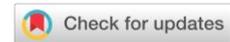# Determinants of Diarrhea Self-Medication Behavior Among Urban Housewives in Bekasi, Indonesia

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ARTICLE INFO	ABSTRACT
	Background: Self-medication is the practice of treating oneself independently. If it is done reasonably and rationally, you will get benefits, but if it is done in a bad way, there is the potential for unexpected side effects from treatment. Self-medication efforts for diarrheal diseases are often carried out by the community, considering that diarrheal diseases are included in the top 10 diseases every year in Indonesia. In 2019, Bantargebang District had the highest number of diarrhea cases, with a total of 1,610 cases. Ciketingudik sub-district had the highest number of diarrhea cases with 76 cases. **Methods:** This research used a quantitative cross-sectional design involving 229 homemakers with children aged 1–5 years in Ciketingudik Village, Bantargebang District, Bekasi City. The sample was selected using purposive sampling. Data were collected using a valid questionnaire to measure knowledge, attitude, environmental factors, the role of health workers, and self-medication behavior for diarrhea. Data were analyzed using univariate analysis and chi-square test with a significance level of $p < 0.05$. **Results:** The results showed that most respondents were aged 26–45 years, had a basic level of education, and were not formally employed. Statistical analysis showed that age, education, and employment were not significantly associated with self-medication for diarrhea. Conversely, knowledge, attitudes, environmental conditions, and the role of health workers were significantly associated with self-medication behavior. Respondents with good knowledge, positive attitudes, supportive environments, and active involvement of health workers were more likely to self-medicate appropriately for diarrhea. **Conclusion:** self-medication for diarrhea among homemakers is influenced by cognitive, behavioral, environmental, and health system factors rather than by demographic characteristics. Strengthening health education, improving environmental conditions, and enhancing the role of health workers are essential strategies for promoting safe and rational self-medication practices and reducing diarrhea-related health risks in the community.

I. Introduction

Self-medication is the act of treating an illness by seeking alternative treatments and using medications without a medical prescription. The Central Statistics Agency (BPS) recorded that the majority of Indonesians practiced self-medication at a rate of 84.23% in 2021, with an increase in self-medication in 2022 to 83.34% (Statistics Indonesia, 2020), Self-medication can benefit public health when used appropriately and rationally, but misuse can endanger users' health (Amalia, 2021). Self-medication is now a common practice among the public; however, there are still inappropriate self-

medication behaviors, such as incorrect diagnosis, incorrect dosage, or long-term use, which can cause adverse effects (Robiyanto, 2018). A research in Germany reported that 3.9% of 7,000 inpatients experienced adverse drug reactions due to self-medication. (Burute et al., 2016).

One of the diseases that people often try to treat themselves for is diarrhea. Diarrhea is an infectious disease of the digestive tract that is a global health problem, including in Indonesia. The WHO and UNICEF report that there are approximately 2 billion cases of diarrhea and 1.9 million deaths among children under five due to diarrhea worldwide each year, with 78% of these deaths occurring in developing countries, particularly in Africa and Southeast Asia (Mahmood et al, 2020)

In Indonesia, diarrhea is the second leading cause of death in children, with 746 cases recorded in 2019. The highest prevalence of diarrhea is in the 1-5 age group (11.5%) and infants (9%). (Indonesian Ministry of Health, 2022). One of the areas in Indonesia with the highest number of diarrhea cases is in the Bantargebang sub-district of Bekasi city, with 1,610 cases per year (Bekasi City Health Office, 2019).

The high number of diarrhea cases in the Bantargebang District of Bekasi City is due to poor environmental conditions, contamination of food and beverages, pathogen infections, malabsorption, psychological factors, and inadequate numbers of health personnel and health facilities. In addition, the Bantargebang District of Bekasi City is located very close to the Bantargebang Integrated Waste Disposal Site (TPST) and serves as an access point for garbage trucks, which may pose a risk of diarrhea due to poor environmental hygiene and sanitation (Bekasi City Health Office, 2019).

