

## RESEARCH ARTICLE

# The Relationship Level of Self-medication Knowledge with Rationality of Drug Use in Adolescents

Muhammad Cariefzi Zahdffa Kusuma,<sup>1</sup> Meiyanti Meiyanti<sup>2</sup>

<sup>1</sup>Faculty of Medicine, Universitas Trisakti, West Jakarta, Indonesia,

<sup>2</sup>Department of Pharmacology and Medical Pharmacy, Faculty of Medicine, Universitas Trisakti, West Jakarta, Indonesia

## Abstract

Currently, self-medication in Indonesian adolescents has a high prevalence. The problem with self-medication is the accuracy of drug use in adolescents, resulting in irrational treatment. The purpose of this study was to analyze the relationship between the level of knowledge of self-medication and the rational use of gastritis drugs in adolescents. This observational study has a cross-sectional design and a sample size of 91 students. The research was conducted from April to June 2021 in Jakarta. The nonrandom sampling method was used for the selection of research samples. Research data were obtained through interviews and questionnaires. Calculate the sample size using the infinite and finite population formula with a prevalence of 23.8. Inclusion criteria subjects aged 15–19 years who had complaints in the upper gastrointestinal tract and signed informed consent. Exclusion criteria are students taking gastritis treatment based on prescriptions from doctors or according to doctor's recommendations. Data analysis using SPSS 23.0 and correlation test using the chi-square test with a significance value of  $p < 0.05$ . The results showed that 33% of respondents had good self-medication knowledge, and as many as 60% had irrational gastritis treatment behavior. The results of bivariate analysis obtained there is a significant relationship between the level of knowledge of self-medication and the rational treatment of gastritis with a value of  $p = 0.000$  ( $p < 0.05$ ). This study concludes that there is a relationship between knowledge of self-medication and the rational use of drugs..

**Keywords:** Adolescents, medicine, rationality, self-medication

## Introduction

Self-medication is an attempt by someone to treat themselves without a prescription from a doctor.<sup>1</sup> Based on the 2017–2019 national socioeconomic survey by the Statistics Indonesia, it was found that there was an increase in the average number of self-medications in Indonesia every year. In 2017, the number of people practicing self-medication was 69.43%; in 2018, it was 70.74%; and in 2019, it was 71.46%, with an average increase of 1% each year.<sup>2</sup> Gastritis (stomach inflammation) is a health problem in the digestive system with a high incidence rate. According to the 2018 Health Profile, gastritis is among the top 10 diseases of hospitalizations in Indonesia with 30,154 cases (4.9%). The incidence of gastritis is relatively high, with a prevalence of 274,396 cases in 258,704,900 people.<sup>3</sup> The study by Tauran and Lameky<sup>4</sup> showed a relationship between diet and the incidence and recurrence of gastritis.

Previous studies obtained the results of several types of over-the-counter drugs often used for gastritis self-medication, including antacids, histamine two receptor antagonists, proton pump inhibitors, and sucralfate.<sup>5</sup>

Several factors, including commercial marketing of drugs, treatment experience, economic conditions, social conditions, psychological conditions, education, and educational history, influence the choice of self-medication.<sup>1</sup> Various problems often arise in the implementation of self-medication, such as a lack of understanding and knowledge about the proper and rational use of a drug, excessive use of drugs, and lack of knowledge about proper storage and disposal of drugs.<sup>6</sup> According to data from Statistics Indonesia in 2019, 73.63% of self-medication practitioners belonged to adolescents aged 15–19 years; this figure exceeded the average number of self-medication practitioners in Indonesia, 71.46%.<sup>2</sup> Adolescence is a transitional

Copyright ©2024 by authors. This is an open access article under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (<https://creativecommons.org/licenses/by-nc-sa/4.0>).

Received: 23 April 2023; Revised: 12 February 2024; Accepted: 23 February 2024; Published: 30 April 2024

**Correspondence:** Meiyanti, dr., Sp.F.K. Department of Pharmacology and Medical Pharmacy, Faculty of Medicine, Universitas Trisakti. Jln. Kyai Tapa No. 260, West Jakarta 11440, Special Capital Region of Jakarta, Indonesia. E-mail: [meiyanti@trisakti.ac.id](mailto:meiyanti@trisakti.ac.id)

period when a person develops self-identity and still cannot understand complex concepts, the relationship between actions and consequences, or how much control they have or can have to make decisions related to their health.<sup>7</sup>

