

The Relationship Between Mothers' Knowledge And Attitudes And Their Diarrhea Management Practices Among Children Under Five Years Of Age At Periuk Jaya Community Health Center, Tangerang

Nurhasanah¹, Indah Sri Wahyuningsih², Ema Hikmah³, Endang Suartini⁴

¹ Universitas Islam Sultan Agung Semarang

² Universitas Islam Sultan Agung Semarang

³ Politeknik Kementerian Kesehatan Banten

⁴ Politeknik Kementerian Kesehatan Banten

ARTICLE INFO

Keywords:

Keyword 1; Knowledge

Keyword 2; Attitudes

Keyword 3; Diarrhea

Keyword 4; Management

Article history:

Received 2026-10-16

Revised 2026-10-17

Accepted 2026-12-01

ABSTRACT

The research design is a cross sectional study with a chi-square test. Sampling of 77 respondents was by purposive sampling. The criteria for respondents are toddlers aged 0-5 years who are or have experienced diarrhea and have any level of education. The univariate analysis of the characteristics of the respondents was mostly 20 - < 35 years old as much as 80.5%, the respondents were mostly highly educated as much as 54.5%, the respondents were mostly unemployed as much as 80.5%, and the respondents' family income was mostly < UMR/month as much as 75%. The respondents were mostly knowledgeable as much as 88%, the respondents were mostly positive as much as 71.5%, and the respondents behaved accordingly as much as 88%. Bivariate analysis most of the respondents were knowledgeable and behaved accordingly as much as 91.2%. Meanwhile, most of the respondents behaved positively and behaved accordingly as much as 83.6%. From this study, it can be concluded that there is no significant relationship between knowledge of diarrhea management behavior in toddlers with a p-value of $p = 0.066 > 0.05$. Meanwhile, there was a significant relationship between maternal attitudes towards diarrhea management behavior in toddlers with a p-value of $p = 0.039 < 0.05$. It was distributed to health workers to increase counseling and health demonstration activities so that mothers can provide the correct first aid when children experience diarrhea.

This is an open access article under the [CC BY-NC-SA](#) license.



Corresponding Author:

Nurhasanah

Universitas Islam Sultan Agung Semarang

1. INTRODUCTION

Indonesia as one of the countries with a tropical climate has two seasons, one of which is the rainy season. This is supported by the humidity of the tropics which is quite high. This tropical disease is generally a highly contagious disease. This infectious disease can affect adults as well as

infants and toddlers. The age of infants and toddlers is a vulnerable age to suffer from an infection. This is because the immune system is still immature, so babies and toddlers are susceptible to tropical diseases. Some tropical diseases that are often experienced by toddlers include diphtheria, typhoid fever, DHF (Dengue Hemorrhagic Fever) and diarrhea (Nursalam et al., 2005). Among these diseases, the disease that still needs to be watched out for in toddlers is diarrhea (Widjaja, 2003).

WHO data in 2009 shows that the incidence of diarrhea worldwide reaches 2 billion cases per year. In the United States, 100 million cases of acute diarrhea in adults are found every year, causing 250,000 of them to be hospitalized and 5000 to die, in developing countries in 2003 an estimated 1.87 million children under five died from diarrhea, 8 out of 10 deaths were at the age of less than two years. On average, children under the age of three in developing countries experience diarrhea episodes 3 times a year (WHO, 2005).

Based on the Household Health Survey (SKRT), Mortality Studies and Basic Health Research from year to year it is known that diarrhea is still the main cause of death for toddlers in Indonesia. The main cause of death due to diarrhea is improper management both at home and in health facilities. To reduce deaths due to diarrhea, fast and appropriate management is needed. Fast and appropriate management is greatly influenced by the behavior of the community itself towards health, which includes aspects of knowledge, attitudes, and daily actions. This behavior is a statement that the coverage of health programs is low, because there is still low public awareness of healthy living norms. Knowledge is a very important domain for the formation of a person's actions. If behavior is based on knowledge and awareness, then behavior is lasting (Notoatmodjo, 2007).

Diarrhea in infants and toddlers is greatly influenced by the knowledge and attitude that the mother has, because knowledge and attitudes can affect actions that will also affect the course of the disease. The factor of knowledge and attitude is one of the factors that can affect the mother's actions towards prevention and treatment in babies and toddlers. Based on the description above, the researcher is interested in finding out the relationship between maternal knowledge and attitude towards diarrhea management behavior in toddlers at the Periuk Jaya Tangerang Health Center.

