



THE RELATIONSHIP BETWEEN PARENTS' KNOWLEDGE LEVEL AND RATIONALITY OF DRUG USE IN DRUG SELF-MEDICATION MANAGEMENT IN CHILDREN WITH FEVER IN PULOMERAK BANTEN

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Abstract- Fever in children is a common condition, especially in children under 5 years of age. Parents have an important role in handling children when they have a fever. Different knowledge of mothers will result in different management of fever in children. Self-medication measures for fever in children vary greatly in the community, some are not yet able to do self-medication because there are very high concerns such as fear of seizures and others. There are also those who have been able to do self-medication with physical therapy or drugs (antipyretics), but rationality in using fever medicine for children can be good and it can be bad. Pulomerak sub-district, Banten. Methods: Analytical observational study with a cross-sectional approach. The results of the research number of respondents in this study were 44 mothers with an average age of mothers was 32.68 ± 7.087 . Most of the respondents have low education (45.5%). Most of the respondents' occupations were housewives (31.8%) and most of the family income was above the minimum wage. It was found that 52% of the respondents had low knowledge about fever and it was found that 50% of the total respondents had good and bad management of fever. Based on the results of the Chi square test, it was found that the value of $p = 0.002$ and the prevalence ratio was 7.0 (1.1 to 46.2) so that it can be concluded that there is a significant relationship between the level of knowledge of mothers about fever and the management of fever in children.

Keywords: *Parental Knowledge, Rationality and Self-medication*

1. INTRODUCTION

Fever is an increase in body temperature above normal. When rectally $>38^{\circ}\text{C}$ (100.4°F), when measured orally $>37.8^{\circ}\text{C}$, and when measured via the axilla $>37.2^{\circ}\text{C}$ (99°F). In principle, fever can be beneficial and can also be detrimental. At a certain level, fever is part of the body's defenses which is beneficial because it arises and persists as a response to an illness. However, a body temperature that is too high will also be harmful to the body (Herayati, Agus Rochmat 2022)

Fever in children is a common condition, especially in children under 5 years of age. Parents have an important role in handling children when they have a fever. Different knowledge of mothers will result in different management of fever in children (Chipwaza et al. 2014). Fever in children can generally be treated with self-medication. Management of fever in children can be in the form of self-management, carried out through physical therapy, drug therapy or a combination of both which can be called self-medication. It could also be that if the fever is very high and so serious, the management is usually in a non-self-management way that relies on treatment from medical personnel

Self-medication measures for fever in children vary greatly in the community, some are not yet able to do self-medication because there are very high concerns such as fear of seizures and others. There are also those who have been able to do self-medication with physical therapy or drugs (antipyretics), but rationality in using fever medication in children can be good or bad. Therefore, researchers wanted to see the relationship between the level of parental knowledge and the rationality of using fever medication in self-medication for fever in the Pulomerak sub-district, Banten.



A. Self-medication

Self-medication or self-medication is often done by the community. Self-medication is an effort to treat diseases by buying drugs without a doctor's prescription, usually done for minor complaints and ailments. In self-medication, it is better to follow the requirements for rational drug use. Drug use is said to be rational if the patient receives the drug according to his needs, for an adequate period of time and at the cheapest price for the patient and society. Therefore, in self-medication, good knowledge is needed so that self-medication can run properly (Sambakunsi et al. 2019). namely the right diagnosis, the right indication of disease, the right drug selection, the right dose, the right method of drug administration, the right time interval for drug administration, the right time for drug administration, the right assessment of the patient's condition, the right information, the right follow-up, the right delivery drug (dispensing) and drug given must be effective and safe with guaranteed quality (Chairulfalah and Nurliana 2022). Self-medication measures for fever in children vary greatly in the community, some are not yet able to do self-medication because there are very high concerns such as fear of seizures and others. There are also those who have been able to do self-medication with physical therapy or drugs (antipyretics), but rationality in using fever medication in children can be good or bad (Abduelkarem et al. 2019). Therefore, researchers wanted to see the relationship between the level of parental knowledge and the rationality of using fever medication in self-medication for fever in the Pulomerak, Banten.

