


Mother's Knowledge About Giving the Rotavirus Vaccine in Preventing Diarrhea in Children Aged 0-1 Years: The study was conducted in the Sakura Room Buleleng District Hospital in 2024

Ketut Resmiasih¹, Gusti Ayu Tirtawati², Made Widi Gunapria Darmapatni³

Applied Bachelor of Midwifery Study Program, Department of Midwifery, Poltekkes Denpasar, Puputan Highway No. 11 A Renon Denpasar, Indonesia

Article Info	ABSTRACT
<p>Keywords: Diarrhea, Mother, Knowledge, Rotavirus vaccine,</p>	<p>Diarrhea is the second leading cause of death after pneumonia and is the main cause of dehydration in children. The aim of the research was to determine the level of knowledge of mothers regarding administering the rotavirus vaccine in preventing diarrhea in children aged 0-1 years. This type of research is descriptive with a cross-sectional study approach. The population was all 38 mothers of children aged 0-1 years who experienced diarrhea. The sampling method is non-probability sampling, namely total sampling. The data collected is primary data. The data collection tool is a questionnaire. The research results showed that the majority of respondents were aged 20-35 years (80.2%), 44.7% of respondents had two children. As many as 60.5% of respondents had secondary education, 60.5% did not work. The results of the descriptive analysis showed that 24 mothers (63.2%) had sufficient knowledge, 8 mothers (21.1%) had good knowledge, 6 mothers (15.8%) had poor knowledge. The results of the cross tabulation showed that 21 mothers (67.7%) with sufficient knowledge were aged 20-35 years, 16 mothers (69.5%) with sufficient knowledge had secondary education and 16 mothers (69.6%) with sufficient knowledge were not working. . It can be concluded that the majority of respondents have sufficient knowledge. Based on cross tabulation, respondents with sufficient knowledge were aged 20-35 years, respondents with sufficient knowledge had at least a high school education and the majority did not work. It is hoped that health services will be more proactive in providing health education to mothers of toddlers regarding rotavirus vaccination.</p>
<p>This is an open access article under the CC BY-NC license</p> 	<p>Corresponding Author: Ketut Resmiasih Poltekkes Kemenkes Denpasar Pemecutan Kaja, Kec. Denpasar Utara, Kota Denpasar, Bali desaselat44@gmail.com</p>

INTRODUCTION

Diarrhea is a common problem in children and is a major cause of dehydration. Data from the World Health Organization (WHO) notes that there are 1.7 billion cases of diarrhea per year globally and diarrhea is the second highest cause of death in children under 5 years of age (WHO, 2024). Gastroenteritis in toddlers is caused by rotavirus infection in the form of diarrhea that has the potential for severe dehydration. The World Health Organization (WHO)

Mother's Knowledge About Giving the Rotavirus Vaccine in Preventing Diarrhea in Children Aged 0-1 Years: The study was conducted in the Sakura Room Buleleng District Hospital in

2024–Ketut Resmiasih et.al

reports 1.7 billion cases of diarrhea per year globally and records > 500,000 deaths of toddlers in the world. Rotavirus infection ranks second out of ten causes of death in toddlers aged 1-5 years. Deaths of children under 2 years of age in South Asia and sub-Saharan Africa are also mostly caused by diarrhea (WHO, 2024) The Indonesian Rotavirus Surveillance Network conducted a survey in 1987-2015, it was found that 50% of the total cases of diarrhea in toddlers in Indonesia were caused by rotavirus infection (Vinandyanata et al., 2021).

The data is also supported by the Indonesian Nutritional Status (SSGI) in 2021 where diarrhea inhibits the growth and development of toddlers and has the potential to cause stunting due to the loss of micronutrients needed by the child's body to grow due to repeated diarrhea infections (Widowati et al., 2016). It is known that the prevalence of diarrhea cases in Bali Province in 2022 was 43,413 cases with the highest distribution of cases in Denpasar City with 9,328 cases followed by Buleleng Regency with 7,232 cases with one death due to diarrhea, third place Tabanan Regency with 5,713 cases (Bali Provincial Health Office, 2023). Diarrhea is the second leading cause of death in children under five years of age (toddlers) worldwide after pneumonia. Data from the Indonesian Nutritional Status Survey (SSGI) in 2021 showed the prevalence of diarrhea in toddlers was 9.8% (Balitbangkes, 2021). The 2021 Indonesian Health Profile data states that diarrhea is the second leading cause of death after pneumonia in the group of children aged 29 days - 11 months, namely 9.8% of deaths, and in the group of toddlers (12 - 59 months) by 4.55% (Ministry of Health of the Republic of Indonesia, 2023b).

