

THE RELATIONSHIP BETWEEN COMMUNITY KNOWLEDGE AND SANITARY LATRINE PROVISION IN KARYA JAYA HEALTH CENTER AREA

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ABSTRACT

The Relationship Between Community Knowledge and Sanitary Latrine Provision in Karya Jaya Health Center Area.

Healthy latrines are an important component of environmental sanitation and play a role in preventing the transmission of sanitation-related diseases. Community knowledge is one of the factors that may influence the provision of healthy latrines at the household level. This study aimed to analyze the relationship between community knowledge and the provision of healthy latrines in the working area of Karya Jaya Primary Health Center, Palembang City, South Sumatra. This study employed a quantitative observational analytic design with a cross-sectional approach. The study was conducted in November 2025 involving 80 respondents selected using cluster random sampling from RT 02, 05, 07, 13, 17, 19, 25, and 33 in Kertapati District. Data were collected through questionnaires, interviews, and observations using an observation checklist. Data were analyzed using univariate analysis and Fisher's Exact Test with a significance level of $p < 0.05$. The results showed that 48 respondents (60.0%) had poor knowledge regarding healthy latrines, while 32 respondents (40.0%) had good knowledge. Regarding the provision of healthy latrines, 31 households (38.8%) met the requirements, while 49 households (61.3%) did not. The bivariate analysis showed a statistically significant relationship between community knowledge and the provision of healthy latrines, with a p -value of 0.000 ($p < 0.05$). In conclusion, community knowledge is significantly associated with the provision of healthy latrines in the working area of Karya Jaya Primary Health Center. Health education and sanitation promotion should be strengthened to improve community knowledge and encourage the provision of healthy latrines.

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INTRODUCTION

Access to safe sanitation remains a global challenge. Report Joint Monitoring Programme (JMP) data from 2023 indicates that approximately 3.5 billion people worldwide do not yet use safely managed sanitation facilities. In Indonesia, the Ministry of Health has set a target of achieving 15% access to safe sanitation by 2024; however, its realization continues to face various obstacles. One of the government's efforts to improve public health is through a

flagship health development program outlined in Rencana Strategis Kementerian Kesehatan 2015-2019 carried out through Program Indonesia Sehat dengan Pendekatan Keluarga (PIS-PK)¹. The family approach entails a series of actions taken by the community health center (Puskesmas) to expand service coverage through direct visits to every family². The implementation of PIS-PK involves a data collection process regarding family health conditions based on twelve key performance indicators established in the 2016 PIS-PK implementation guidelines; one of these indicators is the ownership or use of sanitary latrines by the family^{3,4}. A family is considered to own and use a sanitary latrine if it is equipped with the necessary facilities and utilizes a defecation fixture—specifically a gooseneck (water-seal) toilet or a plengsengan toilet⁵.

Under the PIS-PK framework, a latrine is classified as "healthy" if family members have access to or utilize a facility that meets proper sanitation standards—specifically, one that prevents the spread of diseases associated with open defecation, such as diarrhea, typhoid, and parasitic worm infections. Key characteristics of a healthy latrine include the presence of protective walls and a roof; a safe waste disposal mechanism, such as a gooseneck (water-seal) system; a waterproof, easy-to-clean floor; and a location at a safe distance—at least 10 meters—from drinking water sources. Additionally, the availability of clean water for flushing the latrine and for handwashing facilities located nearby is a crucial aspect in defining these standards^{6,7}.

Improved sanitation facilities are defined as providing a hygienic separation between human waste and human contact. The sixth goal of the 2030 Sustainable Development Goals (SDGs), proposed by the United Nations, aims to ensure universal access to adequate sanitation and hygiene and to eliminate open defecation. However, the provision and use of sanitary latrines are challenging to implement within communities, as they are influenced by various factors—such as behavior, economic conditions, culture, and knowledge levels—all of which require active community involvement⁹. Knowledge is considered a key determinant influencing the health-related behaviors of individuals and serves as the foundation for action. Through the ability to comprehend a subject, an individual can apply that understanding and subsequently formulate ideas for taking action based on the knowledge they possess¹⁰.

Based on the 2022 PIS-PK report, the ownership or use of family latrines across 18 districts shows significant variation. Kertapati District recorded the lowest percentage at 83.24%. At the level of Community Health Center (Puskesmas) service areas, the lowest achievement was recorded at the Kertapati Puskesmas, at 76.26%¹¹. This situation has further deteriorated according to the 2023 PIS-PK Profile for Palembang City, where Kertapati District—specifically the service area of the Karya Jaya Community Health Center (Puskesmas)—reached only 64.15%¹². This figure has not yet met the 2023 Strategic Plan target of 70% for the indicator regarding families with access to sanitary latrines. The low rate of sanitary latrine ownership and usage is influenced by various factors, one of which is the level of public knowledge. Research by Agustyaningsih indicates a strong correlation between an individual's knowledge and latrine ownership^{13,14}.

