The Effect of Family Clean and Healthy Living Behavior Education (PHBS) on the Prevention of Diarrhea in Toddlers

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ABSTRACT

***Background**: Diarrhea is a public health problem that is experienced by many developing countries such as Indonesia, because there are still many people who do not implement PHBS (Clean and Healthy Living Behavior) properly so that the incidence of diarrhea in toddlers is still a potential Extraordinary Event (KLB) which is very often accompanied by death. **Objectives**: The purpose of the study was to determine the effect of family PHBS education on the prevention of diarrhea in toddlers in Ambunten District, Sumenep Regency. **Methods**: This study is a quantitative study with a quasi experimental design. The population in this study is mothers who have toddlers under 5 years old. The sample of 66 respondents uses a random sampling technique is obtained. Data was collected using a diarrhea prevention questionnaire. Results: The results of the study before being given education to the treatment group and control group were mostly sufficient. Results: The results of the study after being educated in the treatment group and control group were good with the number of p value = 0.000 which means that there is an effect of family PHBS education on the prevention of diarrhea in toddlers under 5 years old in Ambunten District, Sumenep Regency. **Conclusion**: Health workers can provide counseling about household PHBS to mothers who have toddlers under 5 years old, so that they can apply PHBS properly and correctly in order to reduce the mortality rate in toddlers caused by diarrhea.*

***Keywords**: diarrhea, family, PHBS, toddlers*

INTRODUCTION

Diarrhea is a public health problem that is experienced by many developing countries such as Indonesia, because there are still many people who do not implement PHBS (Clean and Healthy Living Behavior) properly so that the incidence of diarrhea in toddlers is still a potential for KLB which is very often accompanied by death. Children's immunity that is still very weak is a factor that makes it easier to spread the bacteria that cause diarrhea (Kim et al., 2023). The pattern of implementing Clean and Healthy Living is a form of behavior based on awareness as a form of learning so that individuals and families can help themselves both in terms of health problems and participate in realizing public health in their environment (Odei Obeng-Amoako et al., 2021).

There were 10 Extraordinary Events of Diarrhea in 2023 spread across 8 provinces, 8 districts/cities. The number of diarrhea sufferers is 756 people and those who have died from diarrhea are 36 people. In 2023, the CFR (Case Fatality Rate) of diarrhea has increased compared to 2022, which is 47.6%. (BKPK, 2022). Meanwhile, the number of diarrhea in toddlers in East Java in 2023 is 10.7% (Kemenkes RI, 2023). Diarrhea cases that occurred in Sumenep Regency in 2022 were recorded at 1305 cases. PHBS policies within the Regency/City scope nationally were recorded with a percentage of 70.62% in 2022 (Jatim, 2022). In East Java, it is recorded that 86.84% already have a PHBS policy (BKPK, 2022). PHBS in Sumenep Regency in 2023,

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there are 40,674 or around (33%) households that are included as households with good PHBS (Jatim, 2022).

Based on a preliminary study on January 15, 2024, the results of interviews conducted with families with toddlers, 4 families with toddlers said that they did not implement PHBS in their households properly, did not wash their hands with soap, did not use clean water, and water for consumption was usually not cooked first. For the use of latrines, usually after the child defecates, feces are not defecated into the latrine, sometimes they are thrown into the river. Sometimes it is not uncommon for parents to tell their children to defecate out of place (WC) and for exclusive breastfeeding, 4 families said to give exclusive breastfeeding, and 1 other family said not to give exclusive breastfeeding because they gave additional food before 6 months.

Generally, the incidence of diarrhea that occurs in children can be prevented by paying attention to the risk factors that can cause diarrhea (Brander et al., 2019). The factor that can prevent diarrhea in toddlers is the application of PHBS in the family, especially the application of PHBS carried out by the mother, because the mother is the one closest to the child/toddler (Odei Obeng-Amoako et al., 2021). PHBS in the household order that can prevent diarrhea in children is the provision of breast milk (Pratama et al., 2023). Breast milk can provide protection for toddlers from diarrhea. The use of clean water is also an effort to prevent diarrheal diseases in toddlers (Nightingale & Richmond, 2022). The source of water to drink is very important to pay attention to the situation because infectious germs that cause diarrhea can be transmitted through the mouth. The use of clean water is also very necessary for washing hands, cleaning baby bottles, children's feeding places and food storage (Idawarni et al., 2021).

The purpose of this study is to determine the effect of education about clean and healthy living behaviors in families on the prevention of diarrhea in toddlers in Ambunten District, Sumenep Regency, Indonesia.

