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The correlation between mother behavior and knowledge on the use of antibiotics in diarrheal children at Kedungreja, Cilacap

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ABSTRACT

In Southeast Asia, including Indonesia, antibiotic use is very high, reaching more than 80% in several provinces in Indonesia. This will lead to antibiotic resistance, one of the top three public health threats of the 21st century. Research needs to be carried out regarding the level of knowledge and behavior of mothers in using antibiotics for children's diarrhea. This was quantitative research with an analytical observational method with a cross sectional approach. Respondents filled out a questionnaire regarding their knowledge and behavior of using antibiotics which has been tested for validity and reliability. The data were analyzed using univariate and bivariate analysis using chi square. There were 100 people. The research results showed that most research subjects were mothers aged 26-30 years (29%). Based on the level of knowledge, most subjects were in the sufficient category (56%), and based on maternal behavior the majority were in the poor category (69%). There is no relationship between mother's knowledge and behavior in using antibiotics in children with diarrhea with a p value of 0.831. It can be concluded that here is no relationship between mother's knowledge and behavior in using antibiotics in children with diarrhea with a p value of 0.831.

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INTRODUCTION

The dominant infectious diseases cause very high use of antibiotics. In Southeast Asia, antibiotic use is very high, reaching more than 80% in several provinces in Indonesia (Yarza et al., 2015). According to WHO, antibiotic resistance is one of the three threats to public health in the 21st century (Munita & Arias, 2016). Inappropriate use of antibiotics causes morbidity and mortality due to the use of inappropriate doses, adverse drug reactions, and an increase in antimicrobial resistance due to excessive use of antibiotics (Tekleab et al., 2017). According to the Ministry of Health in 2019 (Kementerian Kesehatan, 2018), 92% of Indonesian people did not use antibiotics correctly. Inappropriate and irregular use of antibiotics will worsen the child's condition, causing

bacteria to become resistant to antibiotics. Antibiotic misuse known as irrtional use of antibiotics, is a global problem that can harm patients dan caused antibiotic resistance (Hafez et al., 2024). Antibiotic resistance can disrupt a child's immunity, namely prolonging the duration of the disease, killing good bacteria in the body and causing detrimental side effects (Angelina & Tjandra, 2019).

Diarrhea is a global problem (Troeger et al., 2018). Diarrhea is a common disease and occurs repeatedly in childhood (Rogawski et al., 2015). Diarrhea is the fifth cause of death in children with a death rate of 446,000 children each year in the world (Abuzerr et al., 2020). Diarrhea is still a public health problem in developing countries such as Indonesia because of its high morbidity and mortality. Diarrhea is the second leading cause of death in children under five after pneumonia (Tampubolon et al., 2022). It is estimated that 4 billion cases of diarrhea occur yearly in children under five worldwide.

In developing countries, around 1.8 million people die from diarrhea, and more than 80% of diarrhea occurs in children under 5 years old due to poor water, sanitation and hygiene. Based on WHO reports in developing countries, 50% of cases of urinary tract infections and diarrhea receive antibiotic therapy without precisely. Inappropriate use of antibiotics causes morbidity and mortality due to the use of inappropriate doses, adverse drug reactions, and an increase in antimicrobial resistance due to excessive use of antibiotics. (Tekleab et al., 2017). Based on the 2019 Indonesian Health Profile data, pneumonia and diarrhea are the main problems causing 979 deaths in pneumonia cases and 746 deaths in diarrhea cases (Irin & Kurniadi, 2022). In toddlers (12 – 59 toddlers) aged 12-59 months, diarrhea is the most common cause of death. In 2015, 18 outbreaks of diarrhea occurred in 11 provinces and Central Java was included in these 18 provinces (Susanti & Supriani, 2020).