B. Fever

The International Union of Physiological Sciences Commission for Thermal Physiology defines fever as a state of elevated core temperature, which is often (but not supposed to be) part of the host's defensive response to invasion by microorganisms or inanimate objects that are pathogenic or considered foreign by the host. El Rahdi defines fever pathophysiologically and clinically. Pathophysiologically, fever is an increase in the thermoregulatory set point of the hypothalamic center mediated by interleukin-1 (IL-1). While clinically fever is an increase in body temperature of 1 C or greater above the normal average temperature value. This is achieved physiologically by minimizing heat loss and heat production. Body temperature is influenced by individual and environmental factors including age, gender, physical activity and ambient air temperature (Yuniar, Chairulfalah, and Nurliana 2022). Therefore, there is no single value for normal body temperature one of the self-medication drugs is fever medicine. Fever is a condition where the body temperature is above normal, which is above 38 C. In principle, fever can be beneficial and can also be detrimental. At a certain level fever is part of the body's defense which is useful because it arises and persists in response to a disease. But a body temperature that is too high will also be dangerous. Symptoms of fever usually occur in almost all cases of infection and inflammation. But for most fevers, giving paracetamol is more recommended than aspirin and ibuprofen. Accuracy in choosing fever medication is needed, because if an error occurs in administering the drug it can be dangerous for the patient (Astrid Mukemo et al. 2020; Mukattash et al. 2019; Pavydè et al. 2015).

Practically, drug use is said to be rational if it meets the following criteria:

- a) Correct Diagnosis The use of drugs is called rational if it is given for the right diagnosis. If the diagnosis is not established correctly, then drug selection will be forced to refer to the wrong diagnosis. As a result, the drug given will also not be in accordance with the indication it should be.
- b) Appropriate Indication of Disease Each drug has a specific therapeutic spectrum. Antibiotics, for example, are indicated for bacterial infections. Thus, administration of this drug is only recommended for patients who give symptoms of a bacterial infection.
- c) Right Selection of Drugs The decision to carry out therapeutic efforts is taken after the diagnosis is properly established. Thus, the drug chosen must have a therapeutic effect according to the spectrum of disease.



- d) Correct Dosage Dosage, method and duration of drug administration are very influential on the therapeutic effect of drugs. Excessive dosing, especially for drugs with a narrow therapeutic range, Rational Drug Use Training Curriculum (POR) | 5 will be very at risk of side effects. Conversely, a dose that is too small will not guarantee the achievement of the expected therapeutic levels.
- e) The right way to give the drug Antacids should be chewed first and then swallowed. Likewise, antibiotics should not be mixed with milk, because they will form bonds, so they cannot be absorbed and reduce their effectiveness.
- f) Appropriate Time Interval Administration The method of drug administration should be made as simple and practical as possible, so that it is easily obeyed by patients. The more often the frequency of drug administration per day (for example 4 times a day), the lower the adherence to taking medication. Medicines that must be taken 3 times a day must be interpreted that these drugs must be taken at intervals of every 8 hours.
- g) Correct information Correct and correct information on drug use is very important in supporting the success of therapy Curriculum for Rational Drug Use Training (POR) | 7 For example: - Prescription of rifampicin will cause the sufferer's urine to be red. If this is not informed, the patient will most likely stop taking the drug because he suspects that the drug causes urine accompanied by blood. Whereas for tuberculosis sufferers, therapy with rifampicin must be given in the long term. - Prescribing antibiotics must be accompanied by information that the drug must be taken until it runs out during one treatment period (1 course of treatment), even though the clinical symptoms have subsided or completely disappeared. The time interval for taking the medicine must also be right, if 4 times a day means every 6 hours. For antibiotics this is very important, so that drug levels in the blood are above the minimum levels that can kill disease-causing bacteria.
- h) k. Appropriate follow-up (follow-up) When deciding on therapy, the follow-up efforts that are needed must be considered, for example if the patient does not recover or experiences side effects. For example, therapy with theophylline often produces tachycardia. If this happens, the dosage of the drug needs to be reviewed or the medicine may be replaced. Likewise in the management of anaphylactic shock, the second injection of adrenaline needs to be done immediately, if the response to the first cardiovascular circulation has not been as expected.

