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Determinants of father's knowledge about giving fluids when children have diarrhea

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ABSTRACT

In Indonesia, diarrhea is the second leading cause of death for children aged 29 days-11 months (14% of deaths), and the main cause of death in the group under five is 10. 3% of deaths. The study aimed to analyze the determinants of the father's knowledge regarding giving fluids when children have diarrhea. This study was an analytical quantitative method with a cross sectional-design using secondary data in the form of the Indonesian Health Demographic Survey (SDKI) 2017. Involved 2.683 respondents selected by stratified sampling and data collection using the SDKI questionnaire. Data analysis using logistic regression test. The results showed that the percentage of fathers who knew about the number of fluids given when their children had diarrhea in Indonesia in 2017 was 65.7%. Economic status and education level had a significant relationship with the father's knowledge (p-value < 0.05). Economic status is the most related factor to the father's knowledge (p-value < 0.001; OR 3.557 (2.371-5.337), after being controlled by other factors. Father's age and residence are confounding factors. Considering that economic status and education level affected the father's knowledge, diarrhea management needs to be accompanied by interventions to improve the father's economic status and education access.

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INTRODUCTION

Diarrhea is a major problem for the health of children in the world, especially in developing countries. According to WHO data 2017, cases of diarrhea in children per year are approaching 1.7 billion cases. Diarrhea is the main cause of death for children under 5 years old with the death of around 525.000 children every year. This places diarrhea as the second most common cause of child mortality in the world (1). According to Riskesdas 2018 data, the prevalence of diarrhea in children under five in Indonesia is 11%. In 2021, diarrhea will be the second leading cause of death in the post-neonatal period, which is 14% of deaths. Diarrhea also causes the most deaths in the group of children under five (12-59 months) which is 10.3% (2).

The most serious threat posed by diarrhea is death due to dehydration. During diarrhea, water and electrolytes are wasted through liquid feces, vomit, sweat, urine, and breath steam. Lack of fluids can occur when this loss of fluids and electrolytes is not

rehydrated immediately (1). WHO recommends 5 main treatments for diarrhea namely: rehydration, zinc supplements, nutrition, selective antibiotics, parent/caregiver education, and Adequate Rehydration Oral Rehydration Therapy (ORT). Rehydration in conditions without dehydration is the administration of ORS solution with low osmolarity. ORS for diarrhea patients without dehydration is given as much as 10 ml/kg BW per defecation (3).

Health education to parents/caregivers in the form of giving fluids and medicines at home, recognizing signs and symptoms that require toddlers to be brought back to health workers, and how to prevent diarrhea from recurring. The provision of health education, especially regarding oral rehydration is very important to prevent dehydration. Parental knowledge about diarrhea, whether related to diarrhea problems or how to deal with diarrhea, can reduce mortality in children who lack fluids and electrolytes due to diarrhea (4).

In Indonesia, patriarchal culture is still developing and strong in coloring aspects of people's lives. Patriarchy can be found in various aspects and scopes, such as economics, education, politics, and even law(5). The patriarchal culture in Indonesia places the role of fathers as decision-makers in the family, including decisions on child health. Research findings related to the importance of the father's role in health decisions include finding a close relationship between the active role of the father and the participation of toddlers aged 2-24 months in the implementation of DPT immunization in Pace Village, Silo District, Jember Regency(6) In another study, it was found that in children under five who had pneumonia, 71.4% of fathers had a less important role in parenting (7). Noting the father's central role in health decision-making, the father's knowledge about giving fluids when a child has diarrhea is important to note to prevent cases of dehydration. Based on several previous studies, factors related to parental knowledge about children's health include age, education, and economic status (8). Other studies have shown differences in health knowledge among people living in rural and urban areas (9). Previous studies related to parental knowledge about children's health were more focused on mothers' knowledge. Therefore, the researcher intends to analyze the determinants of the father's knowledge about giving fluids when his child has diarrhea.