In Southeast Asia, antibiotic use is very high, reaching more than 80% in several provinces in Indonesia (Yarza et al., 2015). As many as 6 million children in the world die every year from diarrhea, and some of these deaths occur in developing countries (Susanti & Supriani, 2020). Diarrhea is the second largest cause of death after pneumonia in children under 5 years old with a proportion of 9.00%. The morbidity rate for all age groups suffering from diarrhea in 2021 is 214/1000 population, while for the toddler age group it is 900/1000 toddlers (Trisnowati et al., 2017).

Mothers play an important role in the family health pillar because they organize and take care of household affairs such as providing medicine for their families (Nisak et al., 2016). According to the Ministry of Health in 2019, 92% of Indonesian people did not use antibiotics correctly. Inappropriate and irregular use of antibiotics will worsen the child's condition, causing bacteria to become resistant to antibiotics (DERELİ, 2011). Antibiotic resistance can disrupt a child's immunity, namely prolonging the duration of the disease, killing good bacteria in the body and causing detrimental side effects (Angelina & Tjandra, 2019). Thus, it is necessary to conduct research regarding the level of knowledge and behavior of mothers in using antibiotics for children's diarrhea. The benefit of research is that it can provide information on the influence of maternal knowledge on children's antibiotic use behavior so that education regarding antibiotic use can be emphasized.

RESEARCH METHOD

This was quantitative research with an analytical observational method with a cross sectional approach. The research was carried out in July to September 2021 in Kedungreja Village, Cilacap Regency. Inclusion criteria include housewives who live in Kedungreja Village, have children aged 0 – 10 years, give antibiotics to children who have experienced diarrhea. Next, respondents will fill out a questionnaire regarding their knowledge and behavior of using antibiotics which has been tested for validity and reliability. The questionnaire consists of 7 questions regarding maternal knowledge and 4 questions regarding maternal behavior. Knowledge consists of definitions,

examples, how to use, how to store, and antibiotic resistance. Behavior consists of experience and compliance in using antibiotics according to doctor's prescription. The collected data will be analyzed using univariate and bivariate analysis using chi square.

RESULTS AND DISCUSSIONS

There were 100 mother respondents with children who had taken antibiotics during diarrhea and met the inclusion criteria. The characteristics of the respondents are shown in table 1.

Table 1. Respondents' characteristic

Characteristic	N	Percentage
Age (year)		
20-25	20	20
26-30	29	29
31-35	23	23
36-40	20	20
> 40	8	8
Educational background		
Elementary	22	22
Middle school	39	39
Senior high	37	37
Bachelor	2	2

Based on Table 1, the majority of respondents in this study were aged 26-30 years. There is a relationship between age factors that influence the level of knowledge in the use of antibiotics, the higher a person's education, the higher the knowledge they have (Yuswantina et al., 2019). Based on research by (Rohmah & Syahrul, 2017), toddler morbidity is influenced, among other things, by the mother's education level. The better the mother's education level, the better the child's health level (Rohmah & Syahrul, 2017).

Table 2. Respodents' knowledge

Level of knowledge	N	%
Good	31	31
Fair	56	56
Poor	13	13

This study measures maternal knowledge through the following questions: definition of antibiotics, definition of antibiotic resistance, types of antibiotics, diseases that receive antibiotic therapy, indicators of antibiotic use, categories of types of antibiotics and storage of antibiotics. The correct answer shows that the respondent has correct knowledge. Knowledge is influenced internal and external factors. Internal factors that influence are work, education and age, while external factors are socio-cultural, individual experience, economics, environment and sources of information obtained. The older the age, the more person's grasping power and thought patterns develop, so that this will influence the wider knowledge and knowledge gained. (Angelina & Tjandra, 2019). Experience in work increases knowledge and skills so that the person's knowledge can develop. The stage in forming a person's knowledge about the side effects of using antibiotics is in the knowing stage, meaning that the respondent has received an explanation and heard the explanation from a pharmacist or doctor, but may still not be able to understand the explanation given properly (Yuswantina et al., 2019).