The Bantargebang District community in Bekasi City frequently self-medicates for illnesses they experience, not only for diarrhea but also for other diseases that can be treated independently. However, self-medication for diarrhea can be handled with appropriate self-medication, especially for mild symptoms that are not accompanied by alarming symptoms. Self-medication can be done by using over-the-counter medications specifically designed to treat the symptoms of diarrhea. In line with what Setiarini said, one of the diseases that can be treated with self-medication and has high morbidity is diarrhea (Setiarini, 2023). Self-medication is often practised by women compared to men, especially in cases of diarrhea in children or toddlers (Aprilia et al, 2022). Several studies show that women tend to be more careful in maintaining their health and are more likely to seek medical care regularly. Self-medication is practiced mainly by women aged 26-45 years because women are more concerned about their own health and that of their families (Robiyanto et al., 2018). Mothers play an essential role in self-medication for diarrhea in toddlers because they are the most important figures and are closest to them. When diarrhea occurs, mothers' actions and behaviors determine the course of the illness and the efforts to improve health and prevent disease. Based on the background above, the researcher will analyze self-medication for diarrhea among housewives in Ciketingudik Village, Bantargebang District, Bekasi City.

METHODS

This research used a quantitative analytical design with a cross-sectional approach. The research was conducted in Ciketingudik Village, Bantargebang District, Bekasi City, Indonesia, in 2024. The research population consisted of 536 households in the research area. The sample size was calculated using the Slovin formula, resulting in 229 respondents. A non-probability sampling method with a purposive sampling technique was applied. The inclusion criteria included married homemakers with children aged 1–5 years, permanently residing in Ciketingudik Village, and willing to participate. The exclusion criteria included respondents with an educational or professional background in health, those who withdrew during the research , and individuals with cognitive, psychological, or communication difficulties.

Data were collected using a structured questionnaire developed to measure self-treatment behavior for diarrhea, knowledge, attitudes, environmental factors, and the role of health workers. The questionnaire was administered directly to respondents by trained data collectors. Before data collection, the instrument was tested for validity and reliability with 30 respondents outside the research sample who met the inclusion criteria. Items were considered valid if the calculated correlation coefficient exceeded the r-table value of 0.374. Reliability was measured using Cronbach's alpha, with values above 0.7 indicating acceptable reliability.

Data analysis consisted of univariate and bivariate analyses. Univariate analysis was used to describe respondent characteristics and the distribution of research variables. Bivariate analysis was performed using the chi-square test to examine the relationship between independent variables, namely knowledge, attitude, environmental conditions, and the role of health workers, with the dependent

variable, self-medication behavior for diarrhea. Statistical analysis was performed using IBM SPSS Statistics version 22, with a significance level set at p < 0.05.

The research process began with initial field observations and coordination with local community leaders. Questionnaire validation and reliability testing were conducted before the main data collection. Data collection was conducted through face-to-face interviews using a validated questionnaire. Completed questionnaires were checked for completeness before data entry. The data were then coded, entered, and analyzed in accordance with the research objectives. Ethical principles were applied throughout the research. Respondents were informed about the research objectives, procedures, potential benefits, and their right to withdraw at any time without consequences. Written consent was obtained from all participants before data collection. Respondent anonymity and data confidentiality were strictly maintained, and all data were used solely for research purposes.

RESULTS

The results of the univariate analysis of respondent characteristics and research variables are presented below.

Table 1. Sociodemographic Characteristics and Diarrhea Self-Medication Variables

Variable	Category	n	%
Age (years)	17–25	62	27.1
	26–45	163	71.6
	≥ 46	4	1.3
Education Level	No formal education	10	4.4
	Elementary school or equivalent	91	39.7
	Junior high school or equivalent	78	34.1
	Senior high school or equivalent	47	20.5
	Higher education	3	1.3
Occupation	Housewife	206	90.0
	Self-employed	13	5.7
	Laborer/Farmer	4	1.7
	Teacher	3	1.3
	Private employee/Civil servant	3	1.3
Knowledge	Good	129	56.3
	Poor	100	43.7
Attitude	Positive	139	60.3
	Negative	91	39.7
Environment	Supportive	124	54.4
	Not supportive	105	45.6
Role of Health Workers	Active	168	73.4
	Not active	61	26.6
Self-Medication Behavior	Appropriate	119	52.0
	Inappropriate	110	48.0

The data shows that most respondents were in the productive age group of 26–45 years old (71.6%), which is the active phase of child rearing and family health decision-making. The respondents' education level was dominated by elementary school (or equivalent) at 39.7%, indicating limited exposure to formal education, which could potentially affect their understanding of rational drug use. The majority of respondents (90.0%) were homemakers, so child health management, including the treatment of diarrhea, was mainly carried out in the household environment.

