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Original Research Article

The effect of health education to parent's behaviours on managing fever in children

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ABSTRACT

Background: Fever is one of the common signs that indicate the changes in the body. Generally, parents will do some aggressive actions in dealing with febrile children at home, especially in the use of antipyretic drugs that are not required by the body. The aim of this study is to describe the effect of health education on knowledge, attitude, and action of parents in managing fever of children in Pariaman's General Hospital. The results of this research can be considered as one of the interventions in the treatment of children in hospital.
Methods: The study design is a quasi-experimental with nonequivalent control group approach. Samples are parents who have children with fever sign that were treated in Pariaman's General Hospital, West Sumatera, Indonesia. Samples were taken by a purposive sampling technique that is in accordance with the criteria set by the researchers. The samples were divided into two groups: the intervention and control groups. Health education about fever was given into intervention groups. In the control groups they received standard care from hospital. The data was collected by questionnaire, that consist of questions about knowledge, attitude an action of parent toward fever in their children. The data statistical was analyzed with independent t test.
Results: There are significant differences on knowledge score (p value: 0.009), attitude (p value: 0:03) and action (p value: 0002) of parents between the intervention group and the control group.
Conclusions: Therefore, it is expected that health workers and nurses can provide education / health education to parents about fever management in children.

Keywords: Fever, Fever management, Health education

INTRODUCTION

The decrease in infant and child mortality is one of the priorities and the healthy Sustainable Development Goals targets (SDGs) 2015. The achieved target in the SDGs is the reduction of the death rate of children under five years to two-thirds.[1] According to the World Health Organization, each year, nearly 10 million children died before their 5th anniversary. Generally, the mortality rate in infants and under five children is caused by five conditions that can be prevented and treated, namely: pneumonia, diarrhea, malaria, measles and malnutrition. The child's response against this condition varies, depending on the ages and stages of child development, one of which is a fever.[1]

Increased temperature that cannot be tolerated by children or that more than 41°C and left untreated, can cause brain damage in the future (secondary brain damage) which can trigger febrile fever.[2,3] A child who shows the risk of secondary brain damage should be monitored and treated to prevent further complications.[2]

During the fever, the metabolism increases and so do the oxygen consumption. A long fever can be tiring the clients and spending the energy savings and will be at risk of occurrence of dehydration.[4] The most important focus of treatment and management of fever in children who are at least at risk for secondary brain damage is the discomfort and pain the child feels from fever.[2,5] Evaluation of vital signs, behavioral changes and hydration status is an important and crucial clinical assessment in children with fever.[6]

In this time parents tend to do aggressive handling towards an increase in body temperature of the child such as the granting of antipyretic which is not required, which, if the child is given excessively and inappropriately may cause complications and hepatotoxicity. This happens because of a lack of information about the fever and its benefits as well as the inconsistent handling of fever in many hospitals.[3]

Health education interventions to improve the knowledge of both the parents and caregivers about the fever and its management are very. It was also very effective in reducing the fear of parents and nurses, as well as reducing the use of antipyretics that are not required on the fever.[7,8]

In Indonesia the research on the effect of a health education intervention through the granting of information verbally and non-verbally about the fever treatment regarding to fever treatment action by parents is still rarely done. Based on the above, it can be seen the phenomenon of parents' behavior towards the handling of fever in children. An intervention through health education is required to increase the knowledge, attitudes and skills for proper handling of fever. This study aimed to describe the effect of health education intervention about fever on knowledge, attitude and action of parents in managing fever of children.

METHODS

The research design was quasi-experimental with the approach of nonequivalent control group design. The research was done in the child care ward of General Hospital Pariaman from March to December 2015. The sample of this research was the parents who have child with a fever. Samples were taken with the purposive sampling technique with a total sample of 40 parents, consisting of 20 parents as control group and an intervention group of 20 parents.

Health education was given into interventions groups. While, control groups received standard care from the hospital. The intervention conducted into 2 sessions. In the first session, the researcher gives the information's about fever, causes, clinical signs, and its mechanisms. In the second session, the researcher educate parent how to manage children's fever. Each session lasting for 30 minutes.

Data measurements were questionnaire and observation sheet, that modified from Walsh, 2007. The questionnaire consists of the following option

- Characteristic of children and parent,
- Ten questions of Parent's knowledge about fever,
- Parent's attitude toward fever in children consist of fourteen questions. The scale ranges from 0 = strongly disagree to 4 = strongly agree. Observation sheet was used to measure parents' action in managing fever. The questionnaire and observation sheet was taken 1 day after the intervention.