C. Management Self

a) Physical Therapy

Management of fever through physical therapy is an effort made to reduce fever by providing certain actions or treatments independently. The simplest action that can be taken is to try to get the child to sleep or rest so that his metabolism decreases. In addition, the fluid level in the child's body must be sufficient so that electrolyte levels do not increase when evaporation occurs. Providing good airflow, forcing the body to sweat, and directing heat elsewhere will also help lower body temperature. Removing heavy clothing/blankets is beneficial as it promotes radiation and evaporation (Auta 2012; K. A. Oshikoya et al. 2007). Giving a warm compress with a water temperature of 29.5°C-32°C (tipid-sponging) can provide a signal to the hypothalamus and stimulate peripheral blood vessel vasodilation. This causes heat dissipation through the skin to increase resulting in a decrease in body temperature to normal again. Giving warm compresses is done if the temperature is above 38.5 C and has taken antipyretics half an hour before. Cooling with ice water or alcohol is of little use because it actually causes vasoconstriction, making it difficult for heat to be transferred either through evaporation or radiation mechanisms. In addition, compresses with alcohol will be absorbed by the skin and can cause coma if inhaled. According to research by Kazeem et al, about 60% of parents use antipyretics (Zhou et al. 2021)



b) Drug Therapy

One of the efforts that parents often make to reduce their child's fever is antipyretics such as paracetamol, ibuprofen, and aspirin. to lower the child's body temperature so that it returns to normal. According to research conducted by Crocetti et al, found 27% of people. The way antipyretics work is by lowering the set-point in the brain through preventing the formation of prostaglandins by inhibiting the cyclooxygenase enzyme so that the skin's blood vessels dilate and expel heat improved. However, you need to be careful because administering this drug can have a masking effect, for example in patients with dengue hemorrhagic fever. In these patients, the decrease in fever due to antipyretics seems to indicate that the disease has been cured, even though in fact the virus that causes the disease is still there (Eldalo, Yousif, and El-Hadiyah 2013). Another phenomenon that often occurs is when mothers do not feel antipyretic from one antipyretic, they will tend to choose another antipyretic. According to research conducted by Dawood et al, around 80.7% of parents already know the right drug to give to reduce a child's fever. But not all mothers understand the limits of the right antipyretic dose for their children.

D. Factors influencing knowledge

a) Education

Education can bring one's insight or knowledge. Education affects the learning process. The higher a person's education, the easier it is for that person to receive information. The more information that comes in, the more knowledge is gained. Knowledge is very closely related to education where a person with higher education will have wider knowledge. However, it should be emphasized that a person with low education does not necessarily mean that he has low knowledge (Aulia, Wijaya, and Nuratri 2022).

b) Experience

Experience is a source of knowledge or a way to find out the truth of knowledge by repeating the knowledge obtained in solving problems encountered in the past. In this case, the knowledge of mothers of children who have had or even often have fever should be higher than the knowledge of mothers of children who have never had a fever before (Khotimah et al. 2022).

c) Age

The more old, the level of ability and maturity of a person will be better in thinking and receiving information. However, it should be noted that providing or purchasing information resource facilities. An older person does not absolutely have more knowledge

d) Residence

Residence is the place where the respondent lives on a daily basis. Someone who lives in an area prone to infectious diseases will find cases of fever more often, so people in those areas have a higher level of alertness (K. A. Oshikoya et al. 2007).

e) Jobs

The work environment can make a person gain experience and knowledge either directly or indirectly. For example, someone who works as a medical worker will understand more about fever and its management than a non-medical worker (Lipstiani and Rahmawati 2022).

f) Economic level

Economic level does not directly affect one's knowledge. The higher the economic level, the more capable it will be for external factors

2. METHOD

A. Type of Research

This research is a correlational study with a cross-sectional research design, which is a type of research to study the dynamics of the correlation between risk factors and their consequences, by way of question and answer, observation or data collection at one time. Therefore each research



subject was only observed once during the examination, this does not mean that all research subjects were observed at the same time (Irawan, Nasiatin et al. 2020; Yulifa et al. 2021; Zuniawan et al. 2020)

B. Validity test

The validity test was carried out in Pulomerak District, Banten with 50 respondents. As for the results of the validity test of the knowledge questionnaire instrument, it was obtained that the question item which was declared invalid was no. 8 with the value of r count \leq the value of r table (0.279). Action questionnaires with question items that were declared invalid were 7 and 8. Based on the results of the validity test, each questionnaire was not used in the test (Zuniawan et al. 2020).