METHODS

Research Design

This study uses an experimental design with a Quasi Experimental Design (Nursalam, 2020).

Table 1. Quasy Experimental Research Design

Subject	Pre-Test	Treatment	Post-Test
K-A	O	I	O1-A
K-B	O	-	O1-B

Source: (Nursalam, 2020)

Information:

K-A : Subject of treatment
K-B : Subject control
O : Observation of Clean and Healthy Living Behavior of the family before Education is provided to the treatment group and control group
I : Intervention (Family PHBS on the prevention of diarrhea in toddlers)
O1-A : Observation of Clean and Healthy Living Behavior of Families Prevention of diarrhea in toddlers against treatment groups
O2-B : Observation of Clean and Healthy Living Behavior of Families Prevention of diarrhea in toddlers against the control group

Population and Sample

The population in this study is all mothers who have toddlers under 5 years old in Ambunten District, Sumenep Regency, which is 212 mothers under five. Meanwhile, the sample in the study used Simple Random Sampling totaling 66 respondents. By using the formula (Nursalam, 2020):

$$n = \frac{N.z^2.p.q}{d^2(N-1)+z^2.p.q}$$

$$= \frac{212\ (1{,}96)^2.0{,}5.0{,}5}{(0{,}10)^2.(212-1)+(1{,}96)^2.0{,}5.0{,}5}$$

$$= \frac{212\ .3{,}8416\ .0{,}5.0{,}5}{0{,}01\ .211+3{,}8416\ .0{,}5\ .0{,}5}$$

$$= \frac{203{,}6048}{3{,}0704}$$

= 66,31
= 67

Information:

n = Sample size estimate
N = Large population estimates
d = Significance level
z = Normal standard values
p = Approximate proportions
q = 1 – p
d = The error level selected

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RESULTS AND DISCUSSION

Characteristics of Mothers

Table 2. Mother's characteristics based on age, education, and occupation

Characteristics	F	%
Mother Characteristics:		
Age (year)		
19-23	8	12.1
24-28	21	31.8
29-33	28	42.4
34-38	4	6.1
39-43	3	4.5
44-48	1	1.5
49-53	1	1.5
Total	**66**	**100**
Education level		
SD	2	3.0
SMP/SLTP	24	36.4
SMA/SMK/MA	40	60.6
Total	**66**	**100**
Based on Mom's Work		
Farmer	17	25.8
Merchant	11	16.7
Housewives	37	56.1
Self employed	1	1.5
Total	**66**	**100**

Table 2. showed that the characteristics of parents based on maternal age were the highest as many as 28 mothers (42.4%) aged 29 to 33 years. Meanwhile, the highest maternal education is high school graduates with the same number of 40 mothers (60.6%). Based on their work, as many as 37 mothers (56.1%) are housewives.

Table 3. Characteristics of respondents based on Prevention of Diarrhea in toddlers before being given Education

No	Prevention of Diarrhea	Treatment Groups	(%)	Control Group	(%)
1	Good	9	27.3	3	9.1
2	Enough	24	72.7	30	90.9
3	Less	-	-	-	-
	Total	**33**	**100.0**	**33**	**100**

Based on the results of the study, table 3 shows that the prevention of diarrhea in the treatment group and control group before being given education is mostly sufficient. The treatment group was 24 (72.7%) and the control group was 30 (90.9%).

Table 4. Characteristics of respondents based on Prevention of Diarrhea in Toddlers After being educated

No	Prevention of Diarrhea	Treatment Groups	(%)	Control Group	(%)
1	Good	31	93.9	20	60.6
2	Enough	2	6.1	13	39.4
3	Less	-	-	-	-
	Total	**33**	**100.0**	**33**	**100**

Based on the results of the study, table 4 shows that the prevention of diarrhea in the treatment group and control group after being educated is mostly good. The treatment group with a total of 31 (93.9%) and the Control Group with a total of 20 (60.6%).

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Table 5. The Effect of Family PHBS Education on the Prevention of Diarrhea in Toddlers in Ambunten District, Sumenep Regency

Pre Test Treatment-Post Test Treatment	t	mean	Sig. (2-tailed)	Pre Test Control-Post Test Control	t	mean	Sig. (2-tailed)
	-12.823	-9.091	.000		-10.260	-8.273	.000

Based on the statistical test, the paired t-test uses the SPSS 20 application. Prevention of diarrhea in toddlers, in the treatment group before and after being given education, a t of -12.823 with a mean of -9.091, and a p value = 0.000 was obtained. Meanwhile, the prevention of diarrhea in the control group before and after education was obtained t-10.260, with a mean of -8.273, and the result of p value = 0.000 was obtained. This means that there is an Effect of Family PHBS Education on the Prevention of Diarrhea in Toddlers in Ambunten District, Sumenep Regency in 2024.

