

An Overview of Mothers' Knowledge and Skills in Administering Tepid Water Sponge to Hyperthermic Children in Kalikidang Village

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ABSTRACT

Background: Hyperthermia is an increase in body temperature that can be caused by hormonal disturbances, metabolic disorders, drug use, increased environmental temperature, or exposure to external heat, leading to an imbalance between heat production and heat loss in the body. Tepid Water Sponge is a procedure aimed at enhancing heat loss control through evaporation and conduction in individuals experiencing high fever.

Method: This research employs a descriptive explanatory method with a total of 40 mothers as respondents. Data collection was conducted using a knowledge questionnaire and an observation sheet for skills assessment.

Results: The study revealed that 63.4% of mothers had good knowledge, and 34.1% had adequate knowledge. Regarding tepid water sponge skills, 26.8% of mothers demonstrated a good understanding of the technique, 65.9% had adequate skills, and 4.9% had poor skills.

Conclusion: Mothers' knowledge about tepid water sponge is generally good, although there are still a few (two mothers) who lack sufficient skills.

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1. INTRODUCTION

Childhood illnesses such as dengue fever, diarrhea, typhoid fever, cough, and upper respiratory infections are frequently accompanied by fever or hyperthermia, particularly among children under five years old who are more vulnerable to infection¹. Hyperthermia is defined as an increase in body temperature caused by hormonal disturbances, metabolic disorders, drug use, or environmental heat exposure, resulting in an imbalance between heat production and heat loss mechanisms². According to data from the Ministry of Health in 2021, the incidence of hyperthermia in Dengue Hemorrhagic Fever (DHF) cases reached 37,646, with 361 deaths. The highest proportion of cases occurred in children aged 1–4 years, accounting for 10.68%, while infants under 1 year accounted for 2.60%³. The 2022 Indonesia Health Profile reported that many children experienced fever caused by infection, with 143,266 cases and 1,237 child deaths⁴. In Central Java, febrile seizures among children aged 5–6 years occur at a rate of approximately 2–5%

annually⁵. If hyperthermia is not managed properly, complications such as dehydration, seizures, and even neurological damage may occur, highlighting the importance of early and appropriate management.

The management of hyperthermia in children depends largely on parental roles, especially mothers, who are primarily responsible for home-based care. Adequate maternal knowledge and skills are essential to ensure proper management; however, misconceptions are still common, such as covering febrile children with thick blankets or relying solely on pharmacological therapy while neglecting non-pharmacological interventions⁶. Non-pharmacological approaches include environmental cooling, light clothing, adequate hydration, and compress techniques, among which tepid water sponge is widely recommended because it enhances heat loss through evaporation and conduction^{7,8}. Tepid water sponge is a procedure aimed at reducing body temperature and improving comfort in children experiencing fever⁹.

Previous studies demonstrate the effectiveness of tepid water sponge in reducing body temperature among febrile children. Research by Hijriani reported significant temperature reduction after intervention using a quasi-experimental design¹⁰. Similarly, Yuniarti et al. found that tepid water sponge was more effective than warm compresses in lowering temperature, while Irlianti et al. showed clinically meaningful improvement in pediatric hyperthermia cases following the intervention^{11,12}. Although evidence supports the effectiveness of the technique, studies focusing on maternal knowledge and practical skills in community settings remain limited. Preliminary findings in Kalikidang Village revealed that many mothers were unfamiliar with proper tepid water sponge techniques and tended to use alternative methods such as fever patches, indicating a knowledge practice gap.

Based on this gap, the present study aims to describe mothers' knowledge and skills regarding the administration of tepid water sponge in children with hyperthermia in Kalikidang Village. This research is expected to provide baseline data for community-based health education interventions to improve maternal competence in managing childhood fever. Because the study uses a descriptive approach, no specific hypothesis is proposed.

2. RESEARCH METHOD

This study employed a descriptive research design with an explanatory approach to describe mothers' knowledge and skills regarding the administration of tepid water sponge in children with hyperthermia. Descriptive research aims to identify new meanings, explain conditions, determine frequencies, and classify information, while also illustrating relationships among variables and presenting factual data clearly and systematically¹³. The study was conducted in Kalikidang Village Hall from October 2023 to June 2024.

The population consisted of 329 mothers who had children aged 3–6 years in Kalikidang Village. Population refers to the entire subject that meets predetermined criteria within a research context¹⁴. The sample was determined using a sample size formula:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{329}{1 + 329(0.15)^2} = \frac{329}{8.4025} = 40$$

Thus, the final sample consisted of 40 mothers who met the inclusion criteria, namely mothers with children aged 3–6 years, willing to participate, and those whose children had or had not experienced hyperthermia. Exclusion criteria included refusal to participate, withdrawal during the study, illness, or incomplete questionnaire responses.

Data were collected using a structured questionnaire to assess maternal knowledge and an observation checklist based on the Standard Operating Procedure (SOP) of tepid water sponge to evaluate skills. The questionnaire instrument was adapted from Novianti¹⁵. Validity testing determines whether an instrument accurately measures the intended variable, while reliability testing assesses the consistency of

measurements¹⁶. The reliability test showed a Cronbach's alpha value of 0.926 (>0.60), indicating that the instrument was reliable. questions covering definitions, measurement tools, symptoms, and management of hyperthermia. Validity testing determines whether an instrument accurately measures the intended variable, while reliability testing assesses the consistency of measurements (Sanaky, 2021). The reliability test of the adopted questionnaire showed a Cronbach's alpha value of 0.926 (>0.60), indicating that the instrument was reliable.

