



The Relationship Between Level of Knowledge and Adherence to Gout Medication in The Village of Seluas on The West Kalimantan-Malaysia Border

Urai Amanda^{1*}, Aminudin², Rusmina Iswanti Kumala Dewi³

¹⁻³ Sekolah Tinggi Ilmu Kesehatan Sambas, Indonesia

email: uraiamanda25pnk@gmail.com¹

Article Info :

Received:
02-06-2026
Revised:
21-06-2026
Accepted:
27-06-2026

Abstract

Knowledge is an important determinant of medication-taking behavior among patients with gout, particularly in border communities with limited access to health information. **Objective:** This study examined the relationship between knowledge level and appropriate gout medication use among patients receiving allopurinol in Seluas Village, West Kalimantan–Malaysia border area. An analytical cross-sectional study was conducted from January to March 2026 among 64 respondents selected through total sampling. Data were collected using a validated questionnaire and analyzed using univariate analysis and the Chi-square test. Most respondents were women (53.1%), aged 56–65 years (40.6%), educated to junior high school level (53.1%), and farmers (56.3%). Poor knowledge was identified in 44 respondents (68.8%), whereas 20 respondents (31.2%) had good knowledge. Among those with poor knowledge, 43 (97.7%) used medication inappropriately, while 16 of 20 respondents (80.0%) with good knowledge used medication appropriately. A significant association was found between knowledge level and medication use ($p < 0.001$). Strengthening patient education and pharmaceutical counseling may improve appropriate allopurinol use and support effective long-term gout management in border communities with constrained healthcare information access.

Keywords: allopurinol, gout arthritis, knowledge level, medication appropriateness, border community.



©2026 Authors.. This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License.
(<https://creativecommons.org/licenses/by-nc/4.0/>)

INTRODUCTION

Gout arthritis is a non-communicable disease that remains an important public health concern because it is closely associated with disturbances in purine metabolism and elevated serum uric acid levels. Persistent hyperuricemia may increase the risk of monosodium urate crystal deposition in the joints, resulting in inflammation, pain, and limitations in daily activities (Anggraini, 2022). The occurrence of gout is influenced by multiple factors, including age, sex, consumption of purine-rich foods, nutritional status, and specific nutrient intake (Irot et al., 2022; Kussoy et al., 2019). This multifactorial nature indicates that gout management should not rely solely on pharmacological treatment but should also incorporate strategies to improve patients' knowledge and health-related behaviors (Adinda et al., 2024).

Effective gout management requires appropriate and continuous therapy to control serum uric acid levels and prevent recurrent attacks. One of the medications commonly used for long-term management is allopurinol, which inhibits uric acid production and therefore must be taken according to the prescribed dose, timing, and instructions provided by healthcare professionals. Appropriate medication use is a critical component of therapeutic success because improper use may reduce treatment effectiveness and increase the risk of disease recurrence. Aprilia et al. (2025) reported that adherence to allopurinol therapy is associated with the quality of life of patients with gout, highlighting the importance of medication-taking behavior in long-term disease management.

Knowledge is one of the key determinants that may shape an individual's ability to understand a disease, make health-related decisions, and follow medication regimens appropriately. Adequate knowledge regarding the causes, symptoms, prevention, and treatment of gout may enable patients to make more informed decisions in managing their condition. Conversely, limited knowledge may contribute to inappropriate treatment practices, including self-medication, discontinuation of therapy

once symptoms improve, or medication use that does not comply with professional recommendations (Aina et al., 2023). Alfiza and Mutripah (2021) also demonstrated that insufficient knowledge about gout remains evident in certain population groups, indicating the importance of health education in strengthening patients' capacity for effective disease self-management.

Knowledge regarding disease and medication use is not developed independently but is influenced by individual social and demographic characteristics. Educational level, age, occupation, personal experience, and access to health information may affect an individual's ability to obtain, understand, and apply health-related information. Damayanti and Sofyan (2022) identified an association between educational attainment and community knowledge, while occupational characteristics and the surrounding social environment may also determine the extent of exposure to health information. These findings suggest that interventions aimed at improving appropriate medication use should take population characteristics into account so that health communication and education strategies can be delivered more effectively.

Issues related to knowledge and medication use become particularly important among populations living in border areas. Communities in border regions may experience challenges related to limited healthcare facilities, shortages of healthcare personnel, uneven service distribution, and restricted access to health information, all of which may influence healthcare utilization (Aina, Sandi, & Johansyah, 2023). Seluas Village, located along the West Kalimantan–Malaysia border, has geographical characteristics that make access to health services and dissemination of health information particularly relevant to the management of chronic diseases. A preliminary assessment conducted in this study also indicated that gout is among the commonly encountered health problems in the area and that some residents obtain medications independently to manage gout-related symptoms without adequate understanding of appropriate medication use.

Previous studies have shown that patients' knowledge of gout remains variable and is associated with several health-related behaviors. Indrayani et al. (2021) reported an association between knowledge and attitudes toward gout prevention among older adults, while Jufri et al. (2023) examined the relationship between knowledge, dietary patterns, and serum uric acid levels among patients with gout arthritis. Malensang et al. (2024) further emphasized the importance of knowledge and family support in medication adherence among patients with gout arthritis. These findings indicate that knowledge plays a central role in gout management; however, previous studies have largely focused on prevention, dietary behavior, recurrence, or general medication adherence.

Studies specifically examining the relationship between knowledge level and the appropriateness of allopurinol use among patients with gout, particularly in Indonesia–Malaysia border communities, remain limited within the literature used in this study. Earlier research has more frequently addressed disease-related knowledge, preventive behavior, medication adherence, dietary patterns, or recurrence without positioning the appropriateness of allopurinol use as the primary outcome (Ilmi & Rahman, 2017; Malensang et al., 2024). This gap is important because appropriate medication use reflects not only patients' willingness to undergo therapy but also their ability to follow the prescribed dose, schedule, and administration instructions. The novelty of the present study therefore lies in its analysis of the relationship between knowledge level and appropriate medication use among gout patients receiving allopurinol therapy in Seluas Village, a community located in the West Kalimantan–Malaysia border region.