Table 6. Independent test samples test The Effect of Family PHBS Education on the Prevention of Diarrhea in Toddlers in Ambunten District, Sumenep Regency in the treatment group and control group

	mean	Sig (2-tailed)		mean	Sig (2-tailed)
Pre Test Treatment - Pre Test Control	1.545	0.067	Post Test Treatment - Post Test Control	2.364	0.017
	1.545	0.068		2.364	0.017

Based on statistical tests Independent test samples test using the spss 20 application. In the Pre Treatment Test and Control Pre Test, the Sig (2-tailed) > 0.005 was obtained, which showed that there was no average difference between the research subjects. Meanwhile, in the Post Test of Treatment and Post Test of Control, a sig (2-tailed) < 0.005 was obtained, which showed that there was an average difference between the research subjects.

Prevention of Diarrhea in Toddler Mothers Before (Pre Test) is Provided Education

Based on the results of the study before being given the treatment (pre-test) on mothers of toddlers in the control group and treatment, it is known that the prevention of diarrhea in mothers under five is mostly sufficient. Diarrhea is a public health problem that is experienced by many developing countries such as Indonesia and is the highest cause of death in toddlers. Diarrhea can be prevented if the community can implement PHBS properly (Wiyane & Mansur, 2021). PHBS is the basis for preventing humans from various diseases. The PHBS concept is one of the references and health development programs in Indonesia. The PHBS coaching program promoted by the government has been running for about 15 years but the success rate is not as expected (Rosiska, 2021).

Environmental, maternal, child, and socioeconomic aspects are the four factors that cause diarrhea in toddlers and infants in Indonesia (Hijriani et al., 2020). The type and pollution of clean water and the ownership of latrines are the causes of environment-based diarrhea that are often researched. The cause of diarrhea from the maternal factor is from the behavior of the mother, while nutritional status and exclusive breastfeeding are factors of the child that are often researched (Moncayo et al., 2024). The cause of diarrhea that is not too significant is economic factors (Hassen et al., 2020).

The mother is the person closest to the child, when eating, bathing and playing. Mothers are people who are involved a lot, therefore the role of mothers is very important for children's health (Bante et al., 2023). Children's health can be influenced by several factors, one of which is from family factors, namely the mother. Health behaviors can be caused by several factors, namely health services, genetics, behavior and the environment (Idawarni et al., 2021). One of the prevention of

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diarrhea that can be done by mothers is exclusive breastfeeding. According to (Kemenkes RI, 2020) Breast milk contains antibodies and other nutritional substances that can prevent infections, including diarrhea. Exclusive breastfeeding provides four times greater protection against diarrhea compared to breastfeeding interspersed with formula (Sumantri et al., 2021). Decreased nutritional status can be caused by recurrent infections caused by diarrhea (Guney et al., 2023).

This is in accordance with the research conducted by (Crane et al., 2022) which states that there is a very large relationship between exclusive breastfeeding and the incidence of diarrhea. So it is very important to provide education so that mothers who have toddlers can know what substances are contained in breast milk that can prevent it from occurring and can provide breast milk exclusively without any additional food.

Prevention of Diarrhea in Toddler Mothers After (Post Test) is Provided Education

Based on the results of the study, table 4 shows that the prevention of diarrhea in the treatment group and control group after being educated is mostly good. Environment, behavior, health services and heredity are factors that affect the degree of health. The most influential factors on health degrees are environmental and behavioral factors (Wiyane & Mansur, 2021).

There are still many people living in rural areas who do not implement PHBS properly, so action is needed to improve these conditions. Providing health education is a way to increase public knowledge about PHBS (Sanin et al., 2023). Health education can function as a medium so that individuals and the community can behave in accordance with healthy living norms (Moradhvaj & Samir, 2023). In other words, health education can change people's knowledge, attitudes and actions in accordance with the rules of healthy living. If the local community does not have good information about PHBS, it will be difficult to change attitudes and show it in proper activities. Knowledge and attitudes determine an individual's behavior or activity. The increase in knowledge is beneficial in changing better health behaviors (Vidal et al., 2024). This is in accordance with the theory of health behavior, that knowledge can underlie a person to act, including to carry out PHBS in daily life (Wiyane & Mansur, 2021).