According to the WHO definition, diarrhea is feces with a thinner consistency and more frequent frequency ($>2x$ in one day). Another definition is stool passage of more than 200 g/day in adults or 10 mL/kg/day in infants and toddlers. Diarrhea accompanied by blood and mucus in the stool accompanied by tenesmus, abdominal pain and fever is called dysentery syndrome. Joko Irianto, et al. in their research on factors that affect the incidence of diarrhea in children under five stated in 1996 that the prevalence of diarrhea in children under five still shows a high number. The socio-demographic factors that affect this high number are; education of parents and mothers, work and activity of mothers, and the age of children under five.

Analysis of several factors shows that the education of mothers and the age of children under five are the dominant factors in influencing the incidence of diarrhea in children under five. Children 12-24 months have a high risk, which is 2.35 times more likely to have diarrhea than children under five years of age 25-59 months. According to Safrudin Agus, in his research on the Analysis of Risk Factors Affecting the Incidence of Diarrhea in Toddlers at the Ambal 1 Health Center, Ambal District, Kebumen Regency in 2009, stated that the factors that affect the incidence of diarrhea in addition to socio-demographic and environmental factors are the nutritional factors of toddlers, improper feeding factors, and economic factors.

2. METHODS

This study uses a *cross sectional study research design*, a cross-sectional *study* is a research design that emphasizes the time of measurement/observation of independent and

dependent variable data only once at a time. In this type, independent and dependent variables are assessed simultaneously at one time, so there is no follow-up (Nursalam, 2008). The sampling method uses *purposive sampling* where the sampling method is based on certain considerations made by the researcher, based on previously known population characteristics or traits. (Notoatmodjo, 2010).

The calculation of the minimum sample size to be used is based on the calculation of the hypothesis test with a degree of significance of 5% and a test strength of 95%. Before calculating the number of samples, it is necessary to know three things (Lameshow *et al.*, 1990, quoted by Ariawan, 1998 in Notoatmodjo, 2010), namely:

1. Estimate the proportion for a particular trait that occurs in the population. If the proportion or trait is not known, then P (proportion = 0.50 or 50%).
2. Precision is the desired degree of accuracy, meaning the deviation from the population, usually 0.05 (5%).

From the results of the calculation, it was obtained that the number of samples in this study was 77 samples. In the study, the sample used may have a possibility of *dropout*. To prevent this incident, the sample calculation was added by 10%, so that the sample size was 85 respondents, namely mothers who had children with diarrhea.

3. FINDINGS AND DISCUSSION

The univariate analysis involving 77 respondents at the Periuk Jaya Health Center reveals a distinct socio-demographic profile among the participants. The maternal cohort was predominantly represented by individuals within the prime reproductive age range of 20 to <35 years (80.5%), a demographic typically associated with high maternal responsibilities. Structurally, while a slight majority of the mothers had attained higher education levels ranging from high school to higher education (54.5%), the vast majority remained unemployed or operated as housewives (80.5%). This high unemployment rate closely correlates with the financial data, which indicates that 75% of the households lived on an income below the regional minimum wage (UMR), signaling potential economic vulnerabilities within the studied community.

In evaluating the primary research variables, the descriptive data indicates highly favorable baseline metrics across maternal awareness, cognitive disposition, and preventative practices. Specifically, the vast majority of the respondents possessed a commendable level of health literacy, with 88.0% demonstrating good knowledge regarding the clinical management of childhood diarrhea. This cognitive baseline is mirrored by a predominantly favorable emotional readiness, as 71.5% of the mothers maintained a positive attitude toward intervention protocols. Consequently, this high awareness manifested in practical execution, with 88.0% of the cohort exhibiting appropriate and compliant diarrhea management behaviors in accordance with standard health guidelines.

However, the subsequent inferential analysis utilizing the Chi-Square test exposed critical nuances in the relationship between these variables. The statistical cross-tabulation revealed that maternal knowledge does not possess a statistically significant relationship with diarrhea management behavior ($P\text{-value} = 0.066 > 0.05$). Although descriptive analysis indicated a predictable trend—where mothers with low knowledge exhibited a higher propensity toward inappropriate behavior (33.3%) compared to their knowledgeable counterparts—the overall statistical independence underscores that high cognitive awareness does not linearly guarantee proper medical execution. Conversely, the inferential test established that maternal attitude holds a statistically significant relationship with diarrhea management behavior ($P\text{-value} = 0.039 < 0.05$), highlighting affective disposition as a more reliable predictor of health compliance than purely intellectual comprehension.

The statistical independence observed between maternal knowledge and actual behavior ($P = 0.066$) corroborates Lawrence Green's Predisposing Factors Theory. According to this behavioral framework, while cognitive awareness serves as a vital prerequisite and a foundational baseline for health literacy, it is not an inherently sufficient cause on its own to drive individual behavioral modification. Human actions, particularly in high-stress domestic healthcare scenarios, are non-linear and subject to complex cognitive mediation. Furthermore, the discrepancy between the mothers' high knowledge scores and their actual practices may have been exacerbated by external confounding factors during data collection; field observations indicated that situational stressors, such as an unconducive environment caused by fussy children and restricted interview time frames, likely introduced social desirability or measurement bias into the questionnaire responses.