Table 2. Distribution of Knowledge, Attitude, Environmental Conditions, Health Workers' Role, and Self-Medication Behavior

Variable	Category	n	%
Knowledge	Good	129	56.3
	Poor	100	43.7
Attitude	Positive	139	60.3
	Negative	91	39.7
Environment	Supportive	124	54.4
	Not supportive	105	45.6
Role of Health Workers	Active	168	73.4
	Not active	61	26.6
Self-Medication Behavior	Appropriate	119	52.0
	Inappropriate	110	48.0

The data show that most respondents have a good level of knowledge about self-medication for diarrhea (56.3%), while 43.7% still have poor knowledge. This indicates that the understanding of self-medication for diarrhea among housewives is not yet completely uniform.

In terms of attitude, the majority of respondents (60.3%) showed a positive attitude towards self-medication for diarrhea. In comparison, 39.7% still had a negative attitude, indicating differences in acceptance and belief in the practice of self-medication. Based on environmental conditions, more than half of the respondents (54.4%) lived in a supportive environment, while 45.6% lived in a less supportive environment.

This condition can affect the risk of diarrhea and the pattern of self-medication. The role of health workers was considered active by the majority of respondents (73.4%), indicating that interaction and dissemination of health information at the community level have been quite good. However, 26.6% of respondents still considered the role of health workers to be suboptimal.

In terms of behavior, only slightly more than half of the respondents demonstrated good self-medication behavior for diarrhea (52.0%), while 48.0% of respondents still practiced inappropriate self-medication. These findings indicate that although the respondents' knowledge and attitudes tended to be good, this was not fully reflected in their self-medication behavior. Overall, the distribution of the research variables shows a potential gap between knowledge, attitude, environmental support, and the role of health workers with the practice of self-medication for diarrhea among housewives.

Table 3. Bivariate Analysis of Factors Associated with Diarrhea Self-Medication Behavior

Variable	p-value	Odds Ratio (95% CI)
Age	0.591	1.196 (0.709–2.017)
Education level	1.000	0.998 (0.533–1.870)
Occupation	0.118	0.438 (0.173–1.108)
Knowledge	0.047	1.768 (1.043–2.996)
Attitude	0.001	3.693 (2.112–6.460)
Environment	0.001	0.353 (0.206–0.605)
Role of health workers	0.014	2.203 (1.207–4.019)

The data shows that most respondents have a good level of knowledge about self-medication for diarrhea, namely 56.3%. The majority of respondents (60.3%) show a positive attitude towards self-medication for diarrhea, while 39.7% still have a negative attitude, indicating differences in acceptance and belief in self-medication practices. Based on environmental conditions, more than half of respondents live in supportive environments (54.4%), while 45.6% live in less supportive environments. The role of health workers is active, as indicated by the majority of respondents (73.4%), suggesting that interaction and dissemination of health information at the community level have been quite good.

However, 26.6% of respondents still consider the role of health workers to be suboptimal. In terms of behavior, only slightly more than half of respondents demonstrated good self-medication behavior for diarrhea (52.0%), while 48.0% of respondents still practiced inappropriate self-medication. These findings indicate that although the respondents' knowledge and attitudes tended to be good, this was not fully reflected in their self-medication behavior. Overall, the distribution of research variables shows a potential gap between knowledge, attitudes, environmental support, and the role of health workers with self-medication practices for diarrhea among housewives.

DISCUSSION

This research analyzes factors associated with self-medication behavior for diarrhea among housewives with children under five years of age in Ciketingudik Village, Bantargebang District. Findings indicate that self-medication behavior for diarrhea is more influenced by cognitive, behavioral, environmental, and health system factors than by sociodemographic characteristics. This directly addresses the research objectives and highlights priority areas for community-based interventions.