A study in Medan showed that 68.75% of the population had good knowledge about the use of gastritis drugs and selection attitudes, and there was a significant relationship between drug knowledge and self-medication for ulcer disease in the village.<sup>8</sup> Different results were obtained in another study; this study concluded that the level of knowledge of self-medication does not influence the rationality of drug use. The level of knowledge about the rationality of self-medication is influenced by the level of knowledge influenced by the latest education and occupation, and there is no significant relationship between knowledge and self-medication between the rationality of drug use with sociodemographic factors such as age, gender, education level, and occupation.<sup>9</sup>

The rationality of gastritis treatment is critical in the current field of public health; the high prevalence of the disease with the rational use of drugs has an impact on the success of treatment and can prevent or reduce side effects and unwanted effects from the use of drugs. The results of the research are still conflicting between self-medication knowledge and treatment rationality, encouraging researchers to examine the relationship between self-medication knowledge and the rationality of gastritis drug treatment in adolescents.

## Methods

This research study design used an observational analytic method with a cross-sectional approach. The research was located at Senior High School (*Sekolah Menengah Atas Negeri*, SMAN) 28 Jakarta because the research location is easily accessible to researchers in conditions of imposing social distancing; the research was conducted from April to June 2021. The research sample was taken using the consecutive nonrandom sampling technique. Calculate the sample size using the infinite and finite population formula at 95% reliability, a prevalence of 23.8%, and accuracy of measurement accuracy of 0.05. Respondents who participated in this study were 91 students aged 15–19 years who had complaints in the upper gastrointestinal tract, were willing to participate, and signed informed consent.

Exclusion criteria are students who are taking gastritis treatment based on prescriptions and have a history of using gastritis drugs from doctors or according to doctor's recommendations. Data collection was carried out by filling in the consent form and questionnaire sheet containing sociodemographic data (age, gender, parent's education level, family economic level), a self-medication knowledge level questionnaire consisting of 12 questions, and a gastritis drug use rationality questionnaire composed of 10 questions. A pilot test of the questionnaire was conducted on ten students to test the validity and reliability, obtaining a value of  $r=0.361$  and Cronbach's alpha 0.68. Bivariate data analysis of the relationship between the level of knowledge of self-medication and rationality of treatment using the chi-square test on SPSS for Windows version 23.0 software with a significance level of 95%. This research has passed the ethical review from the Faculty of Medicine, Trisakti University, with No. 46/KER-FK/2/2021.

## Results

Based on Table 1, the average age was 16.2 years, with 60 (66%) subjects being female. Most of the subjects' parents' education (64%) is included in the higher education category, with parental income 62 (68%) above the regional minimum wage (*upah minimum regional*, UMR). Based on the knowledge of self-medication, 31 (34%) have a moderate level of expertise, and the knowledge of good and not good self-medication, 30 (33%). Based on the drug rationality category, it was found that most of the 55 (60%) used drugs irrationally. The type of drug most widely used for treating gastritis is antacid at 81%, followed by second-order proton pump inhibitor (PPI) medications at 10% and sucralfate drugs at 9%.

Based on Table 2, out of 91 subjects, 31 subjects with moderate self-medication knowledge had irrational drug use 21 (68%), while subjects with a good knowledge level of 30 subjects had 21 (70%) rational drug use. From the results of bivariate chi-square analysis, the relationship between knowledge of self-medication and drug rationality was found to be  $p=0.000$ . Meanwhile, based on demographic data on gender and parental income, from the results of bivariate chi-square analysis, it was found that there was no significant relationship between these demographic data and drug rationality with  $p$ -values of 0.140 and 0.110,

**Table 1 Subject Characteristics**

| Variables                 | Mean±SD  | n=91 (%) |
|---------------------------|----------|----------|
| Age (year)                | 16.2±0.7 |          |
| Gender                    |          |          |
| Male                      |          | 31 (34)  |
| Female                    |          | 60 (66)  |
| Parental education        |          |          |
| Low                       |          | 33 (36)  |
| High                      |          | 58 (64)  |
| Parents' income           |          |          |
| ≤UMR                      |          | 29 (32)  |
| >UMR                      |          | 62 (68)  |
| Self-medication knowledge |          |          |
| Good                      |          | 30 (33)  |
| Moderate                  |          | 31 (34)  |
| Poor                      |          | 30 (33)  |
| Rationality of medication |          |          |
| Yes                       |          | 36 (40)  |
| No                        |          | 55 (60)  |
| Type of drug              |          |          |
| Antacid                   |          | 74(81)   |
| Sucralfate                |          | 8 (9)    |
| Proton pump inhibitor     |          | 9 (10)   |
| Self-medication           |          |          |
| Yes                       |          | 32 (35)  |
| No                        |          | 59 (65)  |

Note: UMR: regional minimum wage

respectively. A total of 58 subjects had parents with a high level of education; in this group, 30 (52%) were categorized as irrational drug use, but in the low education level group, as many as 33 subjects obtained 76% of this group used

irrational drugs. The results of the chi-square bivariate analysis showed that parental education is significantly related to drug rationality with a value of  $p=0.024$ .

