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**Mother's Smart Card Effect on Mother's
Knowledge and Awareness of Children's Fever in
The Pre-Hospital Phase**



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Abstract

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Introduction: Fever increases body temperature above 37.50 C, making the child uncomfortable; the child's body and face are hot, red, and shivers. Fever conditions also affect parents, especially mothers who will also feel anxious. This study aimed to determine the effect of the Mother's Smart Card on the knowledge and awareness of mothers in the management of children with fever in the pre-hospital phase.

Methods: This study used a Quasi-Experimental design with a pre-test and post-test approach with a purposive sampling technique on 40 mothers. A mother's knowledge is measured by knowledge about fever. In contrast, vigilance is measured by how the mother behaves and her accuracy in making decisions when her child has a fever. All measurements used a questionnaire.

Results: The results of data analysis using paired t-test showed a significant effect of the Mother's Smart Card on mother's knowledge and awareness in managing children with fever at home with a p-value of 0.000.

Conclusion: This means that the Mother's Smart Card can increase the knowledge and awareness of mothers in the management of children with fever in the pre-hospital phase. This result is hoped that the Mother's Smart Card can be a reference in increasing mothers' knowledge and awareness and minimizing treatment in inappropriate health facilities that can be at risk of transmitting other diseases.

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INTRODUCTION

Fever is a medical word that describes a situation where the body's temperature rises above 37.5° C. It is a clinical sign of a variety of disorders that, when left untreated, can lead in febrile seizures, brain damage, and even death [1]–[3].

Fever is a common childhood illness. According to the Indonesian Pediatrician Association (IDAI), fever contributes for around 30% of all visits to pediatricians and general practitioners [4].

When children have a fever, they are in discomfort, and their body and faces are heated, red, and slightly shivering [5]. This distressing sickness causes children to cry for lengthy period of time, to feel weak, to have a decreased appetite, and to have difficulties sleeping [6]. Fever also increases the likelihood of evaporation and waste of body fluids [2]. Fever can cause dehydration, a shortage of oxygen, and convulsions in children [7].

The fever affects the child's parents, particularly the mother, who becomes anxious. Mothers are cautious about the prominent role of a family health caretaker [8]. One of the factors of mothers' anxiety is a lack of awareness regarding child fever. Anxiety and dread of the potential consequences of fever cause parents to aggressively provide antipyretic medicines regardless of the child's condition [9].

It is critical to have knowledge and skills in managing a child's fever at home or in the pre-hospital setting. At this phase, the mother will either chose to care for her infant at home or will be referred to the nearest hospital or

health facility. Mistakes in conduct and decision-making can have catastrophic implications for children. In these circumstances, education is fundamental so that mothers could take action and make decisions without feeling anxious. To improve public health in general, new approach is required; health care must be shifted from hospitals to primary care settings in homes and communities [10].

Health education, as well as mothers' perspectives and practices about disease prevention, can effectively boost knowledge [11]. According to this statement, parents who have received health education will have increased understanding and attitudes toward looking after children who have convulsions [12].

In providing education, there are many media that can be used, one of which is using cards. In a study conducted by Wijaya [13] revealed that after getting education via smart card, mothers' knowledge about dealing with children with diarrhea at home improved. Despite the use of media is not the most important aspect of health promotion, learning media cannot be separated from health education [14]. Similar to Arsyad [15], it is vital to select proper media in health education since the media treats as a medium in strengthening and lowering information transfer mistakes.

Previously, Perangin-angin et al. (2016) developed a Health Card for class VIII students at MTs Al-Madina Semarang City, to increase knowledge about student health education [16]. Diarrhea series of Mother's Smart Card developed in 2020; In this study, researchers developed a mother's smart card

for handling fever. This Mother's Smart Card was created by simplifying the "Integrated Management of Sick Toddlers (MTBS)", which is used to increase mother's knowledge about decision making and handling fever in children at home.