C. Reliability test

The results of the instrument reliability test on the knowledge and attitude questionnaire obtained the calculated values of 0.798 and 0.676. while the reliable Cronbach alpha value is 0.6 so that it is declared reliable.

3. RESULTS AND DISCUSSION

A. Univariate Test

Data collection for this research took about seven days, from February 2018, the data collected was primary data obtained directly from respondents through research questionnaires with a total of 50 respondents who were conducted in Pulomerak District, Banten. The data that has been collected is then processed through tabulations to statistical tests with the help of statistical computer programs. This analysis is presented in the form of a frequency distribution or the number of proportions and presentations of each category of each variable that is of concern in this study. The presentation of data in univariate analysis is presented as follows:

Table 1. Frequency distribution of respondents based on age level

No	Age responden (Years)	Amount	Persentase (%)
1.	20 - 24	4	8
2.	25 - 29	18	36
3.	30 -34	10	20
4.	35 - 39	11	22
5.	40 -44	5	10
6.	45 - 49	2	4
Total		50	100.0

Based on table 1. it shows that the most respondents are around the ages of 25-29 as many as 36 respondents (36%), with a maximum age of 49 years and a minimum age of 20 years.

Research data based on mother's education level, presented in the following table:

Table 2. Frequency Distribution of Respondents Based on Last Education Level

NO	Level of education	Amount	Persentase (%)
1	SD	8	16
2	SMP	15	30
3	SMA	17	34
4	College	10	20
Total		50	100

Based on table 2. it shows the education level of the respondents based on the most recent



educational background with tertiary education, namely as many as high school respondents (34%).

Table 3. Frequency Distribution of Respondents Based on Mother's Knowledge of Fever Medicines

No	Knowledge	Amount	Persentase (%)
1	Good	32	64
2	Not Enough	18	36
Total		50	100

Based on table 3. it is explained that most of the mothers' knowledge of fever medicines showed insufficient knowledge and as many as 18 respondents (36%) and the rest had good knowledge.

Table 4. Frequency Distribution Based on the rationality of using self-medication for fever medicines in children

No	Attitude	Amount	Persentase (%)
1	Good	24	48
2	Not Enough	26	52
Total		50	100

Based on table 5.4, it is explained that most of the respondents have rationality for treating fever in children as many as 24 respondents (48%).

B. Bivariate Analysis

Bivariate analysis was performed using the chi-square test which aimed to determine whether there was a statistically significant relationship between the variables of mother's knowledge of fever medication and the rationality of self-medication for fever medication in children (Alhomoud et al. 2017; Aoyama, Koyama, and Hibino 2012). The results of the statistical test analysis can be seen in the following table:

Table 5. The relationship between mother's knowledge of fever and the rationality of fever medication in children

Knowledge	Attitude				Total		OR	P Value
	Not Enough		Good		n	%		
	N	%	N	%				
Not Enough	16	89	2	11	18	100	16,667	0,000
Good	10	31	22	69	32	100		
Amount	26	52	24	48	50	100		

The results of the analysis of the relationship between knowledge and the rationality of self-medication for children's fever medicine obtained data that lacked knowledge with a good attitude of 2 (11%), while good knowledge with good rationality obtained data of 22 (69%).