**Discussion**

The prevalence of self-medication in this study was 35%, which is lower than that of gastritis self-medication in other countries. The systematic literature review and meta-analysis results showed that more than 50% of adolescents take medicine without consulting a doctor.<sup>10</sup> Some of the factors causing the high rate of self-medication are due to the easy access to the drugs needed, especially over-the-counter drugs, and limited over-the-counter drugs without any standardization of over-the-counter drug sales. The location and geographical conditions of the residence affect access to self-medication, and limited transportation and health facilities will increase the prevalence of self-medication.<sup>11,12</sup> Another factor causing the high prevalence of self-medication is the pharmacist's role as a drug seller is very active compared to the pharmacist's role as a health service provider.<sup>7,10</sup> People practice self-medication because of the high cost of treatment, limited health insurance coverage, previous experience with the disease, lack of trust in health workers, avoiding loss of work time, and avoiding long waiting times to consult a doctor.<sup>13,14</sup>

Antacid is the type of drug most widely

**Table 2 Self-medication Knowledge, Gender, Education, and**

| Variables                 | Yes (n=36) | No (n=55) | Total (n=91) | P      |
|---------------------------|------------|-----------|--------------|--------|
| Self-medication knowledge |            |           |              |        |
| Good                      | 21         | 9         | 30           | 0.000* |
| Moderate                  | 10         | 21        | 31           |        |
| Poor                      | 5          | 25        | 30           |        |
| Gender                    |            |           |              |        |
| Male                      | 9          | 22        | 31           | 0.14   |
| Female                    | 27         | 33        | 60           |        |
| Parental education        |            |           |              |        |
| Low                       | 8          | 25        | 33           | 0.024* |
| High                      | 28         | 30        | 58           |        |
| Parents' income           |            |           |              |        |
| ≤UMR                      | 8          | 21        | 32           | 0.11   |
| >UMR                      | 28         | 34        | 59           |        |

Note: \* $p<0.05$ , UMR: regional minimum wage

consumed to treat gastritis complaints. The results of this study are no different from previous studies; antacids ranked first in self-medication; this is because antacid class drugs are a class of over-the-counter drugs, easily available at relatively affordable prices so that they become the drug of choice, especially among adolescents.<sup>15</sup> The results of this study show that there is no significant relationship between gender and the rationality of drug use. The same thing was also obtained by other researchers before; a study by Albati et al. concluded no relationship exists between gender and self-medication behavior in adolescents aged 13–18 years.<sup>7</sup> Other researchers concluded that sociodemographic factors such as age, gender, occupation, and level of occupational knowledge were significantly related to self-medication behavior.<sup>16</sup> Other researchers concluded that there was a relationship between gender and rationality of drug use. This is because women are more actively involved in the health of family members than men. In addition, mothers tend to provide stocks of certain drugs at home. Women have a higher level of socialization to exchange health information and medicines used; this can affect the rationality of self-medication.<sup>17</sup>

This study shows a significant relationship between parental education level and self-medication rationality. Similar research results obtained by previous studies say that the higher the parent's education, the better the level of parental self-medication knowledge. The role of parents, especially mothers, is vital in the development of children, starting from physical, mental, psychosocial, and spiritual development; besides that, mothers also play a central role in determining health care or selecting medicines to be used in the household. The level of public knowledge will affect the behavior of drug use.<sup>18</sup>

Various factors cause the use of drugs to be irrational, including a low level of knowledge so that advertisements and drug promotions easily tempt it, limitations to seeking drug information through social media or the internet from trusted sources, reluctance to read the information on medicinal products consumed, especially indications and how to use drugs. When doing self-medication, knowledge of drug selection according to the disease and how to use it will have an impact on safe and rational self-medication. It will not have an impact on the emergence of adverse effects from drug use or waste of medical expenses.<sup>16,19,20</sup>