MATERIALS AND RESEARCH METHODS

This study is an analytical observational study with a cross-sectional design. It was conducted between October and December 2025. The study sample consisted of 80 families within the working area of the Karya Jaya Community Health Center (Puskesmas). Cluster random sampling was employed as the sampling technique. The inclusion criteria were the head of the family or a family member (if the head of the family was absent or if multiple households resided in a single dwelling) aged ≥ 18 years and residing within the working area of the Karya Jaya Community Health Center. The exclusion criteria were unwilling to serve as respondents, unable to communicate or read and write proficiently, and residents registered in the urban village who have lived in Karya Jaya for less than one year. Prior to the study,

respondents completed an informed consent form, followed by a questionnaire assessing their knowledge regarding sanitary latrines—specifically definitions, criteria or requirements, health benefits of use, and maintenance and care.¹² Correct answers were assigned a score of 1, while incorrect answers received a score of 0, resulting in a total score range of 0–10. Scores of 6–10 were interpreted as good, whereas scores of 0–5 were considered poor. Subsequently, interviews and observations regarding the latrine were conducted using a "healthy latrine" observation checklist to assess whether the facility met specific criteria: construction that does not contaminate water sources or the environment; sound and safe construction; the availability of hygiene-support facilities; and user comfort and health¹⁵. The measurement results are 0 which means it does not meet the requirements (if one of the healthy toilet criteria is not met) and 1 which means it meets the requirements (if all 10 healthy toilet criteria are met). The data were analyzed univariately in the form of frequency distribution and percentage of respondent characteristics and bivariate analysis using the alternative Fisher exact test and with a P-value <0.05, it means there is a relationship between knowledge and the fulfillment of healthy toilets in the Karya Jaya Community Health Center work area

RESEARCH RESULTS AND DISCUSSION

This study was conducted in November 2025 within the service area of the Karya Jaya Community Health Center (Puskesmas)—specifically covering RT 02, 07, 05, 13, 17, 19, 25, and 33 in Kertapati District, Palembang City, South Sumatra (30259)—with 80 respondents participating. Table 1 presents the research findings regarding the variables of community knowledge and the provision of sanitary latrines. Data were collected through questionnaires, interviews, and observations using an observation checklist, and subsequently analyzed using univariate analysis. The results are supplemented by tables displaying frequency distributions.

Table 1. Frequency distribution based on community knowledge and the provision of sanitary latrines in the working area of Karya Jaya Community Health Center in 2025.

Knowledge	Frequency (n)	Percentage (%)
Good	32	40
Not Good	48	60
Total	80	100
Provision of Sanitary Latrines	Frequency (n)	Percentage (%)
Yes	31	38,8
No	49	61,3
Total	80	100

Source: primary data,2025

Univariate analysis of data from 80 respondents in the Karya Jaya Community Health Center (Puskesmas) service area yielded the frequency distribution shown in Table 1. The results indicate that the majority of respondents (48 individuals, or 60%) possessed insufficient knowledge regarding sanitary latrines. These findings suggest that most residents in the area lack an adequate understanding of the definition, criteria, or requirements for latrines, the health benefits of their use, and the necessary care and maintenance. This lack of knowledge stems from a scarcity of information regarding sanitary latrines, a factor that could potentially impact their construction and proper usage ⁷.

Knowledge plays a pivotal role in shaping an individual's actions; evidence from experience and research indicates that health-seeking behaviors grounded in knowledge are more enduring than those that are not. The greater an individual's understanding of the consequences associated with diseases such as diarrhea, cholera, typhoid, and parasitic worm infections, the more likely they are to undertake preventive measures; conversely, individuals with limited knowledge tend not to optimally adopt clean and healthy living behaviors (PHBS), including the use of safe sanitation facilities^{16,17}. Social, demographic, cultural, and behavioral factors significantly influence sanitation. Strengthening communication regarding behavior change, enhancing community ownership, and ensuring sustained health education efforts are crucial for maintaining good sanitation practices and supporting national goals to eliminate open defecation¹⁸.