Table 6. Correlations

		KNOWLEDGE	MANAGEMENT OF CHILD FEVER
Knowledge	Pearson Correlation	1	0,757**
	Sig. (2-tailed)		0,000
	N	50	50
Management Of Child Fever	Pearson Correlation	0,757**	1
	Sig. (2-tailed)	0,000	
	N	50	50

** . Correlation is significant at the 0.01 level (2-tailed).

The results of the statistical test obtained a value of $p = 0.000$, so it can be concluded that there is a significant relationship between knowledge and self-medication for fever medicine during pregnancy. The results of the analysis of this study obtained $OR = 16.667$, meaning that knowledge has a 16.667 chance of being able to influence the rationality of fever medicine in children. So to increase the number of rational self-medication use of fever medicine in children in the Banten area, it is necessary to provide counseling that increases knowledge about self-medication rationality of use of fever medicine. (Herayati, Agus Rochmat 2022; Kazeem A. Oshikoya, Senbanjo, and Njokanma 2009; Yu et al. 2014)

4. DISCUSSION

The height of the fever is measured by placing the thermometer rectally, in the mouth, in the ear, and also in the axilla for one minute and then reading it immediately. Oral temperature measurement is safe and can be done in children over 4 years of age because they can work together to hold the thermometer in their mouth. This measurement is also more accurate than the axillary temperature. Measurement of axillary temperature is easy to do, but it only describes the peripheral temperature of the body which is heavily influenced by vasoconstriction of blood vessels and sweat, so it is less accurate. Rectal temperature measurement is quite accurate because it is closer to the actual body temperature and is the least affected by ambient temperature, but the examination is not comfortable for children (Mukattash et al. 2019). While measuring temperature through the ear (infrared tympanic) is not recommended because it can give inaccurate results because the child's ear canal is still narrow and wet. Checking body temperature by touching the hands is actually not recommended because it is not accurate so one cannot know quickly if the temperature reaches a dangerous level. Measurement of core body temperature which is the actual body temperature can be done by measuring the temperature in the throat or pulmonary arteries. However, this is rarely done because it is too invasive. (Aulia, Wijaya, and Nuratri 2022; Eldalo, Yousif, and El-Hadiyah 2013)

Although parents are concerned about their child's high temperature, Fisher's research revealed that not all have a thermometer at home (38%-44%). However, owning a thermometer also cannot be used as a benchmark for the ability to read temperature accurately. Only a fraction. older people (30% to 46%) who can read temperature accurately. There has been research on the variables that influence the inability of parents to check their child's temperature accurately (Lipstiani and Rahmawati 2022). Low socioeconomic status and not owning a thermometer are predicted to be the cause of the inability to accurately read a thermometer. This is corroborated by Porter and Wegner's research. From the research conducted by Porter and Wegner, it was found that the mother's age, education level, and socioeconomic status were predicted to increase the accuracy of body temperature readings (Alhomoud et al. 2017).

Examination of the general condition, diagnosis of fever to determine treatment not only based on the high temperature, but also the general condition of the child. If the child is uncomfortable or restless,



fever needs to be treated immediately. Examination of the general condition can determine whether the patient is classified as toxic or not toxic. McCarthy developed the Yale Observation Scale for assessing toxic children. This rating scale consists of six criteria in the form of: evaluating how to cry, reactions to parents, variations in circumstances, social responses, skin color, and hydration status. Each item is given a value of 1 (normal), 3 (moderate), 5 (severe). Children who have a score of more than 16 can be said to be suffering from a serious illness (Aina and Binteriawati 2022)

Further impact of child fever, Basically, fever can be beneficial or detrimental. Some research evidence shows that the defense function of the human body works better at fever temperatures than normal temperatures. However, during a fever there will be an increase in the body's metabolism which makes the child very uncomfortable and dehydrated due to increased evaporation of body fluids (Aoyama, Koyama, and Hibino 2012; Yu et al. 2014). Fever with an increase in body temperature that is too high requires vigilance because it can have adverse effects such as an increased risk of febrile seizures, especially in children under 5 years. In addition, fever above 41 C can cause hyperpyrexia which is very dangerous because it can cause various changes in metabolism, physiology, and finally damage to the central nervous system. At first the child seemed to become restless with headaches, dizziness, seizures, and eventually became unconscious. Coma occurs when the temperature is >43°C and death occurs within hours when the temperature is 43°C to 45°C.

5. CONCLUSION

Based on the research results from univariate and bivariate analysis in this study, the researchers can conclude that there is a significant relationship between mother's knowledge of fever and self-medication rationality for the use of fever medication in children. It is suggested to researchers that this research should be discussed more broadly in connecting some supporting data such as age, gender and education.

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