This operational gap became structurally evident in daily practices, where well-informed mothers frequently failed to execute standard dehydration prevention protocols accurately. Empirical observations captured instances where highly knowledgeable mothers neglected the timely administration of Oral Rehydration Salts (ORS), prepared homemade salt-sugar solutions with incorrect clinical proportions, or only administered fluids reactively when the toddler explicitly requested them. Most critically, some mothers erroneously halted breastfeeding or formula feeding during active diarrheal episodes under the misconception that it would exacerbate the illness. Such findings demonstrate that theoretical knowledge often fails to mitigate practical execution errors during an active health crisis at home.

DISCUSSION

The statistical analysis for the first variable yielded a P -value of 0.066 ($p > 0.05$), proving that maternal knowledge does not significantly affect diarrhea management behavior in toddlers at the Periuk Jaya Health Center. This finding indicates that having high theoretical knowledge does not automatically translate into correct medical practices when a mother faces a real-life health crisis. Therefore, the hypothesis stating that better knowledge leads to better practice is rejected in this specific study context.

This phenomenon strongly supports Green's predisposing factors theory (Ahmad Kholid, 2012), which explains that knowledge is a necessary baseline but is not always a sufficient cause to alter individual behavior. While cognitive understanding serves as the initial trigger for health awareness, human action is highly complex and non-linear. A person may know the ideal medical recommendations but fail to implement them due to various internal and external barriers.

Furthermore, field observations revealed that environmental limitations during data collection might have introduced bias into the questionnaire responses. Many mothers had to fill out the forms or undergo interviews in an unconducive atmosphere, often disrupted by their fussy, sick children or limited time. These stressful situations likely affected the accuracy of their answers, creating a gap between what the mothers theoretically knew and what they actually reported.

In daily practice, a clear discrepancy was observed where well-informed mothers still failed to prevent toddler dehydration correctly. For instance, several knowledgeable mothers omitted Oral Rehydration Salts (ORS), prepared homemade sugar-salt solutions with incorrect measurements, and only gave fluids when the child requested them. Shockingly, some mothers even mistakenly stopped breastfeeding or formula milk during diarrhea episodes, which highly increases the risk of severe dehydration.

According to Notoatmodjos (2007) perception theory, even when individuals share identical baseline knowledge, their cognitive interpretation and panic levels during an emergency vary. When a child falls sick, emotional distress often overrides theoretical knowledge. Consequently, actual behavior is heavily driven by other predisposing variables—such as deep-rooted family habits, personal beliefs, and severe economic constraints, given that 75% of the respondents lived below the regional minimum wage (UMR).

In contrast, the analysis for the second variable showed a P-value of 0.039 ($p < 0.05$), confirming that there is a significant relationship between maternal attitude and diarrhea management behavior. This aligns with Notoatmodjo's (2012) framework, which positions attitude as an internal readiness to act that directly shapes physical practice. A positive attitude makes a mother more proactive and emotionally stable, enabling her to execute proper care, even though external factors and economic limitations (16.4% error rate) can still occasionally disrupt the final outcome.

4. CONCLUSION

In conclusion, this study shows that the majority of respondents at the Periuk Jaya Health Center were aged 20 to <35 years (80.5%), highly educated (53.2%), unemployed (80.5%), and lived below the regional minimum wage (75%), with predominantly good knowledge (88%), positive attitudes (71.5%), and appropriate diarrhea management behavior (88%). Statistical analysis reveals that there is no significant relationship between maternal knowledge and diarrhea management behavior ($p = 0.066$), as high theoretical knowledge does not automatically translate into correct practices at home, whereas maternal attitude shows a significant relationship with diarrhea management behavior ($p = 0.039$). Therefore, mothers are highly recommended to actively apply their health knowledge specifically in preventing dehydration, dosing ORS correctly, and maintaining nutritional intake during diarrhea while health workers are expected to use these findings as a reference to enhance motivation and modify the delivery of health education for the community.