Investigating the relationship between knowledge and appropriate medication use has practical relevance for improving the quality of healthcare and pharmaceutical services at the community level. Information on patients' knowledge may provide an empirical basis for developing more targeted education concerning therapeutic goals, appropriate allopurinol use, the importance of treatment regularity, and the potential consequences of improper medication practices. This study aims to describe the demographic characteristics and knowledge levels of patients with gout and to analyze the relationship between knowledge level and appropriate gout medication use in Seluas Village, West Kalimantan–Malaysia border area. The findings are expected to provide empirical evidence to support the development of more context-specific health education and pharmaceutical care strategies for populations living in border regions.

RESEARCH METHODS

This study employed an analytical survey design with a *cross-sectional* approach to examine the relationship between knowledge level and appropriate medication use among patients with gout without providing any intervention to the participants. The study was conducted in Seluas Village, located in the West Kalimantan–Malaysia border area, from January to March 2026. The study population comprised 64 patients with gout who had received allopurinol therapy during 2025, and all eligible individuals were included using a total sampling technique. Participants were required to be older than 18 years, reside in Seluas Village, receive allopurinol therapy, and provide informed consent, while individuals with hearing impairment, severe illness during data collection, or inability to read and write were excluded from the study.

Data were collected using a structured questionnaire administered in printed form after participants had completed informed consent. Statistical analyses were performed using IBM SPSS Statistics version 27, consisting of univariate analysis to describe respondent characteristics and study variables and bivariate analysis to assess the association between knowledge level and appropriate medication use. The Kolmogorov–Smirnov test was used to assess data distribution because the sample size exceeded 50 participants, whereas the association between the two categorical variables was analyzed using the *Chi-square* test, with Fisher's exact test applied when the expected cell frequency was less than five; statistical significance was defined as $p < 0.05$. Prior to the main analysis, the questionnaire underwent validity testing using Pearson's Product–Moment correlation and reliability testing using Cronbach's alpha, resulting in coefficients of 0.864 for the knowledge variable and 0.912 for the medication-use variable, indicating very high internal consistency.

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

The demographic profile of respondents provides an important contextual basis for interpreting patterns of knowledge and medication-taking behavior among patients with gout in Seluas Village. The present study involved 64 respondents receiving allopurinol therapy, with a slightly higher proportion of women than men. Most participants were in the older age groups, had completed junior high school education, and worked primarily as farmers. These characteristics reflect the sociodemographic structure of the study population and should therefore be considered when interpreting subsequent findings regarding knowledge and appropriate medication use.

Sex distribution showed that 34 respondents (53.1%) were women, whereas 30 respondents (46.9%) were men. This pattern is consistent with studies reporting a substantial burden of hyperuricemia and gout among women, particularly in older populations in which hormonal changes may alter uric acid metabolism (Eka Novitayanti & Betty Kusdhiarningsih, 2023; Leiwakabessy et al., 2021). Christina and Martha (2025) likewise demonstrated that gout remains an important health concern among older women, particularly among those requiring interventions to control uric acid levels. Nevertheless, sex-related differences in gout should be interpreted together with age because the protective uricosuric effect of estrogen decreases markedly after menopause.

The biological explanation for the relatively high proportion of female respondents may be associated with declining estrogen levels during and after menopause. Estrogen contributes to uric acid excretion through the kidneys, and its decline may reduce renal urate elimination, resulting in higher serum uric acid concentrations and an increased risk of crystal deposition (Anggraini, 2022). Nutritional factors may further interact with this physiological mechanism because excessive purine consumption and imbalanced dietary intake can contribute to elevated uric acid levels (Irot et al., 2022; Kussoy et al., 2019). The Indonesian Rheumatology Association (2024) also emphasizes that hyperuricemia and gout are multifactorial conditions in which biological characteristics, diet, comorbidities, and lifestyle jointly influence disease development.

Age distribution further demonstrated that gout in this study was concentrated among middle-aged and older adults. The largest group consisted of respondents aged 56–65 years, accounting for 26 individuals (40.6%), followed by those aged 46–55 years at 29.7%, those aged 36–45 years at 25.0%, and those aged 26–35 years at only 4.7%. This finding is consistent with Rahayu et al. (2021), who reported a substantial proportion of gout patients in older age groups, and with Febriyona et al. (2024), who highlighted gout as an important health problem among elderly populations. Increasing

age is clinically relevant because renal function, metabolic capacity, physical activity, and the prevalence of chronic comorbidities may change progressively over the life course.

Age-related deterioration in renal urate excretion may partly explain the predominance of older respondents in the present study. Reduced renal function can decrease the elimination of uric acid, thereby promoting persistent hyperuricemia and increasing the likelihood of monosodium urate crystal accumulation (Perhimpunan Reumatologi Indonesia, 2020). Dellia et al. (2024) further demonstrated the importance of rational pharmacological management among hospitalized patients with gout, whereas Toto and Nababan (2023) emphasized the clinical burden of pain and elevated uric acid among elderly patients. The predominance of older adults in Seluas therefore suggests that gout management should integrate pharmacological treatment, lifestyle modification, and age-appropriate health education.

