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Analysis of predisposing factors affecting community antibiotic use behavior in Mampang Village Depok City

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ABSTRACT: Antibiotic misuse remains prevalent in Indonesia, including behaviors such as storing antibiotics and using them without a doctor's prescription. Despite this widespread issue, no prior studies have specifically examined antibiotic use behavior in Mampang Village in Depok City. This study aimed to analyze the relationship between predisposing factors, namely age, sex, education level, occupation, and knowledge level and antibiotic use behavior among the local population. An analytical observational design with a cross-sectional approach was applied to 110 respondents. Knowledge levels were assessed using a structured questionnaire, and the relationships between predisposing factors and behavior were analyzed using multivariate logistic regression. The findings revealed that the majority of respondents had good knowledge (43%) and exhibited appropriate antibiotic-use behavior (52%). Statistical analysis indicated a significant association between knowledge and antibiotic use behavior ($p < 0.001$). In contrast, age ($p = 0.166$), sex ($p = 0.938$), education level ($p = 0.340$), and occupation ($p = 0.365$) were not significantly associated with the knowledge score. These results suggest that knowledge is a key predisposing factor influencing antibiotic use behavior in the Mampang Village community.

KEYWORDS: Antibiotics; behavior; knowledge; predisposing factors.

INTRODUCTION

Antibiotics are pharmaceutical agents used to treat bacterial infections by killing bacteria or inhibiting their growth. Their use is governed by the Indonesian Ministry of Health Regulation No. 28 of 2021, which concerns Guidelines for Antibiotic Use and aims to promote the appropriate and rational use of antibiotics. Antibiotics were first discovered in approximately 1928 [1].

Between 2016 and 2023, global antibiotic consumption increased by approximately 16%, with a particularly notable rise observed in middle-income countries [2]. The irrational use of antibiotics can lead to antibiotic resistance, a condition in which antibiotics become ineffective against bacteria, rendering them unable to eliminate or suppress bacterial growth [1].

A study conducted at a community health center in Bogor showed that 62% of the population did not understand how to use antibiotics correctly [3]. Meanwhile, research in Banjar Pasdalem shows that 54.17% of the community has inadequate knowledge of antibiotics [4]. In contrast to these findings, research in Cempaka District, Banjarbaru, stated that the majority of the community (58.2%) had a good level of knowledge about antibiotics [5]. A study conducted in Naples, Italy, showed that 49.65% of respondents stopped using antibiotics after their symptoms disappeared [6]. The results of the 2023 Basic Health Research (Riskesdas) conducted by the Indonesian Ministry of Health showed that 41% of the population obtained antibiotics without a doctor's prescription [7]. Research in Kendari City showed that 63.4% of residents had poor antibiotic use behavior [8]. In Batur Village, 55.65% of the community was classified as having adequate antibiotic use behavior [9]. Meanwhile, data from the Loa Janan Community Health Center showed that inappropriate antibiotic use reached 33.75%, which was a serious problem at the health center in 2020 [10]. This causes antibiotic resistance. Factors that influence behavior include knowledge and several other factors

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such as age, education level, and occupation. These three factors were significantly related to the level of knowledge possessed. A study in Southeast Sulawesi showed that antibiotic usage behavior in the community is influenced by factors such as age, education level, and occupation. The majority of respondents demonstrated positive behavior, such as obtaining antibiotics from a pharmacy (67%), storing them in tightly sealed containers (89%), and seeking usage information from a pharmacist (28.3%) [11].

A more localized study conducted in Mampang Village Depok City reported that 63.5% of the community possessed relatively low levels of knowledge about antibiotics, with age, education, and occupation identified as influential predisposing factors [12]. Despite these findings, no prior research has specifically examined the antibiotic use behavior of the Mampang Village community and its relationship with predisposing factors. Therefore, this study aimed to address this gap.

▪ MATERIALS AND METHODS

This study employed an analytical observational design with a cross-sectional approach. The study was conducted in Mampang Village, Depok City, in April 2025, targeting the residents of the area. Respondents were selected based on specific inclusion criteria, namely possession of a Mampang Village identity card, age between 17 and 55 years, and a history of antibiotic use.