Age was not significantly associated with self-medication behavior for diarrhea. These findings are consistent with previous studies showing that maternal age does not always determine rational self-medication practices (Retno & Rahmawati, 2021). Although older age is often associated with greater maturity and experience, age alone does not guarantee appropriate health decision-making. Other factors, including cognitive adaptability and exposure to relevant health information, may influence adult learning and behavior (Esperanza et al., 2023) Therefore, age should not be considered the primary determinant of self-medication behavior for diarrhea. The level of education was also not significantly related to self-medication behavior. These results are in line with the findings. (Margaret & Yulinda, 2020), who reported no significant relationship between education level and self-medication practices for diarrhea. However, this contradicts studies that report a positive relationship between education and rational self-medication (Robiyanto et al., 2018). This inconsistency may be explained by differences in access to health information, community norms, and learning through experience. (Febriyanti, 2017) emphasizes that practical experience may be more influential than formal education in shaping appropriate self-medication behavior, especially in community settings.

Employment status also did not show a significant relationship with self-medication behavior for diarrhea. These findings support previous research showing that employment does not always influence self-medication practices. (Fitriati & Rahmawati, 2021)

The exchange of information related to health behavior often occurs outside the formal work environment through family, neighbors, and community networks. Additionally, individuals without paid employment may be more likely to self-manage illness as an initial response due to economic considerations (Ambar et al., 2019). On the other hand, knowledge showed a significant relationship with self-medication behavior for diarrhea. Adequate knowledge enables individuals to recognize symptoms, choose appropriate treatment options, and avoid unsafe practices.

These findings are consistent with studies reporting knowledge as a key predisposing factor for rational self-medication (Wulandari & Madhani, 2022). However, the persistence of inappropriate practices among knowledgeable respondents suggests that knowledge alone is insufficient, highlighting the role of behavioral and contextual factors. Attitudes toward self-medication emerged as a strong determinant of behavior. Positive attitudes encourage rational decision-making and adherence to appropriate treatment limits. These findings support behavioral theories that emphasize attitudes as critical mediators between knowledge and action. Similar results have been reported in previous studies, showing that positive attitudes toward self-care are associated with better self-medication practices (Margaret & Yulinda, 2020). However, a misunderstanding of the severity of diarrhea in children remains a concern and may delay appropriate treatment. Environmental conditions are significantly associated with self-medication behavior for diarrhea. Unsupportive environments, particularly those with poor sanitation, may increase the frequency of diarrhea episodes and encourage repeated self-medication. These findings are consistent with research highlighting the role of environmental determinants in both disease occurrence and treatment behavior (Ningsih, 2015). From a theoretical perspective, the Stimulus – Organism – Response (S-O-R) framework explains how ecological stimuli influence individual responses through behavioral adaptation and learning processes. The role of health workers is identified as an essential reinforcing factor in shaping self-medication behavior.

The active participation of health workers through education, counseling, and community outreach activities increases individuals' confidence and ability to engage in rational self-medication.

These findings are in line with Lawrence Green's model, which emphasizes reinforcing factors such as professional support in behavior formation (Hulu & al., 2020). Health workers act as communicators, motivators, and facilitators, especially in primary health care facilities. Self-medication for diarrhea among homemakers requires integrated interventions that increase knowledge, change attitudes, improve the environment, and strengthen health workers' involvement. Addressing these factors simultaneously can encourage safer and more rational self-medication practices and help reduce the health risks associated with diarrhea in the community.

CONCLUSION

This research concludes that self-medication for diarrhea among housewives with children under 5 years of age in Ciketingudik Village, Bantargebang Subdistrict, is primarily influenced by cognitive, behavioral, environmental, and health system factors rather than sociodemographic characteristics. Knowledge, attitudes, environmental conditions, and the role of health workers were identified as the main determinants shaping self-medication practices, while age, education level, and employment status were not significantly associated with this behavior.

These findings provide a scientific basis for concluding that improving self-medication for diarrhea requires integrated interventions beyond demographic targeting. Strengthening health education to increase knowledge and correct misconceptions, fostering positive attitudes toward rational drug use, improving environmental sanitation, and strengthening the active role of health workers are essential strategies for promoting safe and appropriate self-medication practices.

For health practices, community-based education programs led by primary health workers and pharmacists should be prioritized to ensure the dissemination of accurate information and guidance on diarrhea management. Environmental improvement efforts, particularly related to sanitation and hygiene, should be integrated into diarrhea prevention strategies. For future research, longitudinal studies and multivariate analyses are recommended to explore causal relationships and evaluate the effectiveness of targeted interventions in improving rational self-medication behavior.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest related to this research.

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