Table 1. Demographic Characteristics of Respondents with Gout in Seluas Village

Characteristic	Category		%
Sex	Male	30	46.9
	Female	34	53.1
Age	26–35 years	3	4.7
	36–45 years	16	25.0
	46–55 years	19	29.7
	56–65 years	26	40.6
Education	Elementary school	14	21.9
	Junior high school	34	53.1
	Senior high school	16	25.0
Occupation	Housewife	10	15.6
	Farmer	36	56.3
	Laborer/handyman	10	15.6
	Self-employed	8	12.5
Total		64	100

Source: Primary Data, 2026

The educational profile revealed that more than half of the respondents had completed junior high school (53.1%), while 25.0% had completed senior high school and 21.9% had completed elementary school. Educational attainment is relevant because it can influence an individual's capacity to access, interpret, and apply health information in everyday decision-making. Kristiningsih (2022) argued that formal education contributes to public awareness, whereas Damayanti and Sofyan (2022) found that educational level is associated with differences in community knowledge. Sitepu et al. (2024) similarly reported that education is an important characteristic related to patient knowledge, suggesting that educational background should be considered when designing interventions for people with chronic diseases.

The predominance of respondents with junior high school education may have practical implications for the delivery of gout-related health information in Seluas Village. Individuals with lower or intermediate formal education may require health messages that are concise, concrete, repeated, and adapted to local communication patterns to facilitate comprehension and retention. This consideration is particularly important in border areas where access to health information and healthcare services may be uneven (Aina, Sandi, & Johansyah, 2023). Community-based education, screening, and counseling activities such as those described by Widyandana et al. (2024) may therefore offer a useful approach for strengthening health literacy among populations with heterogeneous educational backgrounds.

Occupation was another prominent characteristic, with farmers representing 56.3% of the total sample, followed by housewives and laborers/handyman at 15.6% each and self-employed respondents at 12.5%. The predominance of farmers likely reflects the socioeconomic characteristics of Seluas Village as a rural border community rather than representing an occupational risk factor in itself. Daily work routines, physical demands, distance from healthcare facilities, and limited opportunities to attend health education activities may nonetheless shape how individuals obtain and

use health information. Silpiyani et al. (2023) reported that demographic and occupational characteristics are important elements in describing older adults with hyperuricemia, while Asrizal and Berawi (2019) emphasized that lifestyle and dietary patterns remain important considerations in gout management.

Occupational circumstances may also indirectly influence the manner in which patients seek treatment and manage medications. Patients who spend substantial time working outside the home may encounter practical difficulties in maintaining regular medication schedules, attending follow-up visits, or obtaining professional information concerning drug use. Studies on medication knowledge and self-management have shown that insufficient access to reliable information may contribute to inappropriate drug-use behavior or self-medication practices (Mona Patricia et al., 2022; Putra Muhamad et al., 2024). Zuzana and Putri (2022) likewise demonstrated that community knowledge is relevant to the appropriateness of medication use, reinforcing the importance of accessible pharmaceutical counseling for populations with demanding work schedules.

Taken together, the demographic findings indicate that the study population was characterized predominantly by older adults, women, individuals with junior high school education, and farmers. These variables should not be interpreted as direct determinants of poor gout control, but they provide an important context for understanding differences in health literacy, access to information, treatment-seeking behavior, and medication practices. Previous research has consistently demonstrated that gout management is influenced by a combination of demographic, nutritional, behavioral, and treatment-related factors rather than a single characteristic (Adinda et al., 2024; Jufri et al., 2023). Accordingly, the demographic profile identified in Seluas Village provides a strong rationale for examining whether knowledge level is associated with appropriate medication use in the subsequent analysis.

Knowledge Level of Respondents

Knowledge level in this study refers to the respondents' understanding of gout and its treatment, including their ability to recognize, understand, and recall information related to the disease and medication use. The assessment was conducted using a structured questionnaire, and the resulting scores were classified into two categories: good knowledge when the score was $>75\%$ and poor knowledge when the score was $\leq 75\%$. This categorization was used to describe the distribution of respondents' understanding of gout and its management in Seluas Village, located in the West Kalimantan–Malaysia border area. The classification therefore provides an empirical basis for evaluating whether respondents possessed sufficient knowledge to support appropriate medication-taking behavior.

The results showed that the majority of respondents had poor knowledge regarding gout and its treatment. Of the 64 respondents, 44 individuals (68.8%) were classified as having poor knowledge, whereas only 20 respondents (31.2%) demonstrated good knowledge. This distribution indicates that more than two-thirds of patients in the study population had not yet achieved an adequate level of understanding regarding gout, including its definition, causes, consequences, prevention, treatment, and management. Alfiza and Mutripah (2021) similarly reported that knowledge concerning gout among elderly community members remained suboptimal, indicating that limited disease-related understanding continues to be an important issue in community-based gout management.

The predominance of poor knowledge may partly be interpreted in relation to the demographic profile of the participants. The study population was dominated by respondents aged 56–65 years, who accounted for 26 individuals or 40.6% of the sample. Although increasing age can be associated with greater life experience, older individuals may also experience changes in cognitive function and memory that can affect their ability to receive, retain, and interpret newly acquired health information. Rivolta Alfiko Musak and Mutiara Sunrica Lomboan (2025) likewise highlighted the importance of evaluating gout-related knowledge among older adults because understanding of the disease may vary considerably within this population.

Educational attainment represents another important characteristic associated with differences in health knowledge. In this study, 34 respondents (53.1%) had completed junior high school, 16 respondents (25.0%) had completed senior high school, and 14 respondents (21.9%) had completed elementary school. Individuals with lower or intermediate levels of formal education may require health information to be communicated in a simpler, more repetitive, and contextually appropriate manner to facilitate comprehension. Damayanti and Sofyan (2022) reported an association between

educational attainment and community knowledge, while Sitepu et al. (2024) similarly demonstrated that educational background is an important characteristic related to patient knowledge.

The educational composition of the study population may therefore have contributed to the relatively high proportion of respondents with poor knowledge. Formal education is closely related to an individual's capacity to access, process, interpret, and apply information, although educational level alone does not determine health behavior. Kristiningsih (2022) emphasized that education contributes to public awareness, while knowledge is also shaped by exposure to information and the surrounding environment. These considerations suggest that the high proportion of respondents with junior high school education should be taken into account when developing educational strategies for patients with gout in Seluas Village.