Data were collected using a validated questionnaire that was distributed to eligible participants. The questionnaire consisted of three sections: sociodemographic information, knowledge of antibiotics, and antibiotic use behavior. The questionnaire used in this study was adapted from research conducted by Sugihantoro and underwent validity and reliability testing. The questionnaire consisted of 18 items, with nine items measuring behavior and nine items assessing the level of knowledge regarding antibiotic use. The Cronbach's alpha coefficient was 0.748 for the behavior questionnaire and 0.788 for the knowledge questionnaire [13]. The knowledge questionnaire consisted of true/false questions related to the definition, indications, side effects, and resistance associated with antibiotic use. Each correct answer was assigned 1 point, whereas each incorrect answer was assigned 0 points. Knowledge levels were categorized based on the percentage of the scores obtained. A score of ≥75% was classified as good, 56–74% as moderate, and ≤55% as poor [13]. Behavior-related questions were assessed using a Likert scale. The questionnaire regarding antibiotic use behavior consisted of items that addressed the procedures for obtaining, administering, and storing antibiotics in the home setting. Each statement was rated on a scale of 1 to 4, where a score of 1 indicated "strongly disagree" and a score of 4 indicated "strongly agree" for positively worded statements, and the scoring was reversed for negatively worded statements. All scores were summed and divided by the total number of questions to obtain the mean score. If a respondent's score was above the mean, their attitude was classified as positive; if it was below the mean, their attitude was classified as negative.

Data entry and management were performed using Microsoft Excel, and further analysis was conducted using statistical software. Multivariate logistic regression analysis was applied to examine the association between predisposing factors and antibiotic use behavior. The results were presented using frequency distributions and cross-tabulations, with a p-value of <0.05 considered statistically significant. This study was approved by the Research Ethics Committee of the School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia (ethical clearance number: 04/03/KEP-FKIKUAJ/2025).

▪ RESULTS

Respondent characteristics

A total of 110 respondents who met the inclusion criteria were included in this study. The sociodemographic characteristics of the respondents are shown in Table 1. Most respondents were aged between 17 and 25 years (40%), female (60%), had a higher education background (85%), and came from non-health-related occupational backgrounds (95%).

Table 1. Sociodemographic characteristics of Mampang Village, Depok City.

Characteristic	n (110)	%
Age		
17-25 years	44	40
26-35 years	12	11
36-45 years	19	17
46-55 years	35	32
Gender		
Female	66	60
Male	44	40
Education level		
Low education (Primary, Junior High School)	17	15
High education (Senior High School, University)	93	85
Occupation		
Healthcare worker	5	5
Non-health worker	105	95

The majority of respondents in this study demonstrated a good level of knowledge (42.7%), as presented in Table 2.

Table 2. Distribution of respondents based on knowledge level of antibiotic use.

Knowledge level	n (110)	%
Good (≥75%)	47	42.7
Moderate (56–74%)	34	30.9
Poor (≤55%)	29	26.4

The findings indicated that more than half of the respondents (51.8%) exhibited positive behavior regarding antibiotic use. The mean behavior score was 3.14; respondents scoring above this threshold were categorized as having positive behavior, while those with lower scores were classified as exhibiting negative behaviors. The distribution of respondents' behavior is presented in Table 3.

Table 3. Distribution of respondents based on their behavior regarding antibiotic use.

Behavior	n (110)	%
Negative	53	48.2
Positive	57	51.8

Knowledge level was identified as a factor influencing antibiotic use behavior among residents of Mampang Village, Depok City ($p<0.05$). Other factors, such as age, gender, education, and occupation, were not significantly associated with the outcome. as shown in Table 4.

Table 4. The relationship between predisposing factors and antibiotic use behavior in Mampang Village, Depok City.