The research procedure consisted of three stages. In the preparation stage, the researcher conducted consultations with the academic supervisor, developed the research proposal, and obtained research permits from the village authorities. In the implementation stage, the researcher coordinated schedules with respondents, explained study objectives and procedures, obtained informed consent, distributed questionnaires, and demonstrated the correct tepid water sponge technique according to SOP. Respondents were then asked to directly practice the technique, and their performance was assessed using the observation checklist. In the completion stage, data were reviewed and discussed with the supervisor.

Data analysis was performed through several steps: editing (checking completeness of questionnaires), coding (assigning identification codes to respondent data), tabulating (entering data into SPSS and presenting them in tables), and cleaning (verifying data accuracy). The results were presented descriptively in the form of frequency distributions and percentages. Ethical considerations included informed consent, anonymity, and confidentiality. Respondents participated voluntarily without coercion, their identities were replaced with initials, and all information obtained was kept confidential.

3. RESULT AND DISCUSSIONS

This study was conducted from October 2023 to June 2024. Data collection was carried out directly from respondents using a questionnaire to assess knowledge and an observation checklist to assess skills in performing tepid water sponge. The study aimed to describe mothers' knowledge and skills regarding the administration of tepid water sponge in children with hyperthermia in Kalikidang Village. The subjects of this study were 40 mothers who had children aged 3–6 years.

Table 1. Frequency Distribution of Respondent Characteristics

Respondent Characteristic	Frequency (n)	Percentage (%)
Age		
21–30 years	20	48,8 %
31–40 years	18	43,9 %
41–45 years	2	4,9 %
Total	40	97,6 %
Education		
Elementary School	2	4,9 %
Junior High School	10	24,4 %
Senior High School	25	61,0 %
College/University	3	7,3 %
Total	40	97,6 %
Occupation		
Housewife	37	90,2 %
Civil Servant/Military	1	2,4 %

Entrepreneur	2	4,9 %
Total	40	97,6 %
History of Child Hyperthermia		
Ever	26	63,4 %
Never	14	34,1 %
Total	40	97,6 %

Source: Primary Data

Based on table 1, most respondents were aged 21–30 years (48.8%), had a senior high school education (61.0%), worked as housewives (90.2%), and had children who had previously experienced hyperthermia (63.4%).

2. Mothers' Knowledge Level About Hyperthermia and Tepid Water Sponge

Knowledge Level	Frequency (n)	Percentage (%)
Good	26	63.4
Moderate	14	34.1
Poor	0	0
Total	40	100

Source: Primary Data

Based on table 2, among 40 respondents who completed the knowledge questionnaire, 63.4% had good knowledge, while 34.1% had moderate knowledge regarding hyperthermia and warm compress management.

3. Mothers' Skills in Performing Tepid Water Sponge

Skill Level	Frequency (n)	Percentage (%)
Good	11	26,8 %
Moderate	27	65,9 %
Poor	2	4,9 %
Total	40	97,6 %

Source: Primary Data

Based on Table 3, direct observation results showed that 26.8% of respondents had good skills in performing tepid water sponge, 65.9% had moderate skills, and 4.9% had poor skills.

The results showed that most respondents were aged 21–30 years, which falls into early adulthood and middle adulthood categories¹⁷. This finding is consistent with a study conducted by Alfia and Hanifah¹⁸. Age is closely related to a person's level of knowledge and skills, as increasing age is associated with more mature thinking processes and better decision-making abilities, thereby improving knowledge and practical skills¹⁹.

Regarding educational level, most respondents had completed senior high school. This finding is in line with research conducted by Angel Yivani Maria Rihi et al.²⁰. Education influences an individual's

perspective and ability to obtain information; higher education levels are associated with broader knowledge and better skill acquisition¹⁹.

Most respondents were housewives, consistent with findings reported previously²⁰. Employment status is associated with knowledge and skills because housewives generally have more time to interact with their children and access health-related information, which may improve understanding and skills regarding child care practices such as tepid water sponge techniques¹⁹.

Most respondents reported that their children had previously experienced hyperthermia. This finding is consistent with research by Maria Haryanti Butarbutar et al.²¹. Hyperthermia in children can act as a physiological immune response but may lead to lethargy and mortality if not properly managed²².

Knowledge refers to an individual's ability to recognize and understand information obtained through sensory experiences. Educational level plays a significant role in shaping knowledge²³. Several factors influence knowledge, including education, age, and experience²⁴.

Skills are closely related to knowledge because knowledge provides the foundation for understanding and performing practical actions. Mothers acquire knowledge through sensory processes such as seeing, hearing, and practicing, which supports skill development¹⁹. Furthermore, knowledge significantly influences skill acquisition²⁴.

4. CONCLUSION AND RECOMMENDATION

Based on the results of the study conducted in Kalikidang Village involving 40 respondents, it can be concluded that most respondents had a senior high school education and were predominantly housewives. The majority of respondents also reported that their children had previously experienced hyperthermia. The level of mothers' knowledge regarding tepid water sponge in children with hyperthermia was generally categorized as good, with more than half of respondents demonstrating good knowledge. In terms of skills, most mothers showed moderate ability in performing the tepid water sponge technique, although a small proportion still had inadequate skills. These findings indicate that while mothers generally possess sufficient knowledge, improvements in practical skills are still needed to ensure optimal management of hyperthermia in children.

The results of this study are expected to encourage mothers to increase their awareness and curiosity regarding child health, particularly in understanding and applying appropriate management for hyperthermia using the tepid water sponge technique. Health institutions and educational providers may use these findings as reference material to improve health education programs related to childhood fever management. Furthermore, future researchers are encouraged to explore additional factors related to hyperthermia and maternal competence in greater depth to obtain more comprehensive findings.

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