Based on data from the Indonesian Rotavirus Surveillance Network (IRSN), Rotavirus is the main cause of acute watery diarrhea in hospitalized toddlers with diarrhea. Seeing the high burden of disease due to Rotavirus diarrhea and recommendations from WHO and ITAGI, it is necessary to immediately administer Rotavirus vaccination in the national immunization program. Rotavirus immunization will be carried out in stages starting in 2022. This plan has been included in the Comprehensive Multi Year Plan (cMYP) of the National Immunization Program 2022 - 2024 and the Decree of the Minister of Health of the Republic of Indonesia Number HK.01. 07 / Menkes / 1139/2022 (Ministry of Health of the Republic of Indonesia, 2023a). According to WHO, there are seven main points to prevent diarrhea, including rotavirus vaccine according to Minister of Health Regulation Number 42 of 2013, rotavirus vaccination is still the immunization of choice in Indonesia and is the best solution to prevent diarrhea compared to only improving hygiene, environmental sanitation and providing oralit/zinc. Indonesia Rotavirus Surveillance in 2021 stated that rotavirus immunization can prevent severe infections by around 98% and prevent infant mortality by up to 74% (Vinandyanata et al., 2021).

Kazimbaya et al., (2018) stated that rotavirus immunization provides three times more immunity for toddlers compared to subjects who are not immunized. Research by Michelous in 2009-2011 on the effectiveness of rotavirus vaccine in America found that the RotaTeq vaccine reduced the risk of occurrence by around 84% and Rota Rix 70%, which means that both types of vaccines are effective in protecting toddlers from diarrhea due to rotavirus

infection (Sitaresmi et al., 2023). Rotavirus infection causes antigenemia to manifestations of acute gastroenteritis or more severe diarrhea due to the virus infecting enterocytes through the destruction of intestinal secretion absorption and stimulated by non-structural proteins to activation of the enteric nervous system (Crawford et al., 2017).

It is known that Buleleng Regency is ranked second in the number of diarrhea cases in Bali province with one child death due to diarrhea. The rotavirus vaccine in Buleleng Regency has been implemented since August 2023 and is a mandatory immunization for children aged 0-1 years with a dose of two drops orally. The Buleleng Regency Health Office has also conducted socialization regarding the rotavirus vaccine to all health centers and health institutions in Buleleng Regency. Based on a preliminary study conducted on 10 mothers of children aged 0-1 years who experienced diarrhea in the Sakura Room of Buleleng Hospital, it was found that 7 out of 10 mothers did not know well about giving rotavirus vaccine to children, 2 mothers had moderate knowledge and 1 mother had good knowledge about rotavirus vaccine. Diarrhea is a case that is often found in inpatients in the Sakura Room and is one of the top 10 diseases in recent years, since August 2023 until now, there have been 62 cases of diarrhea recorded. Cases of diarrhea in children in 2023 were 129 cases, and ranked second in the most cases. It is known that in 2023 there were 101 cases and ranked third in the most cases, namely from August to now 62 cases.

METHOD

This study was conducted in the Sakura Room of Buleleng District Hospital. The type of research in this study is descriptive research with a cross-sectional study design. This study was conducted from September to October 2024. The population of this study was all mothers of children aged 0-1 years as many as 38 people. Samples in the case group were taken using the total sampling technique. This study used a sample of 38 mothers of toddlers aged 0-1 years. The type of data used is primary data obtained directly from respondents with a questionnaire. Data analysis with univariate with frequency distribution tables and percentages.