Table 1 shows that most respondents—accounting for 49 latrines (61.3%)—did not meet the criteria for a sanitary latrine. The community's inability to meet these criteria is influenced by structural factors. A sanitary latrine must feature a protective structure, a gooseneck toilet or covered pit, a watertight and non-slip floor, a safe waste disposal system, and a septic tank or pit that does not contaminate the environment¹⁷. If one component is not met, the latrine is categorized as unhealthy¹⁹. Consequently, owning a latrine does not necessarily guarantee compliance with health standards. Households often focus solely on the presence of a latrine without considering the adequacy of its construction, the waste disposal system, or the safe distance from clean water sources²⁰. This is reflected in research findings, which revealed sanitation facilities with slippery floors and inadequate lighting, as well as a lack of water, soap, and cleaning supplies. Toilet ownership is a crucial factor influenced by various elements within a community, such as behavior, culture, social conditions, geography, and economics. Improved sanitation facilities for waste disposal include flushing or emptying waste into a sewerage system, septic tank, or pit latrine—specifically improved ventilated pit latrines, latrines with a lid or cover, and composting toilets^{18,21}.

Table 2. Relationship between community knowledge and the provision of sanitary latrines in the Karya Jaya Community Health Center working area in 2025.

Knowledge	Provision of Sanitary Latrines		Total	PR	CI-95%	P Value
	No n (%)	Yes n (%)	n (%)			
Not good	48 (100%)	0 (100%)	48 (100%)	32	4.649 (220.265)	0,000
Good	1 (3,1%)	31 (96,9%)	32 (100%)			
Total	49 (61,3%)	31 (38,8%)	80 (100%)			

Source: primary data, 2025

Based on Table 2, the bivariate analysis using Fisher's Exact Test yielded a p-value of 0.000 ($p < 0.05$), statistically demonstrating a relationship between community knowledge and the provision of sanitary latrine facilities at the household level. In this study, knowledge refers to the community's understanding and awareness regarding sanitary latrine facilities, covering aspects such as their purpose, benefits, maintenance methods, usage procedures, appropriate and inappropriate disposal systems, the negative impacts of improper disposal, and other related factors.

It was found that respondents believed the distance of the septic tank would not affect the water source. Furthermore, some community members stated that a separation

distance of 10 meters or more was not feasible in the village; given the inadequate land area and the fact that houses were built near one another, constructing septic tanks with such a distance was practically impossible^{22,23}. Most respondents believe that open defecation does not pollute the environment—particularly water sources—arguing that when defecation occurs in a river, the waste is immediately washed away and consumed by aquatic animals; consequently, it supposedly causes no environmental disturbance or odor, as the waste is carried off by the current. Some respondents attribute the lack of access to sanitary latrines to inadequate economic conditions, as well as insufficient enforcement of latrine construction requirements by village authorities or health officials. This aligns with research conducted by Sayati, which found that many heads of households lack sufficient knowledge regarding the use of sanitary latrines, resulting in low usage rates among family members^{24,25}

CONCLUSIONS AND RECOMMENDATIONS

Based on the data analysis, it can be concluded that most of the community falls into the "low" knowledge category (48 respondents, or 60%); the majority of latrines do not meet health standards (49 latrines, or 61.3%); and there is a significant relationship between community knowledge and the provision of sanitary latrines (Fisher's exact test p-value = 0.000).

Recommendations arising from this study are as follows: for the community, to increase knowledge and awareness regarding the use of sanitary latrines and to ensure latrine maintenance and construction comply with health standards; for the Karya Jaya Community Health Center (Puskesmas), to enhance education, outreach, and home visits regarding sanitation, particularly in areas with low levels of knowledge; for the Palembang Health Office, to provide ongoing support through sanitation programs and assistance with latrine construction for low-income families; and for future researchers, to expand the study by incorporating additional variables to obtain more comprehensive results.

ETHICAL APPROVAL

This study received ethical clearance from the Committee on Bioethics, Humanities, and Islamic Medicine (KBHKI) of the Faculty of Medicine, Universitas Muhammadiyah Palembang (Reference No. 035/EC/KBHKI/FK-UMP/X/2025)

CONFLICT OF INTEREST

The research team declares that this study was conducted objectively and independently and that there are no conflicts of interest, whether financial, commercial, or personal, that could have influenced the conduct of the research, data analysis, interpretation of the results, or reporting of the findings. The research team assumes full responsibility for the accuracy, integrity, and validity of all data, results, and conclusions presented in this study.

AUTHOR CONTRIBUTIONS

PRAB: conceptualisation and study design; MRP: data collection; RS : statistical analysis; PRAB and AG: manuscript writing and literature review. All authors read and approved the final manuscript.

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