REFERENCES

- Agus, Safrudin et al. 2009. Analysis of Risk Factors Affecting the Incidence of Diarrhea in Toddlers at the Ambal 1 Health Center, Ambal District, Kebumen Regency. <http://ejournal.stikesmuhgombong.ac.id/index.php/JIKK/article/view/52>, downloaded on December 28, 2016.
- Ali, Muhammad. 2003. The Relationship of Knowledge, Attitude and Practice of Mothers Under Five in the Management of Diarrhea Sufferers at the Siwalan Health Center, Pekalongan Regency. <http://eprints.undip.ac.id/26228/>. Downloaded on January 2, 2017
- Alimul, Aziz. 2007. Nursing Research Methods and Data Analysis Techniques. Jakarta: Salemba Medika
- Arikunto, Suharsimi. 2013. Research Procedures of a Practice Approach. Jakarta: Rineka Cipta
- Chori, et al. 2015. Mother's Knowledge of Diarrhea Management with Diarrhea Management of Toddlers Aged 1-5 Years. <http://ojs.umsida.ac.id/index.php/midwifery/article/view/349>. Downloaded on January 2, 2017
- Dewi, M et al. 2011. Human Knowledge, Attitudes, and Behavior. Yogyakarta: Nuha Medika
- Irianto, Joko et al. 1996. Factors Influencing the Incidence of Diarrhea in Children Under Five (Further Analysis of SDKI Data, 1994). <http://ejournal.litbang.depkes.go.id/index.php/BPK/article/view/429>. Downloaded on December 28, 2016.
- Tangerang Regency Health Office. 2014. Guidelines for Diarrheal Disease Control
- Banten Provincial Health Office. 2012. Banten Provincial Health Profile, http://www.depkes.go.id/resources/download/profil/PROFIL_KES_. Downloaded on December 20, 2016
- Ministry of Health of the Republic of Indonesia. 2011. Bulletin of the Situation of Diarrhea in Indonesia. <http://www.depkes.go.id/folder/view/01/structure-publikasi-pusdatin-buletin.html>. Downloaded on January 10, 2017.
- Nurarif, Amm Huda, et al. 2015. Application of Nursing Care Based on Medical Diagnosis & NANDA NIC NOC. Volume I. Jogjakarta: Mediacion

- Purwidiana, Anjar. 2009. The Relationship between Environmental Factors and Sociodemographic Factors with the Incidence of Diarrhea in Toddlers in Blimbing Village, Sambirejo District, Sragen Regency. <http://eprints.ums.ac.id/5960/>. Downloaded on January 8, 2017
- WHO. 2009. Pocket Book of Children's Health Services in Hospitals. apps.who.int/iris/bitstream/10665/81170/1/9789241548373eng.pdf. downloaded on January 16, 2017
- Tahir, G. A., & Loo, C. K. (2021). A comprehensive survey of image-based food recognition and volume estimation methods for dietary assessment. *Healthcare*, 9(12), 1676. <https://doi.org/10.3390/healthcare9121676>
- Verguet, S., Limasalle, P., Chakrabarti, A., Husain, A., Burbano, C., Drake, L., & Bundy, D. A. P. (2020). The broader economic value of school feeding programs in low- and middle-income countries: Estimating the multi-sectoral returns to public health, human capital, social protection, and the local economy. *Frontiers in Public Health*, 8, Article 587046. <https://doi.org/10.3389/fpubh.2020.587046>
- Williamson, D. A., Allen, H. R., Martin, P. D., Alfonso, A. J., Gerald, B., & Hunt, A. (2003). Comparison of digital photography to weighed and visual estimation of portion sizes. *Journal of the American Dietetic Association*, 103(9), 1139–1145.
- Zhang, R., El-Mashad, H. M., Hartman, K., Wang, F., Liu, G., Choate, C., & Gamble, P. (2007). Characterization of food waste as feedstock for anaerobic digestion. *Bioresource Technology*, 98(4), 929–935. <https://doi.org/10.1016/j.biortech.2006.02.039>
- Garrido-Jurado, S., Muñoz-Salinas, R., Madrid-Cuevas, F. J., & Marín-Jiménez, M. J. (2014). Automatic generation and detection of highly reliable fiducial markers under occlusion. *Pattern Recognition*, 47(6), 2280–2292. <https://doi.org/10.1016/j.patcog.2014.01.005>
- Kareem, Z., & Eyiler, E. (2024). Synthesis of hydroxyapatite from eggshells via wet chemical precipitation: A review. *RSC Advances*, 14(30), 21439–21452. <https://doi.org/10.1039/D4RA02198C>
- Lo, F. P.-W., Sun, Y., Qiu, J., & Lo, B. (2018). Food volume estimation based on deep learning view synthesis from a single depth map. *Nutrients*, 10(12), Article 2005. <https://doi.org/10.3390/nu10122005>
- Mertenat, A., Diener, S., & Zurbrugg, C. (2019). Black soldier fly biowaste treatment – Assessment of global warming potential. *Waste Management*, 84, 173–181. <https://doi.org/10.1016/j.wasman.2018.11.040>