Predisposing factor	Behavior				*p*-value	*OR*
	Negative		Positive			
	n	%	n	%		
Age (years)						
17 – 25	26	24	18	16		
26 – 35	3	3	9	8	0.218	1.220
36 – 45	9	8	10	9		
46 – 55	15	14	20	18		
Gender						
Female	32	29	34	31	0.966	0.982
Male	21	19	23	21		
Education Level						
Low education (Primary, Junior High School)	10	9	7	6	0.878	1.090
High education (Senior High School, University)	43	39	50	45		
Occupation					0.398	0.366

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Predisposing factor	Behavior				*p*-value	*OR*
	Negative		Positive			
	n	%	n	%		
Healthcare worker	1	1	4	4		
Non-health worker	52	47	53	48		
Knowledge level						
Good	14	13	33	30	<0.001*	6.920
Moderate	21	19	19	17		
Poor	18	16	5	5		

*p-value <0.05 = statistically significant

DISCUSSION

The majority of respondents in this study were within the productive age range, with 40% aged 17–25. However, statistical analysis showed no significant association between age and antibiotic use behavior (p = 0.166). This finding is consistent with a study in South Bekasi (p = 0.280) [14], which similarly found no effect of age on behavior of FGM. Although individuals in this age group are theoretically in the emerging adulthood phase, characterized by increasing independence and cognitive maturity, this is not necessarily reflected in their antibiotic-use practices. This suggests that age alone is not a sufficient predictor of health-related behaviors [15].

With regard to gender, a higher proportion of respondents were female (60%) than male (40%). Nevertheless, no significant relationship was found between sex and antibiotic use behavior (p = 0.938), aligning with the findings from West Jakarta (p = 0.851) [16]. Although women are often more attentive to health issues for themselves and their families, this study indicates that sex does not significantly affect antibiotic use. Equal access to health information, environmental influences, and cultural norms may override gender-based differences in behavior [14].

In terms of educational background, 85% of the respondents had attained secondary or higher education. However, no significant correlation was observed between the education level and antibiotic use behavior (p = 0.340). This contrasts with the findings from Southeast Sulawesi (p = 0.000) [11], where education was shown to influence health behavior. This discrepancy suggests that while higher education may enhance knowledge, it does not automatically translate into appropriate behavior, particularly if not reinforced by contextual and continuous health education [17].

Similarly, employment type was not significantly associated with antibiotic use behavior (p = 0.365), even though most respondents (95%) were non-healthcare professionals. This finding contrasts with that of a study in Southeast Sulawesi (p = 0.003) [11]. A possible explanation is the increasing availability of health information through social media, public campaigns, and community leaders, making knowledge less exclusive to health care professionals [18].

In contrast to the other variables, knowledge level showed a highly significant relationship with the antibiotic use behavior (p<0.001). Respondents with good knowledge tended to understand that antibiotics should only be obtained with a doctor's prescription. However, misconceptions persisted, such as the inappropriate use of crushed antibiotics (e.g., supertetra) applied to wounds, which was the most common incorrect response. These findings underscore the critical role of knowledge in fostering rational antibiotic use. This aligns with research in Glagah District, Lamongan Regency, which also found a significant association between knowledge and behavior regarding antibiotic use [13]. The results support the Knowledge-Attitude-Practice (KAP) model, which posits that knowledge influences both attitudes and practices, with a strong positive correlation between knowledge and behavior [19].

Overall, the data showed that 51.8% of respondents in Mampang Village exhibited positive antibiotic use behavior, aligning with the 42.7% who had a good level of knowledge. This is consistent with the findings from Surabaya, where the majority of respondents also showed good behavior (78%) [12]. The Theory of Planned Behavior (TPB) further explains that actual behavior is driven by behavioral intention, which is shaped by attitude, perceived control, and social influences. In the context of antibiotic use, even when individuals possess adequate knowledge and positive attitudes, their behavior is ultimately affected by self-efficacy and environmental support [20].

CONCLUSION

Most residents of Mampang Village, Depok City, demonstrated a good level of knowledge. Most of the community in Mampang Village, Depok City exhibited positive behavior regarding antibiotic use. The predisposing factor influencing antibiotic use behavior among the residents of Mampang Village, Depok City, was the level of knowledge.

Future research should be conducted with a more in-depth approach by including enabling factors (such as healthcare facilities, service access, and infrastructure) and reinforcing factors (such as the social environment and individual community characteristics). Subsequent studies are recommended to be carried out in other regions of Indonesia where no research has yet been conducted on the analysis of predisposing factors and antibiotic use behavior.

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