METHOD

This study was an analytical quantitative method with a cross sectional-design using secondary data in the form of the Indonesian Health Demographic Survey (SDKI) 2017. The SDKI is survey data jointly conducted by the Central Statistics Agency (BPS), the National Population and Family Planning Agency (BKKBN), and the Indonesian Ministry of Health. Funding for the survey was provided by the Indonesian government plus assistance from the United States Agency for International Development (USAID). The population is all men aged 15-49 years in 34 provinces in Indonesia who were successfully collected by the SDKI team using the SDKI questionnaire. The sampling design used was two stratified stages. The sample of this study amounted to 2,683 respondents who were selected based on inclusion criteria, namely married men aged 15-49 years having children born 3 years before the survey, missing data became the exclusion criteria.

The independent factors in this study were age, area of residence, education, and economic status. The dependent factor in this study was the father's knowledge about giving fluids when the child had diarrhea. The father's knowledge about giving fluids when his child has diarrhea is that the father knows that the fluid given when the child has diarrhea must be more than healthy. This knowledge is divided into 2 categories, the "Know" category, which is if the father knows that the fluid given when the child has diarrhea must be more than usual, and the "don't know" category, where the father states that the child with diarrhea is given the same amount of fluid as usual, less than usual, nothing to drink, don't know.

Age is the age of the respondent which is divided into 4 categories, namely 45-54 years, 35-44 years, 25-34 years, and 15-24 years. The area of residence is where the

respondent lives, divided into 2 categories, the urban, namely respondents living in urban areas, and the rural, namely respondents living in rural areas. Education level is the respondent's last formal education level, this level of education is divided into 3 categories, low (no school, did not graduate from elementary school, and graduated from elementary school), middle (graduated from junior high school, did not graduate from high school and graduated from high school) and high (university). The economic status of the respondents, seen from wealth quintiles, is divided according to household scores based on the number and type of goods owned and based on housing characteristics according to the 2017 SDKI data management calculations. This economic status is categorized into 5 categories, namely very rich, rich, middle, poor, and very poor. The categorization of the variables of the father's knowledge, area of residence, and economic status in this study conforms to the categorization conducted by SDKI. As for the categorization of age and level of education, the authors summarize the categories with the consideration that these categories represent variations of each variable.

Data analysis using SPSS 26.0 for windows. Univariate and bivariate analysis used a simple logistic regression test to analyze the relationship between the independent factor and the dependent factor. Multivariate analysis using multiple logistic regression the test predictive model to analyze the independent factor that has the most dominant influence on the dependent factor.

RESULTS

The results of the study were obtained from secondary data from the 2017 SDKI with the research subject being married men aged 15-49 years having children born 3 years pre-survey. Characteristics of respondents can be seen in the following table:

Table 1. Characteristics of Respondents (N=2683)

Variable	Percentage %
Age	
15-24	7.5
25-34	47.3
35-44	37.2
45-54	8.1
Type of Place	
Urban	48.7
Rural	51.3
Education Level	
High	16.1
Middle	57.1
Low	26.2
Economic Status	
Very Rich	16.8
Rich	18.2
Middle	19.0
Poor	20.2
Very Poor	25.8

Table 1 shows that most of the respondents are aged 25-34 years, which is 47.3%. Most respondents (51.3%) live in villages, and as many as 57.1% of respondents have secondary education. In terms of economic status, most respondents have very poor economic status, which is 25.8%.

Table 2. The Percentage of Father's Knowledge About Giving Fluids When Children Have Diarrhea (N=2683)

Fluid Administration	Percentage %
Know	**65.7**
More	65.7
Don't Know	**34.3**
About the same	22.7
Less than usual	2.9
Nothing to drink	0.4
Don't Know	8.3

Table 2 above shows that the percentage of fathers who know that their child with diarrhea should be given more fluids based on the 2017 SDKI data is 65.7%.

Table 3. Bivariate Analysis of Father's Knowledge of the Number of Fluids Given When Children Have Diarrhea (N=2683)

Variable	Know	Don't know	P-Value	PR (95% CI)
Percentage	**%**	**%**		
Father's Age				
45-54	69.0	31.0	<0.044	5.049 (3.582-7.117)
35-44	67.3	32.7		1,812 (1.103-2.975
25-34	65.5	34.5		1.671 (1.134-2.461
15-24	55.2	44.8		1.542 1.059-2.245)
Type of Place				
Urban	71.8	28.2	<0.001	1.197 (1.117-1.283
Rural	60.0	40.0		
Education Level				
High	81.7	17.3	<0.001	3.764 (2.728-5.194)
Middle	66.1	33.9		1,537 (1.221-1.933)
Low	55.9	44.1		
Economic Status				
Very Rich	83.1	16.9	<0.001	5.049 (3.582 – 7.117)
Rich	72.5	27.5		2,705 (1.983 – 3.690)
Middle	66.8	33.2		2.072 (1.531 – 2.804)
Poor	56.7	43.3		1.349 (1.015 – 1.792)
Very Poor	49.3	50.7		