In doing this research, researchers applicate the basic principles of ethical consideration 9 that include

- Autonomy: by giving parents the right and freedom to choose whether or not to participate in this research,
- Beneficence, carry out research in accordance with research procedures and provide beneficial results for participants,
- Nonmaleficence, by minimizing loss and error to participants,
- Anonymity, maintain the confidentiality to participants,
- Justice, respect the participants and treat them according to the prevailing norms. Before the data was collected, the respondents were provided an explanation (the informed consent) and requested their approval in order to participate in the research. The data that had been collected was processed and analyzed by using the SPSS program. The data statistical was analyzed with independent t tested.

RESULTS

The characteristic of children and parents

In the table below, an overview of the characteristics of children and parents, including the age of the child, parents' education, income, experience of caring for a child with a fever, and the source of the information was visible.

Based on the above table it can be seen that the age of children who are hospitalized with a fever the most is the age of toddlers (1-3 years), that is equal to 47.5% or as many as 19 people. The average parent education is secondary education (Junior /Senior High School) that as many as 26 people.

The majority (42.5%) of parents have incomes between 800.000-2.500.000, - rupiah per month. Most of the parents have experience caring for children with a fever in the last 3 months (72.5%). Health Service is the most common source of information obtained by parents (70%). Illness or medical diagnosis of the children varies among them thypoid fever (15%), fever seizures (22.5%), diarrhea (32.5%) and bronchopneumonia (30%).

Table 1: Characteristic of children and parents in child care ward of pariaman's general hospital.

Characteristic	Total (f)	(%)
Age		
0-1 years old	13	32.5
1-3 years old	19	47.5
3-6 years old	8	20
Parents' education		
Elementary	2	5
Junior/senior high school	26	65
College	12	30
Income (rupiah)		
≤ 800.000	14	35
800.000 - 2.5000.000	17	42.5
≥2.500.000	9	22.5
Experience in handling the fever		
Yes	29	72.5
No	11	27.5
Source of the information		
The mass media	4	10
Health services	28	70
Internet	8	20
Medic diagnoses		
Typhoid fever	6	15
Fever seizures	9	22.5
Diarrhea	13	32.5
Bronchopneumonia	12	30

Parents' behavior

Table 2: The distribution of knowledge, attitudes and actions of parents in managing fever of children in child care ward of pariaman's general hospital.

Attitudes	Intervention		Control	
	Total (f)	(%)	Total (f)	(%)
Level of knowledge				
Adequate	16	80	12	60
Less adequate	4	20	8	40
Attitude				
Positive	10	50	10	50
Negative	10	50	10	50
Action				
Good	16	80	13	65
Less good	4	20	7	35

In the table, it can be seen that in general, or 80% of intervention group had adequate knowledge about fever, while over most of the control group (60%) had adequate knowledge about fever.

Attitudes to fever, almost the same between the intervention and control group, were between positive or negative attitude. Paretns actions in managing fever on intervention group are good by 80%.

The differentiation of parents' behavior in handling a fever

Table 3: Comparison of parent's knowledge, attitude and action in managing fever of children between intervention and control group in the child care ward of pariaman's general hospital.

Behavior	Average	SD	Average difference (95% CI)	T	DF	N	P value
Knowledge							
Intervention	8.35	1.38	1.55 (0.41 – 2.68)	2.78	38	20	0.009
Control	6.80	2.06				20	
Attitude							
Intervention	41.60	4.81	3.2 (0.16 – 6.23)	2.13	38	20	0.03
Control	38.40	4.65				20	
Action							
Intervention	8.40	1.39	1.9 (0.74 – 3.05)	3.35	38	20	0.002
Control	6.50	2.11				20	

In the Table above, it can be seen that the average score on the parents' knowledge in the intervention group was 8.35 with a standard deviation of 1.38. In the control group, the average knowledge score is 6.80 with standard deviation 2.06. It was concluded that there was a significant difference between the parents' knowledge in the intervention group with the control group with p value 0.009. While the average score of the attitude of parents in intervention group was 41.60 with standard deviation 4.81, there was a significant difference between the attitudes of parents in the intervention group with the control group with a p value of 0.03. Parents' action between the intervention group and the control group also showed differences with p value 0.002.