RESULTS AND DISCUSSION

Respondent characteristics

Respondent characteristics based on age, number of children, income, education, and occupation of mothers of children aged 0-1 years who experienced diarrhea in the Sakura Room, Buleleng District Hospital:

Table 1. Frequency Distribution of Respondent Characteristics in Sakura Room Buleleng District Hospital

Respondent Characteristics	f	%
Age		
< 20 years old	2	5,2
20-35 years old	31	81,6
>35 years old	5	13,2

Mother's Knowledge About Giving the Rotavirus Vaccine in Preventing Diarrhea in Children Aged 0-1 Years: The study was conducted in the Sakura Room Buleleng District Hospital in

Total	38	100
Parity		
1 child	12	31,6
2 child	17	44,7
≥3 child	9	23,7
Total	38	100
Education		
Basic	10	26,3
Intermediate	23	60,5
Higher	5	13,2
Total	38	100
Occupation		
Unemploye	23	60,5
Civil servant/contract employee/private sector	12	31,6
Self-employed/entrepreneur	3	7,9
Total	38	100

*) source: primary data

Based on the table above, it is known that most respondents are aged 20-35 years (81.6%), as many as 44.7% of respondents have two children. As many as 60.5% of respondents have secondary education, and 60.5% are unemployed or are housewives. The results of the univariate analysis in this study were conducted to determine the frequency distribution and percentage related to maternal knowledge about administering rotavirus vaccine to children aged 0-1 years to prevent diarrhea. The following table contains the results of the univariate analysis of respondents in this study, namely::

Table 2. Mother's Knowledge About Giving Rotavirus Vaccine to Children Aged 0-1 Years to Prevent Diarrhea in Sakura Ward, Buleleng District Hospital

Knowledge	f	%
Good	8	21,1
Sufficient	24	63,2
Less	6	15,7
Total	38	100

*) source: primary data

Based on the table above, out of 38 respondents, it is known that 24 mothers (63.2%) have sufficient knowledge, 8 mothers (21.1%) have good knowledge and 6 mothers (15.7%) have insufficient knowledge about administering rotavirus vaccine to children aged 0-1 years to prevent diarrhea.

Table 3. Mother's Knowledge About Rotavirus Vaccination in Children Aged 0-1 Years in Preventing Diarrhea Reviewed Based on Age in Sakura Room, Buleleng District Hospital

Age Characteristics	Knowledge			Total
	Good	Sufficient	Less	

Mother's Knowledge About Giving the Rotavirus Vaccine in Preventing Diarrhea in Children Aged 0-1 Years: The study was conducted in the Sakura Room Buleleng District Hospital in

	f	%	f	%	f	%	f	%
< 20 years old	0	0,0	0	0,0	2	100	2	100
20-35 years old	8	25,8	21	67,7	2	6,5	31	100
>35 years old	0	0,0	3	60	2	40	5	100

*) source: primary data

Based on table 3, it is known that 21 mothers (67.7%) with sufficient knowledge are aged 20-35 years. It is known that 8 mothers (25.8) with good knowledge are aged 20-35 years.

Table 4 Mother's Knowledge About Giving Rotavirus Vaccine to Children Aged 0-1 Years in Preventing Diarrhea Reviewed Based on Education in Sakura Room Buleleng District Hospital

Education Characteristics	Knowledge						Total	
	Good		Sufficient		Less		f	%
	f	%	f	%	f	%		
Basic	0	0,0	6	60	4	40	10	100
Intermediate	5	21,8	16	69,5	2	8,7	23	100
Higher	3	60	2	40	0	0,0	5	100

*) source: primary data

Based on table 4, it is known that 16 mothers (69.5%) with sufficient knowledge have secondary education. It is known that 6 mothers (60%) with sufficient knowledge have basic education.

Table 5 Mother's Knowledge About Rotavirus Vaccination in Children Aged 0-1 Years in Preventing Diarrhea Reviewed Based on Work in Sakura Room, Buleleng District Hospital

Occupation Characteristics	Knowledge						Total	
	Good		Sufficient		Less		f	%
	f	%	f	%	f	%		
Unemploye	3	13	16	69,6	4	17,4	23	100
Civil servant/contract employee/private sector	4	33,3	7	58,3	1	8,4	12	100
Self-employed/entrepreneur	1	33,3	2	66,7	0	0,0	3	100

*) source: primary data

Based on table 5, it is known that 16 mothers (69.6%) with sufficient knowledge do not work or are housewives. It is known that 7 mothers (58.3%) with sufficient knowledge work as employees.