Table 3 shows that age, area of residence, education level, and economic status, have a significant relationship with the father's knowledge about giving the number of fluids when the child has diarrhea (p-value <0.05).

Table 4. Multivariate Analysis of Father's Knowledge of Giving Fluids When Children Have Diarrhea (N=2683)

Variable	P-Value	OR (95% CI)
Age	0.160	
45-54		1.642 (0.958 - 2.815)
35-44		1.442 (0.968 - 2.108)
25-34		1.247 (0.852 - 1.826)
15-24		
Type of Place	0.551	
Urban		1.071 (0.854 - 1.1343)
Rural		
Age	0.001	
High		2.062 (1.422 - 2.990)
Middle		1.692 (1.235 - 2,318)
Low		

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Variable	P-Value	OR (95% CI)	
Economic Status	0,001		
Very Rich		3.557	(2.371 - 5.337)
Rich		2.735	(1.853 - 4.037)
Middle		1.888	(1.291 - 2.760)
Poor		1.531	(1.064 - 2.202)
Very Poor			

Table 4 above shows that from the results of the multivariate analysis, it was found that 2 variables affect the father's knowledge, namely economic status, and the father's education level. Meanwhile, the father's age factor and the father's place of residence were not statistically significant (p-value > 0.05).

Based on the results of multivariate analysis, compared to other factors, the most influential factor on the father's knowledge about giving the number of fluids when a child has diarrhea seen from the highest Odd Ratio (OR) is the father's economic status factor. The effect of the level of economic status can be seen from the value of the Odd Ratio (OR) which is 3.557 (2.371-5.337).

DISCUSSION

The most influential economic factor is the father's knowledge. The results of this study indicate that fathers with very rich economic status are 3.557 times more likely to know about giving fluids when their children have diarrhea than fathers with very poor economic status. Fathers with poor economic status have a 2.7 times higher chance of knowing, middle-income fathers have a 1.9 times higher chance of knowing and rich fathers have a 1.5 times higher chance of knowing than fathers with very poor economic status. This shows that the higher the economic status of the father, the greater the opportunity to know about the amount of fluid given when the child has diarrhea. In theory, people with high economic levels will have greater opportunities to access education, are easier to receive information, and the more knowledge they have so that they will pay attention to the health of themselves and their families (10). This is in line with previous research regarding the relationship of economic status to the level of knowledge entitled Relationship of Family Economic Status to the Level of Knowledge of Parents regarding Maintaining Dental and Oral Health in Talang Kelapa Village. The results showed that there was a significant relationship between family economic status and parental knowledge. The higher the education of parents, the higher the knowledge about dental and oral health (11).

The results of this study indicate that the second significant variable in influencing a father's knowledge is the level of education. Fathers with higher education have a 2 times higher chance of knowing, and fathers with secondary education have a 1.7 times higher chance of knowing about giving fluids to children with diarrhea compared to fathers with low levels of education. This means that the higher the level of education of the father, the greater the opportunity to know about giving the number of fluids when the child has diarrhea. According to the theory, a factor that has a strong influence on knowledge is the level of education, because someone with higher education can give a more rational response to the information received and will think about the extent of the benefits that someone gives to the development of others in achieving certain goals(12). This is in line with several previous studies which show that in general the level of education will increase health knowledge. In a study regarding the relationship between education level, age, and tenure with the level of knowledge of dental and oral health in elementary school health and health teachers in Tampak Siring District, Gianyar. The Spearman correlation test shows the number 0.037 which means that there is a relationship between the level of education and the level of knowledge of dental health (13). Another previous study was about the relationship between the level of public education and knowledge in the use of oral antibiotics in the pharmacy in the district of Koto Tangah, Padang. The results of the Spearman correlation test show the number 0.53, which means it is strongly related, the