DISCUSSION

Based on Table 1, it can be seen that the age of the child who is hospitalized with a fever the most is in the range of 1-3 years, this suggests that the symptoms of fever

often occur in children under the age of 5 years. The survey results from the Jordnia Statistic Agency, reported about the number of children under the age of 5 years who have experienced a cold or Upper Respiratory Tract Infections (URI), which approximately 15% of the children's mother reported fever in children and 5% of them with URI.[10]

One of the goals of national development in the Sustainable Development Goals targets (SDGS) is to reduce mortality in children of age under 5 years. Therefore, it is very important to improve the knowledge of parents, especially mothers, to do the handling of their sick child. Some types of minor illness that can generally be handled by parents in the home are: diarrhea, URI and fever.[10] Fever is one of the symptoms, which causes the parents to bring their children.[11] In this study, the type of children's disease varied enough that begins with symptoms of fever, such as typhoid fever (15%), fever seizures (22.5%), diarrhea (32.5%) and bronchopneumonia (30%).

In Table 2, it can be seen that over the majority of respondents had adequate knowledge about the handling of the fever in children, some have a positive attitude and almost of them did the handling trough the fever well. This indicates that the behavior of parents taking action against fever pretty well. The results of the same research, can be viewed in the research of Abu Baker et al, where the average score of the right answers about handling the fever was 8.6 (SD 1.7). The average score for the management of the URI was 4.9 (SD: 1.4) and for diarrhea 6.4 (SD: 1.2).

The correct answer scores on each of the respondents showed mother's adequate of knowledge and action in addressing the problem of fever in children, URI and diarrhea. These outcomes refer to the easiness of access to health care facilities and knowledge around the children's disease, and the routine of handling minor ilness in children.[10]

There is a significant relationship between the mother's age, income, education level, number of children and the knowledge and treatment of fever (p value 0.05). While in this research there is no distinction between knowledge, attitude and action of a fever treatment by parents based on the demographics of the parents that include education, income, number of children, as well as a source of information. These results are supported by previous studies which state that there was no significant difference between the control and intervention groups based on demographics such as employment status, level of education and a history of seizures in children.[11,12]

The average parent education in this research is secondary education (junior /senior high school) that as many as 26 people. The mother's knowledge, about the treatment of the fever better for mothers with higher education compared to the mother with lower education. This, associated with the mass media sources that are accessed by the mothers so as to improve knowledge.[10] Health care facilities are the most common source of information obtained by parents of 70%.

Most (42.5%) parents had incomes between 800.000-2.500.000, - rupiah per month. These results indicate that the level of income of the parents is still low. Income level can affect the ability of families to determine the place of health services that can help resolve health problems of the family members, such as a clinic or private hospitals. This allows them to get more information about health and receive more detailed information.[10,13]

Most of the parents have experience in caring for children with a fever in the last 3 months (72.5%). It can be summed up that the parents have the ability in handling the children's fever. Parents, who have many children, will sustain a good experience thus able to do a treatment of fever in children.[10]

Parents' misconceptions about the fever can cause improper fever handling.[14,15] In this study, most parents give paracetamol when the child's body temperature above 37.8 °C (42.55%) and nearly half of the parents (37, 5%) answered that the child is supposed to be a high fever if the temperature is above 37.8 °C and it can induce seizures. This result is supported by previous research, which stated that the knowledge of parents about normal body temperature in children, the function of fever and its handling is still low.[16,17]. On the research of Abu Baker et al some parents even have a less adequate knowledge about the fever management, of which more than half the mothers do not understand that lowering the room temperature can lower the children's body temperature and most of the mothers do not recognize that the seizures are the most common effects on child's fever.[10] This suggests that the source of cognition is not comprehensive.

Parents' phobia against the fever in children is a phenomenon that commonly occurred.[15,17]. The parents in the study also show their worry when the children have the fever. More than the majority of parents (60%) agree that the medicine should be given directly when the child showed signs of fever and as much as 62.5% of parents agree that antipyretic is the primary treatment of fever in children. The use of antipyretic and give compress was done by parents to lower a fever because of their worry about the harmful effects of fever.[15,16,18] The parents provide a medicine at a time when body temperature below 38 °C due to worry about the side effects of fever such as brain damage, chronic disease, blindness, and coma. Giving antipyretic drug that is less precise, can lead to overdose and ineffectiveness of treatment.[17]

All children with fever should be examined against the presence of signs and symptoms of serious disease. The main interventions that can be given on a fever are

lowering the child's discomfort. The interventions that can help the physiological response which are not only beneficial to the body, but also recommended are increasing the fluids, reducing the thick clothes and compressing the child regularly.[19]