Table 2. Distribution of Respondents According to Knowledge Level

Knowledge Level	n	%
Poor	44	68.8
Good	20	31.2
Total	64	100

Knowledge was categorized as good when the questionnaire score was >75% and poor when the score was ≤75%. Source: Primary Data, 2026.

Occupational characteristics may also be relevant to the knowledge profile observed in this study. A total of 36 respondents (56.3%) worked as farmers, making farming the most common occupation among participants. The nature of agricultural work may limit opportunities to participate in health education activities or obtain updated information about chronic disease management, particularly when healthcare facilities and educational programs are not easily accessible. Silpiyani et al. (2023) indicated that demographic and occupational characteristics are important in understanding elderly populations with hyperuricemia, while Febriyona et al. (2024) emphasized the role of family health practices in caring for elderly individuals with gout arthritis.

The present findings are consistent with several previous studies reporting inadequate knowledge among patients or community members affected by gout. Indrayani et al. (2021) found that knowledge was closely associated with attitudes toward gout prevention among older adults, suggesting that insufficient understanding may limit preventive behavior. Malensang et al. (2024) also demonstrated that knowledge and family support are relevant to medication adherence among patients with gout arthritis. Similarly, Aina et al. (2023) reported that knowledge influences how community members respond to symptoms associated with elevated uric acid levels, reinforcing the importance of disease-specific understanding in health decision-making.

Insufficient knowledge may have important implications for medication-taking behavior because patients need to understand the purpose, dosage, timing, duration, and proper use of prescribed therapies. Limited understanding may increase the possibility of inappropriate medication practices, including irregular use, discontinuation when symptoms improve, or self-medication without adequate professional guidance. Mona Patricia et al. (2022) documented self-medication practices among patients with gout arthritis, whereas Putra Muhamad et al. (2024) emphasized the importance of patient knowledge regarding allopurinol use. These findings support the assumption that strengthening pharmacological knowledge may contribute to more appropriate medication use among patients receiving long-term urate-lowering therapy.

Knowledge is also associated with broader health-related decision-making and disease self-management. Ilmi and Rahman (2017) reported a significant relationship between knowledge level and community behavior associated with gout occurrence, while Jufri et al. (2023) demonstrated that knowledge and dietary patterns were related to uric acid levels among patients with gout arthritis. Sukitide et al. (2023) similarly identified an association between knowledge of uric acid and attitudes toward gout arthritis prevention among older adults. Collectively, these findings indicate that knowledge is not limited to factual understanding but may influence preventive practices, medication behavior, dietary decisions, and responses to recurrent symptoms.

The relatively low knowledge level observed in Seluas Village should also be interpreted within the specific geographical context of the study. Communities living in border areas may face

barriers related to healthcare facilities, healthcare personnel, transportation, and access to reliable health information, all of which can affect opportunities to acquire adequate knowledge (Aina, Sandi, & Johansyah, 2023). The original study context indicated that some community members still obtained medication independently to manage gout symptoms without sufficient understanding of appropriate medication use. This situation suggests that improving access to understandable and culturally appropriate information should become an integral component of gout management in the border community.

The finding that 68.8% of respondents had poor knowledge demonstrates a substantial educational need among patients with gout in Seluas Village. The result is particularly relevant because most respondents were older adults, had junior high school education, and worked as farmers, characteristics that may interact with limited access to health information in a border setting. However, the presence of 31.2% of respondents with good knowledge also indicates that adequate understanding can be achieved within the same community and may be influenced by differences in education, experience, exposure to healthcare services, and access to information. These findings provide an important foundation for the subsequent analysis of whether differences in knowledge level are associated with the appropriateness of gout medication use among patients receiving allopurinol therapy.

Relationship between Knowledge Level and Appropriate Gout Medication Use

Before examining the association between knowledge level and medication-taking behavior, the distribution of the study data was assessed using the One-Sample Kolmogorov–Smirnov test as reported in the statistical output of the original study. The analysis involved all 64 respondents and produced a test statistic of 0.402 with an *Asymp. Sig. (2-tailed)* value of <0.001, indicating that the data did not follow a normal distribution. Assessment of data distribution is commonly performed before inferential analysis to determine whether the assumptions required for particular statistical procedures are fulfilled (Nurhaswinda et al., 2026; Sianturi, 2025). Statistical assumptions and the measurement scale of variables should be evaluated carefully because appropriate test selection directly influences the validity of quantitative conclusions (Fitri et al., 2023; Siti Hadija et al., 2023).

The Kolmogorov–Smirnov output showed a residual mean of 0.0000000 and a standard deviation of 0.25749935, with the largest absolute difference recorded at 0.402, a positive difference of 0.270, and a negative difference of −0.402. Although the normality test indicated a non-normal distribution, the principal analysis of this study concerned two categorical variables, namely knowledge level (good/poor) and medication use (appropriate/inappropriate). The *Chi-square* test was therefore employed to evaluate the association between these categorical variables, with statistical significance determined at $p < 0.05$. The use of analytical procedures that correspond to study design and data characteristics is consistent with principles of cross-sectional health research and quantitative analysis (Sari, 2024; Nur Falah Setyawati et al., 2023).

The bivariate analysis demonstrated a statistically significant relationship between knowledge level and appropriate gout medication use among patients in Seluas Village. The *Chi-square* analysis yielded a p -value of <0.001, which was substantially lower than the predetermined significance threshold of 0.05. This finding indicates that the distribution of appropriate and inappropriate medication use differed significantly between respondents with poor and good knowledge. Accordingly, the null hypothesis of no association between knowledge level and medication-taking appropriateness was rejected in the original analysis.