Discussion

Respondent Characteristics

Based on the results of the study, it is known that most respondents are aged 20-35 years (80.2%). Increasing age determines a person's level of maturity, increasing age makes a person's mindset more mature, mothers in the 20-35 year age range have a better and more logical mindset when compared to mothers who are younger or too old, because the age of 20-35 years is a productive age (Notoatmodjo, 2022). Research conducted by (Astuti &

Nardina, 2020) shows that the mother's age is around 30 years. The largest number of respondents was 26-35 years old, as many as 20 respondents (60.6%), in this study respondents were classified as adults, so it would be easier to get information, the level of maturity and experience of a person is more mature and more experienced compared to someone who is still a teenager. As many as 44.7% of respondents have two children. Mothers who have more than one child certainly already have experience in caring for and raising a child (Juniarty, 2021).

As many as 60.5% of respondents had secondary education or high school education, Research (Rahmawati & Agustin, 2021) shows that 66.32% of mothers have high school education. Higher education makes a person more open in thinking so that they have broad knowledge and the ability to understand problems that are influenced by the level of education (Rahmawati & Agustin, 2021). It is known that 60.5% of respondents are housewives. Working mothers certainly prioritize their work so that working mothers find it more difficult to determine the immunization schedule for their children. As a result, working mothers find it more difficult to determine the immunization schedule than housewives who have more free time to do so. This study is in line with the results of research conducted by (Hastuty, 2020) which shows that out of 118 respondents, the majority of respondents, namely 66 respondents (55.93%) have unemployed status.

Mothers' knowledge about giving rotavirus vaccine to children aged 0-1 years to prevent diarrhea

Based on the results of the study, it is known that 63.2% of mothers have sufficient knowledge about administering rotavirus vaccine to children aged 0-1 years in preventing diarrhea in the Sakura Room of Buleleng District Hospital. The researcher assumes that mothers do not yet fully understand the importance of administering rotavirus vaccine to children aged 0-1 years in preventing diarrhea. According to (Notoatmodjo, 2022) knowledge is the result of knowing and is formed after someone senses a particular object. Based on Bloom in (Notoatmodjo, 2022), knowledge is one of the things that forms a person's characteristic traits. Knowledge plays a very important role in shaping, directing the actions and personality of an individual because actions based on knowledge will be more lasting when compared to actions that are not based on knowledge.

These results are in accordance with research by (Muflikhatun et al., 2024) which found that most mothers have a level of knowledge about Rotavirus Immunization in the sufficient category (79.2%). Knowledge is an individual parameter in carrying out a behavior. If a person's level of knowledge is good, especially in terms of health, then the individual will always apply good health behavior in their daily lives because the knowledge they have encourages a person to take these actions (Green in Arikunto, 2019).

Mother's Knowledge About Giving Rotavirus Vaccine to Children Aged 0-1 Years in Preventing Diarrhea Reviewed Based on Characteristics

Based on the results of the study, it is known that 21 mothers (67.7%) have sufficient knowledge aged 20-35 years, it is known that 16 mothers (69.5%) with sufficient knowledge have a high school education and it is known that 16 mothers (69.6%) with sufficient

knowledge do not work or are housewives. These results are in accordance with research by (Eliza & Suryani, 2024) where the results showed that most respondents had sufficient knowledge as many as 20 people aged 20-35 years (67%), most respondents were high school graduates as many as 18 people (53%) and the majority of respondents did not work at the Dr. Ira Aliza Siregar M.kes, Sp.A Clinic, Padangsidempuan City. The researcher assumes that most mothers have sufficient knowledge because mothers do not yet know the information and socialization about giving rotavirus vaccine to children aged 0-1 years to prevent diarrhea because this immunization is relatively new so that most mothers do not know about this vaccine for toddlers which has an impact on the knowledge of mothers who are mostly knowledgeable. Age is the time calculated from birth to birthday. As a person gets older, their level of maturity and adulthood will be more mature both in terms of thinking and working (Wawan & Dewi, 2017).

Researchers argue that most mothers are housewives, this could be one of the factors causing mothers' knowledge to be sufficient. Housewives tend to be more at home than working mothers so that access to information and exposure to information related to the rotavirus vaccine is very minimal, this is also influenced by the interaction of housewives with other people which tends to be less than working mothers.