This study aims to determine the effect of the Mother's Smart Card on the knowledge and awareness of mothers in handling children with fever in the pre-hospital phase.

3 METHODS

This research is a quantitative study with a Quasi-Experimental design with a pre-test and post-test approach. The subjects in this study were given treatment in the form of a health education method using Mother's Smart Card Fever edition. This research was conducted in Lubuklinggau Regency in September 2021. In this study, 40 mothers were selected using a purposive sampling method. This study's sample includes mothers with toddlers who have a fever and take their children to a health facility when they have a fever. Meanwhile, the exclusion criteria for this research population were physical limitations, inability to read, and elderly.

The questionnaire utilized is one for measuring knowledge and awareness. The knowledge questionnaire has 10 question items. The mother is asked to choose one accurate response from a knowledge questionnaire in the form of questions with multiple choice answers. If the correct answer receives a score of 10 and the incorrect response receives a score of 0, the total score is 0-100. The awareness questionnaire

consists of 12 question items with responses on a Likert scale ranging from 1 to 5. The total score is calculated by summing all of the points collected from each question item, with a total score ranging from 12 to 60. All questionnaires have undergone validity and reliability testing. The knowledge questionnaire's validity test provided all valid question items with r value > r table (0.623), whereas the awareness questionnaire provided all valid question items with r value > r table (0.576). The reliability test results of knowledge questionnaires of 0.76 and awareness questionnaires of 0.78 show that they are reliable where $r > 0.6$.

The study was carried out by administering a questionnaire to mothers involved in obtaining instruction with the mother's smart card. Following the pre-test, the mother received one meeting of education on fever management utilizing the mother's smart card. The teaching came in the form of a demonstration of how to utilize the fever edition mother's smart card. First, the mother is taught how to use a thermometer to check the child's body temperature. Second, after obtaining the child's body temperature, the mother is told to enter the category of the child's temperature into the yellow column on the mother's smart card (with normal, high, very high categories). Third, the mother is directed in the red column to check the symptom indicators in children, which include length of fever, eating and drinking habits, vomiting, finger tips, seizures, alertness, and stiff neck in points 0 - 2. Fourth, please pick Yes or No in the column Green. Mothers are taught how to manage child fever according to the conclusion of the kid's fever

problem in the conclusion table; treatment comprises of first and subsequent activities. The mother was given another questionnaire or post-test two weeks later to check her knowledge and awareness.

Data analysis used paired t test using ordinal scale. Data analysis used the SPSS Ver.22 program with a 96% confidence level ($p \leq 0.005$).

Ethical Considerations

This study was conducted according to the Declaration of Helsinki guidelines. The ethical approval was issued by the Palembang Health Polytechnic Ethics Committee number 1181/KEPK/Adm2/IX/2021. All participants were asked to fill out and sign a consent form after receiving information about the study.

They had the right to participate or not to participate in the study. Researchers will ensure the confidentiality of the data.

RESULTS

The following are the research results on the characteristics of respondents obtained through questionnaires filled out by research subjects. Demographic data in this study showed that most of the respondents were aged 31-40 years (55%). The education level of the majority of respondents is SMA (42.5%). Table 2 shows an increase in the average value of the knowledge and awareness variables before and after the intervention with a statistical significance of 0.000.

Table 1
Characteristics of respondents

	Characteristics of Respondents	Frequency	Percentage (%)
Age	21-30 y.o	14	35
	31-40 y.o	22	55
	41-50 y.o	4	10
Educations Level	Junior high school	4	10
	Senior high school	17	42,5
	D3	11	27,5
	S1	8	20

Sources: Primary data of questionnaire, 2021

Table 2
Average knowledge and awareness scores

Variable	Pretest	Post-test	Difference	t	p-value
	M ± SD	M ± SD	M ± SD		
Knowledge	61.23 ± 7.821	89.10 ± 7.725	-27.87 ± 0.376	-19.891	.000
Awareness	30.62 ± 2.157	47.86 ± 2.936	-17.24 ± 0.869	-26.219	.000

Sources: Primary data of questionnaire, 2021

DISCUSSION

Statistical tests that have been carried out to determine mothers' knowledge after being given health education using the Mother's Smart Card increase the average value of mothers' knowledge and awareness. These results are the same as the theory, namely changes in knowledge, attitudes, and behaviour of individuals, families, special groups, and communities in fostering and maintaining healthy living behaviours and playing an active role in achieving optimal health degrees are the goals of health education [17].