Regarding to parents' education, it is recommended for them to improve their knowledge and skills in handling the fever in children and to decrease their anxiety. Education is provided by using a multidimensional strategy that can influence the knowledge and behavior transformation. Parents are educated about the risk of inappropriate use of antipyretic, other alternatives in the treatment of fever such as increasing fluids and reducing thick clothes and also bring the child to a health care facility if parents feel worried about the child's condition.[19]

Based on a study that was conducted in Taiwan, it can be assured that most of the parents were not capable to interpret properly the information that was given by the doctors and nurses about the handling of fever in children. In General, parents followed the advice of modern medical treatment combined with traditional medicine. Parents in Taiwan need information about the management of fever to lessen the anxiety and guide them in performing the fever treatment in children.[20]

In table 3, it can be seen the difference in the average score for knowledge, attitudes and actions of parents in intervention group whom provided health education about fever with control group (without education) with p value of each 0.009, 0.03, and 0.002. This suggests that educational interventions can improve knowledge, attitudes and actions of parents in handling fevers in children. Previous research also showed an increase in knowledge and attitude about fever in children, but there was no significant difference between the intervention and control groups in the repeated visits to the health care/hospital.[12] There was a significant increase in knowledge (p 0.001), attitude (p 0.04) and action (p 0.01) in the intervention group whom was given educational programs, while there was no significant improvement in the control group. This research confirmed that the intervention of health education about handling the fever can increase mother's knowledge, attitudes and actions to control the occurrence of fever convulsion.[11]

Nurses and other health care services have important role in educating mothers or parents about treatment in children with mild disease.[10] Health intervention in the management of fever in children can be given, especially the treatment without drugs, indications of drug administration, frequency of giving out the drug and when it starts to be given.[21]

Educational interventions can reduce the amount of improper use of antipyretics, reduce dependence towards health services, increase the knowledge about fever and improve skills in handling fever.[17] The results of the research of Young, Watts and Wilson indicated that the improving knowledge of the parents on the prevention of fever convulsions before it occurs in a child can decrease parents' anxiety and worries when the convulsion occurs in children.[15] It can be inferred from such research; educational interventions aimed at controlling fevers and prevent the fever convulsion in children aged < 2 years with increasing the knowledge, attitudes and actions of parents. In addition, educational intervention can increase the confidence of parents in performing the prevention of fever convulsion.[15]

The related research about the preparation of parents in the care of fever has been done by Considine and Brennan in 20078 which is about the educational program at the emergency room as a discharge planning for a child with fever. There was a statistically significant improvement in several aspects for parents who followed the intervention of health education where information from a nurse both verbal and nonverbal gave significant improvement against the ability of the parents to provide fluids and fever medication to 52%, p value < 0.001. Mangala et al also found that health education can increase mothers' knowledge about the management of diarrhea at home.[22]

A similar study was also conducted by Huda et al which found that health education such as personal communication, focus group discussions, home visits can improve knowledge, attitudes and skills of a toddler's mother about the diarrhea significantly, so this strategy is an effective way to increase mothers' competence in caring for their children at home.[23]

Despite the health education intervention is successful; only a few can change the knowledge, attitudes and actions of parents. This requires intervention based on the theories of behavioral change.[17] Formal educations which consist of several methods such as printed media, visual media, interactive and verbal media in a structured and repetitive session are effective in increasing parents' knowledge about the management of fever in children.[15]

Previous research explained that the printed media and video instruction were the effective tools to increase parents' knowledge about the health. Educational interventions provided with CALM approach (check, asses, lower and monitor).

The intervention group was the parents/grandparents whom provided the education by using the media of video and brochure, which contains information about fever, how to assess other serious symptoms, actions to reduce the fevers and to monitor the state of the children.

The result was the knowledge score of parents/grandparents on a CALM group that showed a significant improvement compared to the control group at 48 hours and 1 month after the visit. The satisfaction and

comfort as well as the confidence of parents increased after receiving education.[14]

The research of Edwin about the effects of the Planned Teaching Programmed (PTP) to mothers' knowledge, attitudes and skills suggested that the research had a great effect to increase mothers' potential in improving knowledge, attitudes and skills against the acute respiratory tract infections in children whom were hospitalized and this research recommended the nursing administration to create a policy that will cover all nursing staff to engage actively in health education programme in hospitals and in college.[24]

CONCLUSION

There is significant difference on parents' knowledge scores, attitudes and actions between the intervention group and the control group. It is hoped the existence of a structured education program, coordinated and continuous about handling a fever in children and this education programs became one of nursing intervention in patients who are hospitalized with the primary symptoms of fever.

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