18 years old, had stated that they had been diagnosed with malaria, were willing to participate, and had provided their oral consent to be interviewed. Participants who were under the age of 18 or who suffered from mental health conditions were excluded from the study.

B. Study Design and Sampling

A cross-sectional investigation was executed to evaluate the quality of pharmaceutical services concerning medication adherence of malaria patients at Serui Kota primary public health care.

C. Instruments

TThe questionnaire was disseminated among adult malaria patients who were 18 years of age or older. The questionnaire was used to assess medication adherence and medication beliefs. The beliefs about medication questionnaire (BMQ) used a questionnaire developed by (Horne et al., 1999) and translated by (Sianturi et al., 2021). The questionnaire consists of 2 parts. The specific part contains 10 questions, which consist of the necessity and concerns of patients regarding their medicine. The general part contains 8 questions, which consist of two scales asking about their views on overuse and harm related to medication. All18 statements were scored on a 5-point Likert scale as 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, 5 = strongly agree. The total from every scale of the BMQ was calculated. Higher total scores on necessity indicated patients were positive and seeing the advantages of taking their medication. Higher total scores on concern, overuse, and harm indicated concerns about the treatment (Sianturi et al., n.d.).

To quantify medication adherence, the MMAS-8 questionnaire was used, which has been validated and translated into Indonesian in the study of (Vika et al., 2016). The MMAS-8 questionnaire consists of 8 questions. This questionnaire uses the Guttman scale, namely, the respondent's answers are limited to "Yes" or "No". The answer "Yes" is given a "0" and the answer "No" is given a score of 1 on favourable questions (questions number 1,2,3,4,6,7). For unfavourable questions (question number 5), the answer "Yes" is given a score of 1, and the answer "No" is given a score of 0. Question number 8 is given a score of 1 for "never", 0.75 for "occasionally", 0.5 for "sometimes", 0.25 for "often", and 0 for "always" (Kishor et al., 2024). Patients are said to have high compliance if they get a score of 6-8 and have low compliance if they get a score of 0 -5 (Gube et al., 2018).

D. Statistical Analysis

The results were presented in percentages (%), and the average (mean), along with the standard deviation (SD), was provided. The statistical analysis was performed using SPSS software version 22. Frequencies were calculated for demographic characteristics to understand the distribution of the sample. Correlation analysis was conducted using the Mann-Whitney U test to investigate the influence of medication beliefs on medication adherence. The Mann-Whitney U Test is a non-parametric test used to determine the difference in the medians of 2 independent groups if the scale of the dependent variable data is ordinal or interval/ratio but is not normally distributed ((Hidayat, 2014).

III. RESULT AND DISCUSSION

The sociodemographic of respondents were described in the diagram below

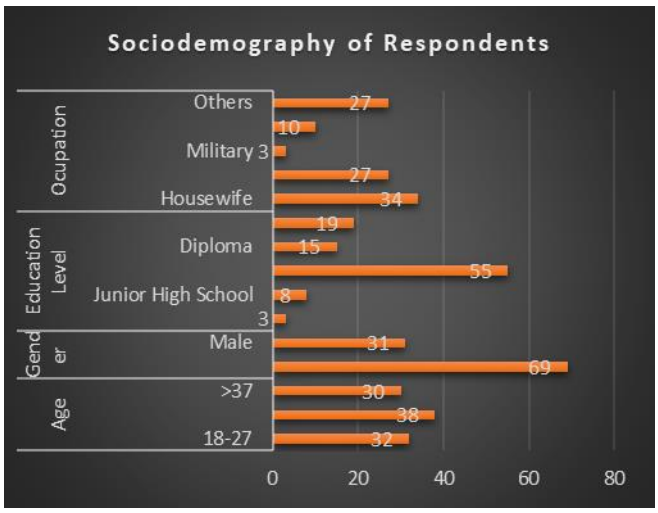

Figure 1. Sociodemography of Respondent

The respondents were distributed by age, which was categorized into 18-27 years old (31.8%), 28-37 years old (37.7%) and older than 37 years old (30.5%). The majority of gender respondents were female (69.2%). The occupation was subsistence of housewife (34.4%), followed by civil servant (26.9%), others (26.6%), students (9.5%), and Indonesian military (2.6%). A majority percentage (55.4%) of respondents had junior high school education.

Table 1. Relational Analysis Result of Medication Beliefs and Medication Adherence of Malaria Patients in Serui Kota Primary Healthcare Center

Dimension	Mean ± SD		P-value (α = 0.05)
	Adherence (n=100)	Non-Adherence (n=205)	
Necessity	21.23 ± 2.75	14.24 ± 1.71	0.000
Concern	14.18 ± 1.90	19.72 ± 2.36	0.000
Overuse	9.49 ± 1.16	9.61 ± 1.12	0.466
Harm	14.47 ± 1.94	14.83 ± 2.00	0.157

From the result in Table 1, we can see that the respondents who adherence to their medication was less than those who did not adhere to their medication. The World Health Organization defines adherence as "the extent to which a person's behavior of taking medication corresponds with agreed recommendations from a healthcare provider (World Health Organization, 2020). Depending on the patient's preference, medication non-adherence might be categorized as either intentional or unintentional (Bae et al., 2016). Unintentional behaviour is referred to as unintentional non-adherence. It occasionally happens when a patient wants to follow through but is unable to do so due to a lack of resources or capacity. For instance, individuals can have trouble remembering, scheduling, or administering the treatment, or they might not have understood the instructions or be unable to pay the co-payment (Horne et al., 2013). A patient who intentionally chooses not to take their prescription or comply with treatment recommendations, most often after considering the advantages and disadvantages of treatment, is said to be engaging in intentional non-adherence (Bae et al., 2016). The best way to understand medication non-adherence is in terms of how perceptual factors—like beliefs and preferences—affect patients' motivation to begin and stick with therapy (Horne et al., 2013).