Based on the characteristics of education level, other studies found that people with low education levels correlated with low knowledge of self-medication, so this group usually chose to see a doctor rather than do self-medication. The higher a person's education, the more likely they are to do self-medication because they can seek medical advice and drug information through mass media and the internet from reliable reference sources.<sup>21</sup>

The results of this study showed no significant relationship between the economic level and rationality of drug use. In contrast to the study in China, it was concluded that low-income groups tend to self-medicate using limited over-the-counter drugs compared to prescription drugs. This may be due to the high cost of medication.<sup>22</sup> Economic level is usually aligned with education level. High education and high economic level groups usually have higher health care, more accessible access to health facilities, and tend to have health insurance.

This study found that the level of knowledge of self-medication was significantly related to the rationality of drug use. The results of a survey conducted by Lee et al.<sup>23</sup> said that respondents with low levels of self-medication knowledge, poor health behaviors such as smoking, and alcohol consumption tend to carry out irrational self-medication practices such as adolescents who consume alcohol and smoking are related, and more likely to carry out irrational self-medication practices. According to indications, the level of education and knowledge about the disease and drugs affects the rationality of treatment. Various means can be used to obtain drug information, and consultation with pharmacists in pharmacies can improve treatment rationality. Alternative, practical, cheap, and effective treatment is the reason for the increasing prevalence of self-medication continuing to increase.<sup>8,24</sup> Knowledge about drugs can be obtained through drug packaging, which contains information on active ingredients, dosage, how to use, duration of use, and side effects of the drug. In contrast to other researchers, it is said that the living environment, community conditions, and the active role of pharmacists or other health workers affect the rationality of self-medication even though the knowledge of self-medication is still low.

Poor self-medication behavior is feared to trigger irrational drug use behavior, especially if the culture has been embedded in a person's

mindset in determining how to use drugs, which will have a terrible impact when the person becomes a parent and repeats the same way in determining the use and selection of drugs for their children which can trigger irrational drug use behavior from generation to generation.<sup>8,14,25,26</sup> Holistic coordination and cooperation between the government, food and drug regulatory agencies, pharmacies, and community behavior and awareness are needed to improve the rational use of self-medication. The limitations of this study are that the research location was only carried out in one high school, and several variables such as habit history and diet that affect the degree of disease were not examined in this study.

### Conclusion

There is a relationship between the level of knowledge of self-medication and parental education and the rationality of gastritis treatment in adolescents.

### Conflict of Interest

The authors do not have any conflict of interest to declare.

### Acknowledgment

The authors would like to thank the principal, teachers, and administrative staff of SMAN 28 Jakarta and all research subjects willing to participate in this study.

### References

1. Jajuli M, Sinuraya RK. Artikel tinjauan: faktor-faktor yang mempengaruhi dan risiko pengobatan swamedikasi. *Farmaka*. 2018;16(1):48–53.
2. Kementerian Kesehatan Republik Indonesia. Profil kesehatan Indonesia tahun 2019. Jakarta: Kementerian Kesehatan Republik Indonesia; 2020.
3. Badan Penelitian dan Pengembangan Kesehatan, Kementerian Kesehatan Republik Indonesia. Laporan nasional Riskesdas 2018. Jakarta: Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan; 2019.
4. Tauran I, Lameky VY. Pola makan dan kekambuhan gastritis pada mahasiswa di Akademi Keperawatan Rumkit Tk III Dr. J. A. Latumeten Kota Ambon. *GHS*. 2022;7(1):36–40.
5. Untari EK, Nurbaeti SN, Nansy E. Kajian perilaku swamedikasi penderita tukak peptik yang mengunjungi apotek di Kota Pontianak. *J Farm Klin Indones*. 2013;2(3):112–20.
6. Sholiha S, Fadholah A, Artanti LO. Tingkat pengetahuan pasien dan rasionalitas swamedikasi di apotek Kecamatan Colomadu. *Pharmasipha*. 2019;3(2):38–48.
7. Albatti TH, Alawwad S, Aldueb R, Alhoqail R, Almutairi R. The self-medication use among adolescents aged between 13–18 years old; prevalence and behavior, Riyadh – Kingdom of Saudi Arabia, from 2014–2015. *Int J Pediatr Adolesc Med*. 2017;4(1):19–25.
8. Andarwati R. Hubungan pengetahuan melalui iklan obat (maag) terhadap sikap pemilihan obat untuk swamedikasi pengobatan maag pada masyarakat di dusun V Desa Binjai Baru Kecamatan Talawi. *J Ilm PANNMED*. 2016;10(3):314–6.
9. Harahap NA, Khairunissa K, Tanuwijaya J. Patient knowledge and rationality of self-medication in three pharmacies in Panyabungan city, Indonesia. *JSFK*. 2017;3(2):186–92.
10. Gualano MR, Bert F, Passi S, Stillo M, Galis V, Manzoli L, et al. Use of self-medication among adolescents: a systematic review and meta-analysis. *Eur J Public Health*. 2015;25(3):444–50.
11. Kifle ZD, Mekuria AB, Anteneh DA, Enyew EF. Self-medication practice and associated factors among private health sciences students in Gondar town, North West Ethiopia. A cross-sectional study. *Inquiry*. 2021;58:469580211005188.
12. Saha A, Marma KKS, Rashid A, Tarannum N, Das S, Chowdhury T, et al. Risk factors associated with self-medication among the indigenous communities of Chittagong Hill Tracts, Bangladesh. *PLoS One*. 2022;17(6):e0269622.
13. Khalifeh MM, Moore ND, Salameh PR. Self-medication misuse in the Middle East: a systematic literature review. *Pharmacol Res Perspect*. 2017;5(4):e00323.
14. Azhar MIM, Gunasekaran K, Kadirvelu A, Gurtu S, Sadasivan S, Kshatriya BM. Self-medication : awareness and attitude among Malaysian urban population. *IJCRIMPH*.