Table 3. Subject's behavior in using antibiotics

Behavior	N	Percentage
Good	15	15
Fair	16	16
Poor	69	69

In this study, the majority of respondents had bad behavior, 69 respondents (69%). In this study, the behavior measured was the rules for using antibiotics, storing antibiotics, administering antibiotics and how to use antibiotics. According to Azwar's theory in (Deffi et al., 2020), several factors that influence a person's attitude are individual experience, influence from people who are considered important, education and religion, social and cultural, the role of mass media, and emotional influence (Deffi et al., 2020).

Patients do not comply with taking antibiotics because patients feel they have recovered so they do not need to finish antibiotics. The mother usually gives the doctor medicine until the child is felt to be no longer sick or getting better. This action should be a concern if you look at the child's condition and the presence of resistance (Sunarta, 2018).

Lack of knowledge and good behavior indicates that behavior is not based on one's knowledge but behavior can be mediated by individual knowledge. In accordance with the theory, namely predisposing factors which state that knowledge is not enough to change a person's behavior, but awareness of health is necessary before changing behavior.

Table 4. Relationship between knowledge and maternal behavior in the use of antibiotics in children.

Variable		Mother's behavior			p-value
		Good N (%)	Fair N (%)	Poor N (%)	
Mother's behavior	Good	6 (6%)	4 (4%)	21 (21%)	
	Fair	8 (8%)	9 (9%)	39 (39%)	
	Poor	1 (1%)	3 (3%)	9 (9%)	0.831

In the chi square analysis, the value of p = 0.831 (p>0.05) was obtained, indicating that there was no relationship between knowledge and maternal behavior in using antibiotics in children with diarrhea. This research is in line with research conducted by Tamayanti et al (2016) that demographic factors and knowledge of antibiotics are not related to the level of patient adherence to taking antibiotics. Information that is conveyed well can influence patients in using medication, therefore information must be provided continuously by health workers to patients (Tamayanti et al., 2016).

Poor knowledge in parents is due to wrong knowledge regarding antibiotics and causes wrong perceptions to arise which results in incorrect behavior in using antibiotics (Momoh et al., 2022). There are several influencing factors, such as the frequency of administering medication, if someone takes antibiotics every day, it causes saturation so that the patient becomes disobedient and causes inappropriate use of antibiotics (Marsh et al., 2023). This saturation factor also causes parents to feel sorry for their children so they will reduce the dose or stop using antibiotics. Other influencing factors include the patient feeling that he has recovered so he stops treatment and the patient's knowledge level is in the knowing category and has not yet reached the level of understanding (Al-Ayed, 2019). Knowledge is a predisposing factor related to behavior (Mijović et al., 2022). Before someone makes a change in behavior, they must first know the meaning or benefits of that behavior for themselves and their family. Knowledge (cognitive) is very important in shaping a person's actions. If this behavior is not based on knowledge and awareness, it will not last long. Knowledge is the basis for changing a person's behavior so that the behavior will be long lasting (Khasanah & Sari, 2016). One theory states that knowledge is not enough to influence behavior, but forms beliefs and actions (Tamayanti et al., 2016). Mothers are the main caregivers so that mothers' knowledge about antibiotics can reduce the rate of antibiotic resistance due to inappropriate antibiotic use behavior.

CONCLUSION

It can be concluded that the majority of respondents were aged 26 - 30 years with a maximum education level of junior high school. The level of maternal knowledge about antibiotics is dominated by the sufficient knowledge category (56%) and the majority of mothers' behavior in using antibiotics is in the poor behavior category (69%). Based on chi square analysis, the value of p = 0.831 (p>0.05) was obtained, which indicates that there is no relationship between mother's knowledge and behavior in using antibiotics in children with diarrhea. The research was carried out during the Covid-19 pandemic so it was only carried out in a limited area and sample size. Further qualitative research can be continued to find out the causes or reasons for the use of antibiotics

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