The result of relational analysis of medication beliefs and medication adherence showed that the necessity and concern dimension did influence medication adherence statistically, whilst the overuse and harm dimension did not influence medication adherence in malaria patients. The average score of respondents showed that patients at the Serui Kota Primary Health Center still lack of belief that malaria requires medication prescribed by a doctor. Some patients still believe that medication isn't a primary need for malaria. Papuans generally believe that the best way to treat malaria is to eat plenty of food and get enough rest.

Belief in medication in the context of malaria can be seen from the malaria drug regimen used, which may indicate side effects or adverse effects on patients from the drugs consumed. This has the potential to influence medication adherence in malaria patients, which could impact the success of therapy for this infectious disease. Therefore, it is necessary to examine aspects of the medication belief variable itself. Regarding the necessity aspect, Patients who feel they must get better will take their medication with discipline, regardless of the motivation behind it.

The number of recurrent malaria patient cases is increasing dramatically and the real challenge is not only to identify non-adherent patients, but to prevent non-adherence behaviors to achieve better outcomes. Patients' initial decisions not to take medications might be influenced primarily by their general beliefs about medicine and consequently, this will exacerbate concerns about the likely risk and the possible side effects of medications. These beliefs might outweigh the beliefs about potential benefits of medications, and thus, patients intentionally tend not to adhere to their prescribed medications (Jiang et al., 2024).

Regarding the overuse dimension, it is necessary to examine the amount of medication used to treat a particular type of malaria. Long-term drug regimens can trigger non-adherence with treatment in malaria patients. A negative association between overuse beliefs and medication adherence. These beliefs if not alleviated, would more likely hinder adherence to medications. It is widely reported that health professional communication is a critical key to improving medication adherence and medication outcomes. Patient–healthcare provider communication helps patients to form positive beliefs about medication options. The patients who trust their healthcare provider, with the healthcare provider potentially showing friendliness, warmth, and

concern, would not believe that the medication is overused (Hong, 2019). One of the practical strategies to support this is to encourage healthcare providers to provide care that is concordant with the patient's values, needs, and preferences (Pratiwi et al., 2025), and that allows patients to provide their input and participate actively in decisions regarding their medications and health (Cipta et al., 2024). Previous research suggests that patients with low levels of education in comparison to those with high levels of education regard the effects of medications as harmful and believe that they are overused. Although education is an important factor, educational interventions alone represent a weak approach to enhance adherence to medication. A multidisciplinary approach is needed to enhance patient adherence. To make this approach more effective, healthcare professionals, such as pharmacists, with their specific expertise and knowledge of medications, can have a very important role as patient educators and interventionists in various chronic conditions. Furthermore, pharmacists serve as an important link between patients and doctors (Ciliberti & Bonsignore, 2025).

A number of studies have shown that beliefs about medicines as harmful were positively associated with the use of herbal remedies, but negatively with the use of prescription medicines (Sundell & Jonsson, 2016). Patients from Asian cultural backgrounds expressed more negative views about medication than those from European cultural backgrounds (Welz et al., 2019). Patients from Asian cultural backgrounds were significantly more likely to perceive medicines as being intrinsically harmful, addictive substances and that the unnatural origins of medicines were dangerous and that complementary treatments are more 'natural' and therefore safer (Khosla et al., 2024). The reference has reported a variety of factors that impact people's inclination to utilize natural therapies instead of prescription medicine. These factors may include age, having comorbid conditions, having a lower education level, and belonging to a lower socioeconomic group (Yousefi et al., 2024).

General medication beliefs, are likely subjected to modification with healthcare intervention and advice (Horne, 1999). These beliefs are potentially formed from different personal characteristics, such as culture and religion (Al-Ruthia et al., 2017). It has been identified that patients' cultural beliefs about medication-taking are factors contributing to intentional medication non-adherence (Bussell et al., 2017). Patients from diverse backgrounds could be reluctant to talk to their healthcare practitioners about their religious practices, herbal therapies, drug beliefs, and home remedies. They may suppress or change this information to accommodate the provider's needs because they frequently worry that the practitioner will despise their actions (Putsch III & Joyce, 1990). However, healthcare providers should be encouraged to recognize gaps, confusions, and misconceptions about medications in patients from different cultures, and to provide sensitive care to populations from diverse ethnic backgrounds to achieve better medication adherence (Shahin et al., 2019).

IV. CONCLUSION

Medication adherence is one critical point that determines successful of medication. Medication adherence in malaria patients is a very important thing to prevent the recurrence and resistance of malaria medicine cases. One factor that influences medication adherence is beliefs about medication. In this research, the necessity and concern dimension has a significant impact on malaria patient medication adherence.

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