- 2013;5(6):436–43.
15. Lady F. Ketepatan swamedikasi maag pada pelajar sekolah menengah atas negeri non kesehatan di Kecamatan Pontianak Selatan periode 2019. *Jmfarmasi* [Internet]. 2019;4(1):40773. Available from: <https://jurnal.untan.ac.id/index.php/jmfarmasi/article/view/40773>.
  16. Kristina SA, Prabandari YS, Sudjaswadi R. Perilaku pengobatan sendiri yang rasional pada masyarakat. *BKM*. 2007;23(4):176–83.
  17. Maipauw G, Meiyanti. Determinants of self-medication rationality in pharmacy visitors. *IJMBS*. 2021;5(6):122–7.
  18. Bimantara L, Rakhmawati E. Hubungan tingkat pendidikan terhadap tingkat pengetahuan orangtua dalam swamedikasi demam pada anak menggunakan obat parasetamol. *Java Health J*. 2017;4(2):266.
  19. Husna HI, Dipahayu D. Pengaruh pengetahuan masyarakat terhadap rasionalitas penggunaan analgesik oral non steroid anti-inflammatory drug golongan non selective COX-1 dan COX-2 secara swamedikasi. *J Pharm Sci*. 2017;2(2):24–9.
  20. Malik AA, Becerra MC, Lash TL, Cranmer LM, Omer SB, Fuad J, et al. Risk factors for adverse events in household contacts prescribed preventive treatment for drug-resistant tuberculosis exposure. *Clin Infect Dis*. 2021;72(10):1709–15.
  21. Suherman H, Febrina D. Pengaruh faktor usia, jenis kelamin, dan pengetahuan terhadap swamedikasi obat. *Viva Medika*. 2019;10(2):94–108.
  22. Chang J, Wang Q, Fang Y. Socioeconomic differences in self-medication among middle-aged and older people: data from the China health and retirement longitudinal study. *BMJ Open*. 2017;7(12):e017306.
  23. Lee CH, Chang FC, Hsu SD, Chi HY, Huang LJ, Yeh MK. Inappropriate self-medication among adolescents and its association with lower medication literacy and substance use. *PLoS One*. 2017;12(12):e0189199.
  24. Handayani DT, Sudarso S, Kusuma AM. Swamedikasi pada mahasiswa kesehatan dan non kesehatan. *J Manaj Pelayanan Farm*. 2013;3(3):197–202.
  25. Wibawa MA, Jaluri PDC, Fakhruddin F. Gambaran tingkat pengetahuan pasien gastritis terhadap swamedikasi dan rasionalitas obat di apotek Kelurahan Mendawai Kota Pangkalan Bun. *J Borneo Cendekia*. 2020;4(1):97–107.
  26. Zulkarni R, Yosmar R, Octafiani I. Hubungan pengetahuan pasien terhadap rasionalitas swamedikasi di beberapa apotek Kecamatan Lubuk Basung. *J Sporta Saintika*. 2019;4(2):1–9.