Among the 44 respondents classified as having poor knowledge, 43 individuals (97.7%) were categorized as using their medication inappropriately, whereas only one respondent (2.3%) demonstrated appropriate medication use. This pronounced distribution suggests that inadequate understanding of gout and its treatment may be accompanied by substantial difficulties in following medication instructions correctly. Patients with insufficient knowledge may have limited understanding of therapeutic objectives, dosage schedules, duration of therapy, and the importance of continuing treatment even when symptoms temporarily improve. Previous studies have similarly reported that limited gout-related knowledge is associated with unfavorable health behaviors, recurrence, and inadequate preventive practices (Rochib, 2016; Saiful & Tanonggi, 2019; Perangin-angin et al., 2022).

A markedly different pattern was observed among respondents with good knowledge. Of the 20 respondents in this category, 16 individuals (80.0%) demonstrated appropriate medication use, while only four respondents (20.0%) were classified as using medication inappropriately. The substantial contrast between the two knowledge categories indicates that respondents with better understanding were considerably more likely to follow appropriate medication-taking practices. Studies examining knowledge and medication attitudes have similarly suggested that greater understanding of treatment may facilitate more appropriate health decisions and medication-related behavior (Asvriana & Wahid, 2025; Munawaroh et al., 2025).

Table 3. Association Between Knowledge Level and Appropriate Gout Medication Use

Variable	Category	Inappropriate Medication Use, n (%)	Appropriate Medication Use, n (%)	Total, n (%)	p-value
Knowledge level	Poor	43 (97.7)	1 (2.3)	44 (100)	<0.001
	Good	4 (20.0)	16 (80.0)	20 (100)	
Total		47	17	64	

Source: Primary Data, 2026. Statistical analysis using the Chi-square test

The significant relationship identified in this study is consistent with previous evidence indicating that knowledge plays an important role in gout-related health behavior. Aina et al. (2023) reported that community knowledge was associated with the management of symptoms related to elevated uric acid levels, while Ilmi and Rahman (2017) found a significant relationship between knowledge and behaviors that may increase the occurrence of gout. Tumbel et al. (2024) further demonstrated an association between knowledge of a purine-restricted diet and uric acid levels, whereas Rostika et al. (2024) linked knowledge, dietary type, and eating frequency with gout occurrence among older adults. These findings collectively suggest that disease-specific knowledge influences not only medication behavior but also dietary decisions, prevention, and broader disease-management practices.

The present findings are also clinically relevant in the context of long-term allopurinol therapy. Aprilia et al. (2025) reported that adherence to allopurinol 100 mg was associated with quality of life among patients with gout, indicating that appropriate use of urate-lowering medication may have consequences beyond biochemical disease control. Putra Muhamad et al. (2024) highlighted the importance of patients' understanding of allopurinol use, while Malensang et al. (2024) emphasized the contribution of knowledge and family support to medication adherence among patients with gout arthritis. Educational interventions may therefore be valuable for improving medication-related understanding, as community education programs have been shown to increase knowledge concerning gout and related health practices (Dewi Aptika et al., 2025; Hajar Fuadatus Zurroh et al., 2025).

Appropriate medication use should also be understood as a multidimensional behavior that involves the correct drug, dose, timing, method of administration, and continuity of treatment. Research in other medication-related settings has demonstrated that errors or inaccuracies in drug administration can be affected by knowledge, work environment, workload, and implementation of correct medication principles (Feriani, 2020; Aswatun et al., 2019; Rukmini et al., 2022). Rahmasiah et al. (2024) similarly emphasized the importance of correct methods of medication use, including in the context of traditional medicines. The validity of medication-behavior measurement is therefore essential, and the original study strengthened its questionnaire assessment through validity and reliability testing, an approach supported by methodological literature on questionnaire development and psychometric evaluation (Rezha Nur Amalia et al., 2022; Iqbal & Salsabila, 2023; Sugiyono, 2020).

Not all previous studies, however, have identified a statistically significant relationship between gout knowledge and medication use. Santoso et al. (2021) reported no significant association between knowledge about gout arthritis and NSAID use ($p = 0.234$) or allopurinol use ($p = 0.666$), indicating that knowledge alone may not always determine medication behavior. Differences in population characteristics, healthcare access, educational exposure, socioeconomic conditions, and research settings may account for the discrepancy between those findings and the results obtained in Seluas

Village. The border location of Seluas is particularly relevant because limited access to healthcare personnel, facilities, and reliable health information may strengthen the behavioral consequences of inadequate knowledge (Aina, Sandi, & Johansyah, 2023). The present findings should therefore be interpreted within the specific social and geographical context in which medication decisions are made.

The results provide strong empirical evidence that knowledge level is significantly associated with appropriate medication use among gout patients receiving allopurinol therapy in Seluas Village. The concentration of inappropriate medication use among respondents with poor knowledge 43 of 44 individuals (97.7%)—contrasts sharply with the high proportion of appropriate use among those with good knowledge—16 of 20 individuals (80.0%)—and underscores the practical importance of patient education. Community-based counseling should focus on the purpose of allopurinol therapy, dosage and timing, continuity of treatment, dietary management, recurrence prevention, and the risks associated with unsupervised medication use; such education may be particularly beneficial for older adults and populations with limited formal education (Siregar et al., 2025; Pungki Arista et al., 2023). Strengthening education and pharmaceutical counseling in border communities may therefore constitute an important strategy for improving medication-taking practices and supporting more effective long-term gout management.

CONCLUSION

The study demonstrated that most patients with gout in Seluas Village, located in the West Kalimantan–Malaysia border area, had an inadequate level of knowledge regarding gout and its treatment. Of the 64 respondents, 44 (68.8%) had poor knowledge, while only 20 (31.2%) had good knowledge. The study population was predominantly female (53.1%), aged 56–65 years (40.6%), educated to junior high school level (53.1%), and employed as farmers (56.3%). These demographic characteristics provide an important context for understanding differences in access to health information and patients' capacity to manage long-term gout therapy appropriately.