Knowledge is one of the most important determinants in encouraging the behavior of mothers of toddlers to check their children at health services. Mothers who have a good level of knowledge about the importance of checking their children's health will have the initiative to come to health services without being forced or pushed by health workers and families because mothers understand that this will affect their child's health (Green Notoatmodjo, 2022). Rotavirus immunization is one of the effective ways to prevent disease transmission and efforts to reduce morbidity and mortality in infants and toddlers due to diarrhea (Ministry of Health of the Republic of Indonesia, 2023). Immunization is the most effective and efficient public health effort in preventing several dangerous diseases (Mardianti & Farida, 2020). So that immunization is an action that deliberately provides antigens or bacteria from a pathogen that will stimulate the immune system and cause immunity, so that only mild symptoms are experienced when exposed to the disease (Hastuty, 2020).

Rotavirus is a virus that infects the intestines and is the cause of diarrhea which is generally experienced by infants and children. Most children aged up to 5 years have had a rotavirus infection. Therefore, it is important to always be aware of this viral infection in infants and children aged 4 to 24 months, such as by giving vaccines. Rotavirus infection is a viral infection that causes inflammation in the digestive tract. Rotavirus infection is a common cause of diarrhea in infants and children, especially in countries with poor environmental sanitation (Taroreh & Rattu, 2022).

Rotavirus is a virus that infects the intestines and causes diarrhea that is commonly experienced by infants and children. Most children aged up to 5 years have been infected with rotavirus. Therefore, it is important to always be aware of this viral infection in infants and children aged 4 to 24 months, such as by giving vaccines. Rotavirus infection is a viral infection that causes inflammation in the digestive tract. Rotavirus infection is a common

cause of diarrhea in infants and children, especially in countries with poor environmental sanitation (Taroreh & Rattu, 2022).

The results of this study are in accordance with research by (Hastuty, 2020) which found that the sociodemographic characteristics of mothers regarding PCV and Rotavirus immunization at PMB Umi Muflikhatun were mostly aged 21-30 years (39.6%), high school education level (56.3%), and work as housewives (81.3%). Most mothers have a level of knowledge about PCV and Rotavirus Immunization in the good category (79.2%).

These results are also supported by research (Eliza & Suryani, 2024) obtained from 30 respondents obtained a frequency distribution of knowledge, the majority had less knowledge as many as 22 people (73%), the majority based on age 20-39 had less knowledge 20 people (67%), the majority had less knowledge and high school education 16 people (53%). Based on the results of the study, it can be concluded that the majority of knowledge of mothers who have babies about rotavirus immunization is still lacking, so it is hoped that mothers who have babies will increase their knowledge about rotavirus immunization through electronic media.

CONCLUSION

Most respondents have sufficient knowledge. Respondents with sufficient knowledge are aged 20-35 years, respondents with sufficient knowledge have a high school education and respondents with sufficient knowledge are mostly unemployed or housewives.

REFERENCE

- Arikunto, S. (2019). *Research Procedures A Practical Approach*. Rineka Cipta.
- Crawford, S. E., Ramani, S., Tate, J. E., Parashar, U. D., Svensson, L., Hagbom, M., Franco, M. A., Greenberg, H. B., O’Ryan, M., Kang, G., Desselberger, U., & Estes, M. K. (2017). Rotavirus infection. *Nature Reviews Disease Primers*, 3(1), 17083. <https://doi.org/10.1038/nrdp.2017.83>
- Bali Provincial Health Office. (2023). *Bali Provincial Health Profile 2022*. Bali Provincial Health Office.
- Eliza, Naila, & Suryani, E. (2024). Knowledge of Mothers Who Have Babies About Rotavirus Immunization. *Darmais Midwifery Journal (JKD)*, 2(1), 68–72. <https://ejournal.stikesdarmaispadangsidimpuan.ac.id/index.php/jkd/article/view/236>
- Hastuty, M. (2020). The Relationship between Mother's Knowledge and Occupation with the Completeness of Basic Immunization for Toddlers at the Posyandu in Kasang Village, Work Area of the Lubuk Jambi Health UPTD, Kuantan Mudik District in 2019. *Doppler Journal*, 4(1), 10–17.
- Juniarty, E. (2021). The Relationship between Mother's Age and Parity with the Regularity of Antenatal Care Examination in Pregnant Women. *Journal of Health Science*, 1(2), 22–28.

