

APPLICATION OF WATER TEPID SPONGE TO DECREASE BODY TEMPERATURE IN PRESCHOOLERS (3–6 YEARS) WITH HYPERTHERMIA IN THE CHILDREN'S ROOM OF PINDAD GENERAL HOSPITAL BANDUNG

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Abstract

Keywords:

*Hyperthermia,
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Hyperthermia is a condition characterized by an elevated body temperature above the normal range, commonly occurring in preschool-aged children due to infection. Children aged 3–6 years have an immature thermoregulatory system, making them more susceptible to complications such as febrile seizures, dehydration, and metabolic disturbances. One of the non-pharmacological interventions that can be used to help reduce body temperature is the water tepid sponge technique. This study aimed to determine the effectiveness of the water tepid sponge intervention in reducing body temperature among preschool-aged children (3–6 years) with hyperthermia in the Pediatric Ward of RSU Pindad Bandung. A descriptive case study using a nursing care approach was conducted involving four preschool-aged children with hyperthermia. Data were collected through interviews, observations, physical examinations, body temperature measurements, and nursing documentation. The water tepid sponge intervention was administered for 15–30 minutes according to the standard operating procedure (SOP) for three consecutive days. All participants experienced a reduction in body temperature following the intervention. On the first day, the average decrease in body temperature ranged from 1.1°C to 1.2°C. After three days of intervention, the body temperatures of all participants returned to the normal range, between 36.4°C and 36.9°C. The water tepid sponge intervention was found to be effective in reducing body temperature among preschool-aged children with hyperthermia and can be used as a non-pharmacological nursing intervention in the management of fever in children.

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INTRODUCTION

Preschool-age children (3–6 years old) are a vulnerable group to various health problems, one of which is hyperthermia. Hyperthermia is defined as a condition of increasing body temperature above normal values due to an imbalance between the body's heat production and output. In children, this condition is generally caused by infections, both respiratory tract infections, gastrointestinal tract, and other infectious diseases. The thermoregulatory system in preschool-age children has not been fully developed so that the child's body is not able to adapt optimally to changes in environmental temperature and inflammatory responses due to infection (Lesteri Ika Widyyati & Kamaisya, 2023).

According to the World Health Organization (WHO) (2022), fever is still one of the main symptoms most often found in infectious diseases in children. WHO reports that about 60–70% of children who come to health care facilities in developing countries have fever as the main complaint. The number of fever cases worldwide ranges between 16 and 33 million, with 500 to 600 thousand deaths per year. Data from the Ministry of Health of the Republic of Indonesia (KEMENKES RI, 2024) shows that cases of infectious diseases in children are still relatively high and are still included in the top 10 causes of pediatric inpatient visits, with fever as one of the main clinical manifestations. The Indonesian Ministry of Health also reported that the incidence of fever in preschool-age children is quite high and is often the main reason for children to be treated in the pediatric care room.

During practice in the Pediatric Inpatient Room of Pindad Hospital Bandung in March 2026, as many as 48 patients experienced fever or hyperthermia. In an effort to deal with these conditions, non-pharmacological measures implemented include monitoring patients' symptoms, maintaining adequate hydration, and educating families about the importance of food hygiene and sanitation. At the time of the study, there were two patients who had a fever. Fever that is not treated properly can develop into hyperthermia and increase the risk of complications, such as febrile seizures, dehydration, electrolyte balance disorders, and increased metabolic needs of the child's body.

Management of hyperthermia in children can be done through pharmacological and non-pharmacological therapies. Pharmacological therapy generally uses antipyretics, while non-pharmacological actions include placing the child in a room with a warm and well-circulated temperature, changing the child's clothes with thin clothes that absorb sweat, providing adequate hydration, and providing compresses (*water tepid sponges*) (Heni et al., 2023). The main purpose of *water tepid sponge* is to help lower body temperature so that body temperature is within normal limits and helps overcome hyperthermia (Issemi Lestari et al., 2023).