A significant relationship was identified between knowledge level and appropriate gout medication use ($p < 0.001$). Among respondents with poor knowledge, 43 of 44 participants (97.7%) used medication inappropriately, whereas 16 of 20 participants (80.0%) with good knowledge demonstrated appropriate medication use. These findings indicate that better knowledge is strongly associated with more appropriate medication-taking behavior among patients receiving allopurinol therapy. Strengthening patient education, pharmaceutical counseling, and access to reliable health information is therefore essential to improve medication use and support effective long-term gout management, particularly among populations living in border areas.

REFERENCES

- Adinda, P., Hutagalung, R., Susanti, N., Fadillah, I., & Winanti, S. F. (2024). Memahami kompleksitas asam urat sebagai penyakit tidak menular di masyarakat. *Jurnal Kesehatan Masyarakat*, 8(2), 3879–3884. <https://doi.org/10.31004/prepotif.v8i2.30210>
- Aina, A. N., Sandi, K., & Johansyah, O. N. P. (2023). Access to health in border areas: Literature review. *Jurnal Ilmiah Ilmu Administrasi Publik*, 13(1), 243. <https://doi.org/10.26858/jiap.v13i1.46525>
- Aina, et al. (2023). Hubungan pengetahuan masyarakat dengan penanganan pada gejala peningkatan kadar asam urat di Desa Kayee Lee Kecamatan Ingin Jaya Kabupaten Aceh Besar. *Getsempena Health Science Journal*, 2(2), 108–117. <https://ejournal.bbg.ac.id/ghsj>
- Alfiza, I. S., & Mutripah, S. (2021). Tingkat pengetahuan anggota Posyandu Lansia terhadap penyakit gout di Desa Toyareka. *Estu Utomo Health Science: Jurnal Ilmiah Kesehatan*, 15(1), 1–6. <https://ejurnal.stikeseub.ac.id/index.php/JEU/article/view/780>
- Anggraini, D. (2022). Aspek klinis hiperurisemia. *Scientific Journal*, 1(4), 301–308. <http://journal.scientic.id/index.php/sciena/issue/view/4>

- Aprilia, A., Sari, A., Retnowati, E., Arif, F., et al. (2025). The level of compliance with the use of allopurinol 100 mg on the quality of life of gout patients in Donorejo Village, Karang Tengah, Demak, Central Java. *Nusantara Hasana Journal*, 5(3), 487–496. <https://doi.org/10.59003/nhj.v5i3.1639>
- Asrizal, M. T., & Berawi, K. N. (2019). Penatalaksanaan gout arthritis pada seorang lansia usia 65 tahun dengan pola makan yang tidak teratur. *Jurnal Agromedicine*, 6(1), 194–201. <https://juke.kedokteran.unila.ac.id/index.php/agro/article/view/2273>
- Asvriana, N., & Wahid, R. A. H. (2025). Hubungan tingkat pengetahuan dan sikap pasien dalam minum obat di Posyandu Mayang Sekar. *Indonesian Journal of Pharmaceutical Sciences and Clinical Research (IJPSCR)*, 3(1), 9–21.
- Aswatun, H. N., Winarti, R., & Aini, D. N. (2019). The relationship of nurses workload with the implementation of the principle of 6 correct administration of drugs to patients. *Jurnal Ners Widya Husada*, 6(2), 65–72.
- Christina, E., & Martha, Y. (2025). Pengaruh terapi senam Lien Tien Kung terhadap penurunan kadar asam urat pada lansia. *Jurnal Kesehatan dan Pembangunan*, 15(1), 152–158.
- Damayanti, M., & Sofyan, O. (2022). Hubungan tingkat pendidikan terhadap tingkat pengetahuan masyarakat di Dusun Sumberan Sedayu Bantul. *Journal Farmaseutik*, 18(2), 220–226. <https://doi.org/10.22146/farmaseutik.v18i2.70171>
- Dellia, P., Mambu, N., Godiman, N., & Walean, M. (2024). Evaluasi rasionalitas penggunaan obat pada pasien arthritis gout di instalasi rawat inap Rumah Sakit Advent Manado periode Januari–Juni 2020. *Pharmacy Research Journal*, 1(1), 18–26. <https://www.jurnal.prisma.ac.id/index.php/pharmacyresearchjournal/article/view/45>
- Dewi Aptika, et al. (2025). Peningkatan pengetahuan dan pemeriksaan kesehatan asam urat pada masyarakat di Desa Temuwuh RT02 RW06, Polokarto, Jawa Tengah (Increasing knowledge and gout health checks in the community in Temuwuh Village RT02 RW06, Polokarto, Central Java). *Jurnal Ilmiah Pengabdian kepada Masyarakat*, 10(4), 966–972.
- Eka Novitayanti, & Betty Kusdhiarningsih. (2023). Deteksi dini penyakit tidak menular dengan pemeriksaan asam urat pada lansia. *Jurnal Masyarakat Madani Indonesia*, 2(1), 7–12. <https://doi.org/10.59025/js.v2i1.58>
- Febriyona, R., Nuraina Sudirman, A., & Susanti Amara, S. (2024). Gambaran pelaksanaan 5 tugas kesehatan keluarga dalam merawat lansia dengan penyakit gout arthritis di Desa Talumelito. *Jurnal Keperawatan Muhammadiyah*, 1(1), 33–38.
- Feriani, P. (2020). Ketepatan pemberian obat oleh perawat dipengaruhi lingkungan kerja di ruang rawat inap RSUD Kanujoso Balikpapan. *Jurnal Ilmiah Keperawatan Orthopedi*, 4(1), 34–40. <https://doi.org/10.46749/jiko.v4i1.38>
- Fitri, A., Rahim, R., Nurhayati, Aziz, Pagiling, S. L., Natsir, I., et al. (2023). *Dasar-dasar statistika untuk penelitian* (R. Watrianthos, Ed.; 1st ed.). Yayasan Kita Menulis. <https://repository.unugiri.ac.id:8443/id/eprint/4882/1/Anisa%20%2C%20Buku%20Dasar-dasar%20Statistika%20untuk%20Penelitian.pdf>
- Hajar Fuadatus Zurroh, A., Aprilliana Ramadhani, M., Nilawati, I., Retna Susilowati, D., et al. (2025). Edukasi gout arthritis dan senam ergonomik untuk meningkatkan pengetahuan serta kesehatan lansia di Panti Wening Wardoyo Ungaran. *Indonesian Journal of Community Empowerment*, 7(1), 144–150.
- Heriansyah, E., Udiyono, A., Martini, M., & Saraswati, L. D. (2020). Faktor-faktor yang berhubungan dengan ketepatan waktu (Studi di Kota Bengkulu). *Jurnal Epidemiologi Kesehatan Komunitas*, 5(2), 119–126. <https://doi.org/10.14710/jekk.v5i2.6176>