- Kazimbaya, K. M., Bosomprah, S., Simuyandi, M., Chisenga, C. C., Chilengi, R., & Munsaka, S. (2018). Efficacy and Effectiveness of Rotavirus Vaccine on Incidence of Diarrhoea among Children: A Meta-analysis. *Pediatr Infect Dis Open Access*, 3(01).
- Ministry of Health of the Republic of Indonesia. (2017). Regulation of the Minister of Health Number 12 of 2017 concerning the Implementation of Immunization. In <https://peraturan.bpk.go.id/Details/111977/permenkes-no-12-tahun-2017> (pp. 1–162). Ministry of Health of the Republic of Indonesia.
- Ministry of Health of the Republic of Indonesia. (2023a). Technical Instructions for PROVIDING ROTAVIRUS (RV) IMMUNIZATION (M. R. Rondonuwu, Ed.). Ministry of Health of the Republic of Indonesia.
- Ministry of Health of the Republic of Indonesia. (2023b). Indonesian Health Profile 2022. In <https://kemkes.go.id/id/profil-kesehatan-indonesia-2022> (pp. 1–550). Ministry of Health of the Republic of Indonesia.
- Ministry of Health of the Republic of Indonesia. (2022). Program Action Plan 2020-2024. Directorate General of Disease Prevention and Control, Ministry of Health of the Republic of Indonesia.
- Mardianti, M., & Farida, Y. (2020). Factors Related to Basic Immunization Status in Infants in Rengasdengklok Selatan Village, Karawang Regency. *Indonesian Midwifery Journal: Journal of Indonesia Midwifery*, 11(1), 17. <https://doi.org/10.36419/jkebin.v11i1.322>
- Muflikhatun, U., Wulandari, R., & Widyastutik, D. (2024). Level of Mother's Knowledge About Pcv and Rotavirus Immunization at Pmb Umi Muflikhatun. *Midwifery Study Program, Undergraduate Program, Faculty of Health Sciences, Kusuma Husada University, Surakarta*.
- Notoatmodjo, S. (2022). *Health Promotion and Health Behavior Science*. Rineka Cipta.
- Rahmawati, T., & Agustin, M. (2021). The Relationship between Mother's Knowledge and Completeness of Basic Immunization in Toddlers Aged 1-5 Years. *Faletehan Health Journal*, 8(03), 160–165. <https://doi.org/10.33746/fhj.v8i03.249>
- Sitairesmi, Soedjatmiko, Gunardi, H., Kaswandani, & Handryastuti. (2023). Immunization Schedule for Children Aged 0 – 18 Years Recommendations of the Indonesian Pediatrician Association in 2023. *Department of Pediatrics, FK-KMK UGM/ RSUP DR Sardjito*, 25(1), 64–74.
- Taroreh, W. P., & Rattu, F. (2022). *Water Borne Disease: Rotavirus*.
- UNICEF. (2023, August 15). National Launch of Expansion of Rotavirus (RV) Immunization. <https://www.unicef.org/indonesia/id/kesehatan/siaran-pers/penencanaan-nasional-perluasan-imunisasi-rotavirus-rv>.
- Vinandyanata, I. M. D., Mahayani, N. P. A., & Paramasatiari, A. A. A. L. (2021). Relationship between Pentavalent Rotavirus Vaccination and Diarrhea Incidents in Children Aged 6-24 Months in Denpasar. *Aesculapius Medical Journal*, 1(1), 20–26.
- Wawan, A., & Dewi, M. (2017). *Theory and Measurement of Human Knowledge, Attitudes and Behavior*. Nuha Medika.

WHO. (2024, March 7). Diarrheal disease. <https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease>.

Widowati, T., Mulyani, N., Nirwati, H., & Soenarto, Y. (2016). Rotavirus Diarrhea in Toddlers. *Sari Pediatri*, 13, 340. <https://doi.org/10.14238/sp13.5.2012.340-5>