Several studies have stated that the application of *water tepid sponge* is effective in lowering the body temperature of children with hyperthermia. Research conducted by Heni et al. (2023) showed that the administration of *water tepid sponge* significantly lowered the child's body temperature after the intervention. In addition to being effective, this action is also relatively safe, easy to do, and can increase children's comfort during treatment in the children's room. In preschool-age children, the application of *water tepid sponge* requires a special approach because of the characteristics of children's psychological development which tends to be easily anxious and less cooperative. Therefore, the role of nurses is very important in applying the *water tepid sponge technique* appropriately and therapeutically so that the results achieved are optimal. In the pediatric care room, the application of *water tepid sponge* is one of the independent

nursing interventions that plays a role in lowering body temperature and preventing complications of hyperthermia. Therefore, the application of *water tepid sponge* to reduce body temperature in preschool-aged children (3-6 years) with hyperthermia in the pediatric care room needs to be further studied as an effort to improve the quality of nursing care.

IMPLEMENTATION METHOD

This type of scientific paper is a descriptive scientific paper with a case study approach. The case study method was chosen because it provides an in-depth understanding of individual patient conditions and responses, especially fever in children with hyperthermia. This approach is also supported by literature studies from several relevant national and international journals, in order to strengthen the analysis of interventions carried out, especially the use of *water tepid sponge* as a nonpharmacological nursing measure.

The subjects of the case study were preschool children (3-6 years old) with fever complaints who were treated in the Children's Inpatient Room of Pindad General Hospital Bandung for at least three consecutive days. Exclusion criteria include no injuries in the area of *water tepid sponge* therapy, not done on neonates, children who do not have parental consent, and children who go home or are referred before the intervention is completed.

The research focus of the study was focused on clients of preschool-aged children aged 3–6 years with hyperthermia. *Water Tepid Sponge* is a non-pharmacotherapeutic action with a warm compress method that aims to reduce hyperthermia quickly, and is effective in reducing the use of drugs in children (Sari et al., 2024). Hyperthermia or what we often call fever is a condition in which there is an increase in body temperature above normal. A person's body temperature range is said to be hypothermic $<36.5^{\circ}\text{C}$, normal temperature 36.5°C – 37.5°C , and hyperthermia is said to be $>37.5^{\circ}\text{C}$ (Novikasari et al., 2021). The instruments used in the study were the study format, temperature measuring device (thermometer), observation sheet, standard operating procedure (SOP) sheet, and patient development record.

Cases were obtained through direct interviews with the patient's family, observations, and physical examinations using the pediatric surgical medical nursing assessment format that refers to the Virginia Henderson model. The study is carried out systematically covering subjective and objective data. Furthermore, data analysis was carried out to determine nursing diagnoses, design interventions, implement actions (*water tepid sponge*), and evaluate intervention results in a measured manner. All nursing actions are fully documented in the nursing care record format.

This case study was carried out in the Children's Room of Pindad Hospital Bandung on May 04–06, 2026 during the nursing profession practice. The assessment process and nursing actions were carried out for three consecutive days, according to the nursing intervention standards with sufficient time to evaluate the effectiveness of the *water tepid sponge* action on the reduction of the child's body temperature.

Case analysis is carried out through three main stages, namely *editing*, *organizing*, and *results*. The author reviewed the data from nursing assessments and documentation to ensure the completeness and accuracy of the information, organized subjective and objective data into nursing diagnoses, and evaluated changes in patient body temperature from *pretest* and *posttest data*. The results of the implementation showed a significant

decrease in children's body temperature, supporting the effectiveness of *water tepid sponge* in overcoming hyperthermia in children.

This research applies the principles of research ethics including the principle of benefit, the principle of *respect human dignity*, and the principle of justice (*right to justice*) in accordance with Nursalam (2022). All respondents have been given an explanation of the purpose of the research, stated that consent is the subject of the research (*informed consent*), and the confidentiality of the identity and data provided is guaranteed.

RESULTS AND DISCUSSION

The implementation of this nursing care is given to pre-school children of 3-6 years with hyperthermia in the Children's Room of Pindad Hospital Bandung. The nursing care process is carried out comprehensively, starting from the review stage, enforcement of nursing diagnoses, intervention planning, implementation of nursing actions in the form of *water tepid sponges*, to evaluation of results. This case study has 4 respondents, the implementation is carried out in accordance with the SOP for *compressing water tepid sponge* in patients with hyperthermia.