- Ilmi, V. L., & Rahman, F. (2017). The relationship between knowledge level and community behavior that increase the occurrence of gout in Pakel Sukoreno Prigen Subdistrict Pasuruan Regency. *J Chem Inf Model*, 53(9), 1689–1699.
- Indonesian Rheumatology Association. (2024). *Pedoman diagnosis dan tatalaksana hiperurikemia & artritis gout (Guidelines for the diagnosis and management of hyperuricemia & gout arthritis)*. Perhimpunan Reumatologi Indonesia bekerja sama dengan Perhimpunan Dokter Spesialis Penyakit Dalam Indonesia.
- Indrayani, S., Roesmono, Sulaeman, B., et al. (2021). Hubungan antara pengetahuan dan sikap lansia dalam upaya pencegahan penyakit gout atritis. *Jurnal Pendidikan Keperawatan dan Kebidanan*, 1(1), 27–33.
- Iqbal, M., & Salsabila, S. (2023). Validitas dan reliabilitas kuesioner. *Muhammadiyah Journal of Nutrition and Food Science (MJNF)*, 4(2), 102–109. <https://doi.org/10.24853/mjnf.4.2.102-109>
- Irot, R. A., Manampiring, A. E., Kapantow, N. H., et al. (2022). Status gizi, asupan protein, dan asupan vitamin C berhubungan dengan kadar asam urat. *Sam Ratulangi Journal of Public Health*, 3(2), 23–31.
- Jufri, Zamaa, M. S., Sulaiman, & Hatta, M. S. (2023). Hubungan pengetahuan dan pola makan dengan kadar asam urat pada penderita gout artritis di Kepulauan Selayar. *Jurnal Mitrasehat*, 13(2), 439–449.
- Kristiningsih. (2022). Tingkat pendidikan formal dan pengaruhnya terhadap kesadaran masyarakat. *Jurnal Kebhinekaan dan Wawasan Kebangsaan*, 2, 30–39. <https://journal.unindra.ac.id/index.php/jagaddhita>
- Kussoy, V. F. M., Kundre, R., & Wowiling, F. (2019). Kebiasaan makan makanan tinggi purin dengan kadar asam urat di puskesmas. *Jurnal Keperawatan*, 7(2), 1–7.
- Leiwakabessy, A. Y., Ode, W., Zawawi, M., & Anmama, A. I. (2021). Skrining penyakit tidak menular (glukosa darah sewaktu, kolesterol, asam urat) di Negeri Ureng Kecamatan Leihitu Kabupaten Maluku Tengah pada tahun 2021. *Pattimura Mengabdi (Jurnal Pengabdian Kepada Masyarakat)*, 1(1), 76–82. <https://ojs3.unpatti.ac.id/index.php/pattimuramengabdi/article/view/4824>
- Malensang, E. L., et al. (2024). Family knowledge and support on compliance in taking medication in gout arthritis patients. *Lasalle Health Journal*, 3(2), 90–98.
- Mona Patricia, et al. (2022). Profil swamedikasi pasien gout artritis di apotek wilayah Kecamatan Lirung. *The Tropical Journal of Biopharmaceutical*, 5(1), 42–46.
- Munawaroh, M., Anggraini, D., & Helmizar, R. (2025). The relationship of knowledge and attitudes in adolescent women in MAN 1 Padang, 2024. *Nusantara Hasana Journal*, 4(12), 98–110.
- Nur Falah Setyawati, N., Hartiyowidi Yulawuri, M., Siti Raudah, M. B., Nia Pristina, M. S., Maria Mardalena Martini Kaisar, M. K., Ade Sucipto, N., et al. (2023). *Metodologi riset kesehatan* (1st ed.). Eureka Media Aksara.
- Nurhaswinda, Akin, M. A., Rahman, U., & S. O. (2026). Uji normalitas dan homogenitas dalam analisis statistik. *Jurnal Ilmiah FKIP Universitas Mandiri*, 13(1), 104–116. <https://www.preventionweb.net/news/preliminary-report-february-6-2023-earthquakes-turkiye>
- Perangin-angin, I. H., Siringo-ringo, M., & Pasaribu, Y. L. (2022). Gambaran pengetahuan lansia tentang asam urat di Puskesmas Dalu Sepuluh Kecamatan Tanjung Morawa tahun 2022. *Jurnal Ilmiah Keperawatan IMELDA*, 8(2), 186–190. <https://doi.org/10.52943/jikeperawatan.v8i2.1038>
- Perhimpunan Reumatologi Indonesia. (2020). *Pedoman diagnosis dan pengelolaan gout*. https://reumatologi.or.id/wp-content/uploads/2020/10/Rekomendasi_GOUT_final.pdf