This is also in line with the research conducted by (Astutik, E. et al., 2020) at Abepura Hospital which said there was a relationship between the incidence of diarrhea and the behavior of washing hands and the use of healthy latrines. This is in accordance with research conducted by (Lawson et al., 2024) which states that after the implementation of health education there is an increase in individuals who act well in implementing PHBS.

So it is very important to conduct health education (Education) so that people are willing, knowing, and able to implement PHBS properly. Because by conducting health education, it can change the knowledge of people who previously did not apply PHBS properly, after being provided with public health education, they are able to implement PHBS properly (Fink et al., 2021).

The Effect of Family PHBS Education on the Prevention of Diarrhea in Toddlers

Based on the results before being given treatment (pre-test) to mothers under five it is known that most of the prevention of diarrhea in mothers under five is sufficient, and after being given treatment (post test) there is a significant change in the behavior of diarrhea prevention behavior of mothers under five in Ambunten District, Sumenep Regency, it is known that almost all mothers of toddlers experience behavioral changes towards the prevention of diarrhea, where the prevention of diarrhea in mothers under five after treatment (post test) is mostly good.

Based on the statistical test, the paired t-test uses the spss 20 application. Prevention of diarrhea in toddlers, in the treatment group before and after being given education, a t -12.823 with a mean of -9.091, and a p value = 0.000 was obtained. Meanwhile, the prevention of diarrhea in the control group before and after education was obtained t -10.260, with a mean of -8.273, and the result of p value = 0.000 was obtained. This means that there is an influence of family phbs education on the prevention of diarrhea

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in toddlers in Ambunten District, Sumenep Regency in 2024.

According to (Perpres, 2020) A healthy Indonesia is the vision of Indonesia's health development. This vision can be interpreted as a healthy paradigm, namely an independent society to live a healthy life, as well as motivating the community and health workers to change the pattern of the tree from a sick perspective to a healthy perspective. Clean and Healthy Living Behavior (PHBS) is a real embodiment of the healthy paradigm in the healthy living culture of individuals, families and communities that is health-oriented, aiming to improve, maintain and protect their health (Sloan Morgan et al., 2022).

Health promotion is very important to build a healthy paradigm. According to (Crane et al., 2022) Health promotion as a planned combination of educational, political, environmental, regulatory, and organizational mechanisms that support actions and living conditions that are conducive to the health of individuals, groups and communities. Health promotion is an effort to improve the ability of the community through learning from, by, for, and with the community, so that they can help themselves, as well as develop activities that are supported by community resources, according to local socio-culture, and supported by public policies that are health-oriented (Duan et al., 2020).

Knowledge is an area of behavior development. Efforts to increase knowledge should be possible with health programs/education. Health promotion/health education can affect changes in public knowledge about healthy behaviors (Shibeshi et al., 2024). Research conducted by (Rosiska, 2021) stated that the low coverage of PHBS is due to the absence of community empowerment, limited PHBS expenses, low duties of health centers in fostering PHBS to the regions and low cross-regional assistance for the PHBS program.

In addition, in the assessment of (Chahalis et al., 2021) It tends to be clarified that the most common way of shaping and changing behavior is influenced by several elements ranging from oneself (inward) such as insight, affirmation, inspiration, interest and feelings to deal with external influences. Components start from the outside through objects, people, groups, and social outcomes that are pointed out in understanding their type of behavior. Health promotion that contains health values that come from outside the individual, in general, will affect the inner and external state of the individual or society. This research is in line with the research conducted by (Wijaya, A., Sary, L., & Yanti, 2020) in Mandah Village with 70 respondents who stated that there was an impact of Family PHBS Information Counseling in Mandah City, Branti Raya Health Center, Natar Area, South Lampung Regency, Lampung Region.

The rate of achievement of Clean and Healthy Living Behavior in Indonesia is generally not optimal. The PHBS coaching program promoted by public authorities has been running for about 15 years, but the prosperity is still far from expectations, so it is very important for health institutions such as hospitals, health centers and others to conduct counseling on the importance of clean and healthy living behaviors so that people can help themselves, and can play an active role in public health in their environment.

CONCLUSION

Based on the results of the study, it can be concluded that the provision of education on Clean and Healthy Living Behavior (PHBS) has a positive influence on improving diarrhea prevention behavior in toddlers. Before the intervention, both the treatment and control groups were mostly in the "adequate" category in preventing diarrhea. However, after the provision of PHBS education, there was a significant increase, especially in the treatment group, where most of the respondents shifted to the "good" category in preventing diarrhea in toddlers. This shows that PHBS education is effective in improving the understanding and practice of diarrhea prevention, which has the potential to reduce the risk of diarrhea in toddlers in the research area.

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