Mothers' knowledge and awareness regarding how to respond to a child with fever improved due to education and training utilizing the fever version of the Mother's Smart Card. The fundamental goal of this health education is to give mothers a basic understanding of the problem of fever and how to treat a child's fever at home or in the pre-hospital period, depending on the severity of the child's condition. Pate et al. (2016) said there was an increase in knowledge, confidence, and understanding of roles and responsibilities after being given training and education [18].

In maintaining one's health, behavioural factors are very influential. According to B. Bloom, there are three aspects of behaviour: knowledge, attitudes, and actions [19]. Attitude and action are essential factors when it comes to awareness. Awareness is the degree of a person's readiness to respond to something [20]. In the Big Indonesian Dictionary (KBBI), awareness is synonymous with preparedness [21]. Increased knowledge

and awareness of mothers are vital for the health and safety of children. Knowledge plays a crucial role in forming a person's behaviour through a complex process; conduct based on knowledge will be better than that [22].

This increase in knowledge will make mothers understand more about the problems experienced by their children. In contrast, vigilance can increase the mother's accuracy in acting and making decisions when her child has a fever. Knowledge as a parameter of social conditions can greatly determine public health [23]. People who have good knowledge also have good attitudes and behaviour [24]. Knowledge is the result of human sensing of an object that will significantly influence the formation of a person's actions with different intensities and perceptions for each individual [22]. So that with good knowledge, it is hoped that it will make mothers have good attitudes and decision making also in responding to their children when they have a fever.

The more comprehensive the mother's knowledge of the child's health, especially fever, the more appropriate the management of child fever in the pre-hospital phase will be. Individuals who have a lot of knowledge tend to behave and behave according to their understanding, so they will consider things that may be detrimental and beneficial to the health of their families [25]. The final hope is that visits to inappropriate health facilities will decrease because children are one of the groups that are vulnerable to disease transmission. Hospitals are where nosocomial infections are transmitted by patients and hospital staff [26].

In the management of fever, according to the Integrated Management of Sick Toddler Books (MTBS Book), in mild and moderate conditions, children do not need to be taken to health facilities; they can be treated at home. With the increased knowledge of mothers in handling fever in the pre-hospital phase, children will be more protected from infections in health facilities.

All of the trainees were civil society members with 52.5% high school education and below. The data above shows that the Mother's Smart Card is very simple because it can be understood by people with a low level of education, which simplifies the MTBS Book. This Mother's Smart Card is very simple and easy to understand by the public. In the learning process, one way to get students interested in the physical education learning process is by variations or modifications [16]. Simplifying learning media will widen the reach of learning media because more and more layers of society at various levels of education can internalize the material provided, especially for groups of education that are not too high [13].

The MTBS book is not easy for the general public to understand in its original form. Researchers modify and innovate to create a simple form of MTBS Book in the fever section to be used daily and increase mothers' knowledge about fever and its management. The core factor of a modification is to analyze and develop teaching materials by making cycles in the form of practical learning activities to make it easier for students to learn [16].

12 CONCLUSION

Based on the analysis and discussion, it can be stated that the usage of the Mother's Smart Card has a beneficial effect on the mother's knowledge and awareness of how to respond to the problem of child fever at home.

These results also indicate that the Mother's Smart Card is effective for use as a community learning medium to increase the mother's knowledge in managing fever problems at home.

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