higher the level of education, the higher the knowledge of the use of antibiotics (14). Another research related to this is the Relationship between Education Level and Community Knowledge Level in Sumberan Sedayu Hamlet, Bantul regarding Covid-19 Prevention in January 2021. The Kendall's-tau test that has been carried out, shows the value of Sig. (2-tailed) obtained <0.001 means that there is a significant relationship between education level and community knowledge level in Sumberan Sedayu Hamlet, Bantul about Covid-19 prevention. The closeness of the relationship is shown by the correlation coefficient value of 0.413 which is included in the sufficient category, meaning that the relationship between the level of education and the level of knowledge of the community in Sumberan Sedayu Hamlet, Bantul regarding the prevention of Covid-19 is quite close(15).

Based on the explanation above, it can be concluded that the level of education is an influential factor in the father's knowledge about giving fluids to children with diarrhea. This is because, in the process of education, fathers will read, discuss, give and receive various kinds of information, including children's health information. Besides, the higher the level of education of a person, the ability to access, process, and receive information will increase, this is what then increases his knowledge.

The area of residence is a factor that in this study did not significantly influence the father's knowledge about giving the number of fluids when the child had diarrhea (p-value > 0.05) but the factor of residence was a confounding factor because if it was removed from the model it would cause a change in the OR of more than 10 %. This finding is not in line with previous research entitled Differences in Knowledge and Attitudes of Urban and Rural Communities towards the Covid-19 Corpse Protocol. Based on the results of this study, the majority of urban people have a level of knowledge of the COVID-19 corpse protocol which is in the high category while rural communities are in the medium category (16). There is no significant relationship between the knowledge of fathers who live in cities and villages, one of which is due to the increased use of information and communication technology, thus increasing opportunities for exposure to health information in both urban and rural communities. Based on data on the number of internet users in 2017 it has reached 143.26 million people or equivalent to 54.68 percent of the total population of Indonesia. This number shows an increase of 10.56 million people from the survey results in 2016 (17).

The second factor that does not have a significant effect but is a confounding factor in the father's knowledge about giving the number of fluids when a child has diarrhea is the age of the father. This is not in line with previous research entitled The Relationship between Age and Education Levels on Knowledge of Antibiotic Use in Sidorejo Kidul Village. The results showed a significant value of 0.018 <0.05, which means that there is a significant relationship between age and level of knowledge (18). Older fathers have longer learning time and more experience, but younger fathers are quicker to access information from currently available sources. This is following the results of the 2020 Indonesian digital literacy survey which found that the Digital Literacy Index correlates with younger age(19)

The implementation of the results of this study is by knowing the determinants that have a significant effect on a father's knowledge in giving fluids during diarrhea, it can be determined which determinants need to be modified so that knowledge increases and dehydration in children due to diarrhea can be prevented. The limitation of this study is that the variables are limited to the survey results conducted by the SDKI. Some variables are theoretically influential but are not in the dataset. Besides that, the results of this study are still in the form of quantitative findings, so they need to be followed up with qualitative research to be able to explain the determinants of fathers' knowledge about giving fluids to children with diarrhea in more depth.

CONCLUSION

Factors that have a significant relationship with the father's knowledge about giving the number of fluids when a child has diarrhea in Indonesia; are economic status and education level of the father. The area of residence and the age of the father did not have a significant

relationship. Economic status is the most dominant factor related to the father's knowledge about giving the amount of fluid when a child has diarrhea in Indonesia. Fathers with very rich economic status had a 3.557 times higher chance of knowing about giving fluids when their children had diarrhea than fathers with very poor economic status after controlling for other factors (education level, area of residence, and age). The area of residence and the age of the father are confounding factors in the father's knowledge about giving fluids to children with diarrhea.

Given the large influence of economic status and education on the father's knowledge about giving the number of fluids when a child has diarrhea, the effort to treat diarrhea is not enough with the 5 steps of diarrhea management recommended by WHO. In these 5 steps of management, health education is given to families regarding the handling of children with diarrhea, including the provision of fluids. However, in the long term, interventions are needed to improve the economic status and access of fathers to education. Of course, this requires cross-sectoral collaboration that needs to be initiated by the Ministry of Health to deal with diarrhea problems and improve children's health.

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