- Pungki Arista, Wahyuni Tri, & Retno Vivi. (2023). Studi kasus asuhan keperawatan pasien asam urat pada masalah keperawatan nyeri akut dengan intervensi stretching exercise. *Stikes Bethesda Yakkum Yogyakarta*, 147–160.
- Putra Muhamad, et al. (2024). Profil pengetahuan pasien tentang penggunaan alopurinol di Apotek Arda Farma Sukodono. *Jurnal Farmasi IKIFA*, 3(1), 37–45.
- Rahayu, A., Anna Teresia Marbun, R., Nopita Sari Manalu, D., Siregar, S., Ade Rizky, V., & Krisdianilo, V. (2021). Evaluasi penggunaan obat asam urat dan pola peresepannya pada pasien gout arthritis di instalasi rawat inap di RSUD Deli Serdang Lubuk Pakam tahun 2020. *Jurnal Farmasimed (JFM)*, 3(2), 113–117. <https://doi.org/10.35451/jfm.v3i2.681>
- Rahmasiah, Hadiq, S., & Sirajuddin, W. (2024). Evaluasi penggunaan obat tradisional berdasarkan dimensi ketepatan cara penggunaan. *Jurnal Farmasi IKIFA*, 3(2), 83–94.
- Rezha Nur Amalia, Ragil Setia Dianingati, & Eva Annisaa. (2022). Pengaruh jumlah responden terhadap hasil uji validitas dan reliabilitas kuesioner pengetahuan dan perilaku swamedikasi. *Generics: Journal of Research in Pharmacy*, 2(1), 9–15.
- Rivolta Alfiko Musak, & Mutiara Sunrica Lomboan. (2025). Gambaran pengetahuan lansia tentang gouty arthritis di Desa Tandengan Satu Wilayah Kerja Puskesmas Tandengan. *Jurnal Ilmu Kedokteran dan Kesehatan Indonesia*, 5(1), 69–76. <https://doi.org/10.55606/jikki.v5i1.5848>
- Rochib, I. E. (2016). Relation of knowledge level about uric acid with relapse uric acid to the patient that have uric acid in Sugihwaras Village Bojonegoro District. *Journal Well Being (Jurnal Kesehatan STIKES Bahrul Ulum)*, 1(2), 110–122.
- Rostika, et al. (2024). Hubungan tingkat pengetahuan, jenis makan dan frekuensi makan dengan kejadian asam urat pada lansia di Desa Pugung Penengahan Kabupaten Pesisir Barat tahun 2024. *JCRD: Journal of Citizen Research and Development*, 1(2), 710–722.
- Rukmini, G., Utami, T. A., & Lina, R. (2022). Gambaran ketepatan enam benar pemberian obat berbasis electronical medical record di ruang rawat inap anak. *Jurnal Komunitas Farmasi Nasional*, 2(1), 241–254.
- Saiful, A., & Tanonggi, S. (2019). Hubungan antara pengetahuan dan sikap lansia dengan upaya pencegahan penyakit asam urat di Desa Wawondula Kecamatan Mori Utara Kabupaten Morowali Utara. *Journal Analisis Farmasi*, 53(9), 1689–1699.
- Santoso, B. N., Suwangto, E. G., & Iryaningrum, M. R. (2021). The association between knowledge about gout arthritis with NSAID and allopurinol consumption in Rumah Susun Penjaringan. *Review of Primary Care Practice and Education*, 4(1), 18. <https://doi.org/10.22146/rpcpe.58359>
- Sari, S. D. L. (2024). Desain cross sectional bagi penelitian bidang kebidanan. *J Heal Sci*, 1(1), 18–25.
- Sianturi. (2025). Test normality as a condition of hypothesis testing. *Jurnal Pembelajaran dan Matematika Sigma (JPMS)*, 11(1), 1–14. <https://jurnal.ulb.ac.id/index.php/sigma/article/view/7091>
- Silpiyani, Kurniawan, W. E., & Wibowo, T. H. (2023). Karakteristik responden lansia penderita asam urat di Desa Pageraji Kecamatan Cilongok. *SENTRI: Jurnal Riset Ilmiah*, 2(5), 1818–1828.
- Siregar, A., Kairupan, T., & Mawu, F. (2025). Gambaran pengetahuan. *Medical Scope Journal*, 7(1), 8–14.
- Sitepu, D. E., Primadimanti, A., & Safitri, E. I. (2024). Hubungan usia, pekerjaan dan pendidikan pasien terhadap tingkat pengetahuan di puskesmas wilayah Lampung Tengah. *Jurnal Ilmiah Pendidikan*, 10(6), 196–204.
- Sugiyono. (2020). *Skala pengukuran dan instrumen penelitian*.

- Sukitide, F., Prilhi, S., Rofiah, N. U., & Wardana, A. (2023). Hubungan pengetahuan asam urat dan kadar asam urat dengan sikap pencegahan arthtritis gout pada lansia di Puskesmas Sei Panas Kota Batam tahun 2022. *Journal Zona of Healthy Care*, 2(2), 1–10.
- Toto, E. M., & Nababan, S. (2023). Penerapan terapi non-farmakologis mengurangi nyeri dan menurunkan kadar asam urat lansia gout arthritis. *Journal Ners Muda*, 4(1), 13–20. <https://doi.org/10.26714/nm.v4i1.11488>
- Tumbel, E. J., Kairupan, C., & Sembiring, E. (2024). Hubungan tingkat pengetahuan tentang diet purin dengan kadar asam urat pada pria kaum bapa gereja di Desa Kuwil. *Jurnal Keperawatan*, 12(2), 163–170.
- Widyananda, A., Rizqy, M. S., Caesar, M. A., Tiana, D. A., Fathinah, S., Haryono, N. I., et al. (2024). Langkah preventif terpadu: Penyuluhan dan skrining hipertensi, diabetes melitus, dan asam urat di Desa Bahu Palawa. *Jurnal Pengabdian Masyarakat*, 7(11), 5133–5145. <https://doi.org/10.33024/jkpm.v7i11.17587>
- Zuzana, & Putri, S. D. (2022). Analisis pengetahuan masyarakat terhadap ketepatan penggunaan obat di Kelurahan Lenteng Agung Jakarta Selatan. *JAFP (Jurnal Akademi Farmasi Prayoga)*, 7(1), 51–61. <https://doi.org/10.56350/jafp.v7i1.79>