Based on the results of the implementation on May 04, 2026,

No.	Name	Age	Gender	Suhu Pre-Test	Post-test temperature
1.	an. S	4 years	Women	39.5°C	38.3°C
2.	an. W	5 years	Male	39.2°C	38.1°C
3.	an. H	6 years	Women	38.6°C	37.4°C
4.	an. G	4 years	Male	38.4°C	37.2°C

Table 1 Results of the Application of Water Tepid Sponge Compress 04 May 2026

On the date when the implementation of *water tepid sponge* was carried out, it was known that an. S 4 years old with female gender, body temperature before implementation is 39.5°C and body temperature after implementation is 38.2°C. an. W aged 5 years with male sex, body temperature before implementation 39.2°C and body temperature after implementation 38.1°C. an. H is 6 years old with female gender, body temperature before implementation is 38.6°C and body temperature after implementation is 37.4°C. an. G age 4 years old with male gender, body temperature before implementation is 38.4 and body temperature after implementation is 37.2°C.

On May 6, 2026, the body temperature of all respondents was in the normal range.

No.	Name	Age	Gender	Post-test temperature	Suhu Pre-Test
1.	an. S	4 years	Squirt	38.1°C	36.9°C
2.	an. W	5 years	Male	37.9°C	36.8°C
3.	an. H	6 years	Women	37.8°C	36.8°C
4.	an. G	4 years	Male	37.5°C	36.5°C

Table 2 Results of the Application of Water Tepid Sponge Compress 06 May 2026

On the date when the implementation of *water tepid sponge* was carried out, it was known that an. S 4 years old with female gender, body temperature before implementation is 38.1°C and body temperature after implementation is 36.9°C. an. W age 5 years with male gender, body temperature before implementation 37.9°C and body

temperature after implementation 36.8°C. an. H 6 years old with female gender, body temperature before implementation is 37.5°C and body temperature after implementation is 36.3°C. an. G is 4 years old with male gender, body temperature before implementation is 37.5°C and body temperature after implementation is 36.6°C.

The results of measurements before the application of *water tepid sponge therapy* showed that the four patients experienced hyperthermia with body temperatures above normal. The patient's condition appeared feverish, pale, weak, and lethargic. Fever is a health problem that often occurs due to infection and is characterized by an increase in body temperature beyond normal limits (Anggraeni et al., 2022).

The results of the measurement after the application of *water tepid sponge therapy* showed that all patients experienced a decrease in body temperature to reach the normal range. The application of therapy is carried out for 15–30 minutes according to the SOP.

The implementation of *water tepid sponge* carried out for three days showed a difference in body temperature before and after the intervention in all respondents. The decrease in body temperature ranges from 1–1.2°C, which shows that *water tepid sponge therapy* has an effect in reducing fever in children. The application of *water tepid sponge* works through the process of heat conduction and evaporation so that it can significantly reduce body temperature (Daini Shofiya & Kartika Sari, 2024).

The results of this study are in line with Heni et al. (2023) who stated that there was a decrease in the patient's body temperature after a *water tepid sponge compress* was carried out in patients with hyperthermia. The results of another study by Lestari Ika Widyyati & Kamaisya (2023) also stated that there was a difference in the patient's body temperature before and after being given a *water tepid sponge compress*. This proves that *water tepid sponge compresses* can lower body temperature in hyperthermia patients. In this case study, the researcher could not escape the limitations when in the field and dealing directly with patients. The researcher experienced difficulties when the respondents were uncooperative and felt complaints so they did not want to be disturbed first.

CONCLUSION

Based on the results of the study conducted by implementing *water tepid sponge therapy* to reduce body temperature in children who have high fever in the children's room of Pindad Hospital Bandung City, the researcher can conclude that this therapy has an impact on respondents who have a fever and are given water tepid sponge for 15-30 minutes in one intervention. It is known that the results of the application have decreased in patient An. S, An. H, An. G with a temperature drop of 1-1.2°C and in patients An. W 1.1°C for three consecutive days. These results show that the implementation given has an impact on reducing temperature so that it can be concluded that *water tepid sponge* has an effect on reducing fever in children.

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