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Effectiveness of Common Cold Massage Education on Improving Mothers' Knowledge in Managing Coughs and Colds in Infants Aged 0–12 Months at TPMB Nita Bantur

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ABSTRACT

Cough and cold in infants are common health issues caused by viral infections in the upper respiratory tract, which negatively affect the baby's quality of life. Massage therapy has been applied to relieve these symptoms, but many mothers still lack understanding about common cold massage and how to care for their babies when experiencing cough and cold. Most mothers tend to rely on applying telon oil or taking their babies to healthcare facilities for treatment. Massage has been practiced for centuries across the world. It can have a positive effect on the body and bring about beneficial physiological changes that can be measured scientifically. This study aims to determine the effect of an intervention on the participants' knowledge, as well as to examine the distribution of respondents based on education and age. The research used a quantitative method with a pre-experimental one-group pretest-posttest design. The paired t-test showed a significant difference between pre-test and post-test scores ($p < 0.05$). Most respondents had a senior high school education level (73.08%) and were aged 21–30 years (61.54%). These findings indicate that common cold massage is effective in improving mothers' understanding of how to manage cough and cold in infants, making it a valuable educational alternative in child care. Thus, the right approach can lead to meaningful change.

INTRODUCTION

Explain the background of the problem, the objectives and benefits of the research, theoretical considerations, and conclude with a hypothesis (The maximum number of healthy babies is the hope of every parent. The most common health problems experienced by infants and toddlers include coughs and colds, which often arise due to irritation of the respiratory tract, allergies, weakened immune systems, and unsupportive environments. The initial symptoms are characterized by discomfort in the nose and throat. Subsequently, babies begin to experience sneezing, runny nose, and mild pain. Sometimes this condition is also accompanied by a mild fever. (Yulianti & Selvi Yanti, 2021).

Health complaints in Indonesia in 2023 were recorded at 26.27 percent, especially among toddlers (0-4 years old) who experienced symptoms of cough and cold (Hardianto Krisna, Ketut Puji & Susanti, 2023). Cough and cold in children, if not treated properly, can cause complications that can worsen the child's condition. Complications that may arise from coughs and colds that are not treated properly include pneumonia, sinusitis, ear infections, bronchitis, and asthma attacks. There are various steps that can be taken to treat coughs and colds, both through pharmacological and non-pharmacological interventions. Non-pharmacological therapy utilizes physiological mechanisms, one method that can be used to meet these needs is by performing a common cold massage (common cold baby massage) (Nurjanah & Prativi, 2020).

Baby massage is performed as an effort to maintain the health of the baby (Bunda Fathi, 2020). This massage therapy for coughs and colds acts as a relaxation method to reduce anxiety and tension in the respiratory system. With this massage therapy, the respiratory muscles become calmer and blood circulation improves, thereby reducing adrenaline levels and increasing the body's immunity. children become calmer, which stimulates the production of endorphins, and blood flow improves. Massaging children also contributes to increased concentration, stimulates brain development, facilitates the digestive process, and supports oxygen flow to the brain. Massage therapy for colds is very useful for babies or children who have colds (Nurjanah & Prativi, 2020). A study by Elisa et al. (2023) revealed that cough and cold massage therapy can provide benefits in relieving symptoms of respiratory tract infections in infants, including reducing coughing, clearing nasal congestion, lowering fever, and increasing appetite and sleep quality in infants.

In order to increase the effectiveness of learning, interventions or treatments that are relevant to the characteristics of the participants are needed. This study aims to analyze the effectiveness of a treatment on learning outcomes and describe the demographic characteristics of respondents based on age and education. The treatment carried out by mothers when their toddlers had a cold was only to use telon oil or body rub until the condition improved on its own because it was considered a common cold. a common cold. In addition, mothers' lack of understanding of non-pharmacological methods such as baby massage, which can be done by themselves, makes the treatment of coughs and colds too late. Therefore, researchers were interested in finding out how mothers' knowledge of massage to

treat coughs and colds in toddlers at the Nita Bantur TPMB.

METHOD

Research participants

Research Methodology This research uses a quantitative approach with a one-group pretest-posttest design. Quasi-experimental – pretest - posttest without a control group. The sample consisted of 26 respondents who were selected purposively.

Research Procedure

This research uses a quantitative approach with a quasi-experimental one-group pretest-posttest design without a control group. The research was carried out through the following steps:

1. Preparation and Permission
   The initial process began with a request for research permission from the authorized party, namely the Independent Midwifery Practice Center (TPMB) located as the research site. In addition, the researchers also coordinated with local medical personnel to determine the implementation schedule and explain the objectives and purpose of this research.
2. Sample Selection and Initial Data Collection
   The researchers selected a sample consisting of 26 mothers who had infants or toddlers using purposive sampling, based on predetermined inclusion criteria. Before the intervention was implemented, the respondents were asked to fill out a participation consent form as a sign of agreement.
3. Pre-Test Implementation
   Before providing education, mothers were asked to fill out a pre-test questionnaire to assess their initial knowledge about common cold remedies in treating coughs and colds in infants and toddlers. The pre-test consisted of several questions related to the topics that would be taught.
4. Education and Demonstration
   After the pre-test, the researcher conducted education about common cold massage using media such as leaflets, PowerPoint presentations, and dolls as teaching aids. The educational material covered:
   a. Definition and benefits of common cold massage
   b. Indications and contraindications
   c. Steps for performing massage
   d. Appropriate timing for implementation.

   This education is designed so that mothers can understand the theory and practice of performing massage techniques correctly.
5. Common Cold Massage Practice
   Next, the respondents practiced common cold massage on their own babies or toddlers, under the supervision of the researchers. This practice was intended to ensure that the techniques taught were understood and applied correctly.
6. Evaluation (Post-Test)
   After the education and practice sessions ended, the respondents were asked to fill out a post-test questionnaire identical to the pre-test in order to assess the improvement in knowledge that occurred after the intervention was carried out.
7. Data Analysis
   The data from the pre-test and post-test were then analyzed using a paired sample t-test to determine the significance of the difference in knowledge before and after education and common cold massage practice.

Research Tools

This research used several measurement tools and materials that supported the data collection process and intervention implementation. The details of the research tools used are as follows:

1. Assessment Instruments (Pre-test and Post-test Questionnaires)
   The main instrument in this study was a questionnaire to assess mothers'

knowledge of common cold remedies as a form of treating colds in infants and toddlers.

This questionnaire was compiled by the researchers themselves based on relevant theoretical and literature reviews, referring in particular to:

- Apriyani & Purwani (2023), "The Effect of Common Cold Education on Mothers' Knowledge about Colds in Babies"
- Arikunto, S. (2014). Research Procedures for a Practical Study. Rineka Cipta.

This instrument consists of 10 multiple-choice questions that measure aspects of mothers' knowledge, including:

- Definition of common cold
- Purpose and benefits
- Time and frequency of implementation
- Areas of the body that are massaged
- Contraindications and side effects

Before use, the questionnaire was validated by two experts in the field of midwifery and community health to ensure content validity.

2. Educational media

In implementing education, media aids were used to increase respondents' understanding, namely:

- Educational leaflets containing concise and illustrated information on common cold massage techniques.
- PowerPoint (PPT) slides as an aid for oral presentation of the material.
- Baby dolls as demonstration tools during practical massage training.

3. Writing and Documentation Tools

- Pens and paper for filling out pre-tests and post-tests.
- Informed consent forms and respondent identification forms.
- Cameras/mobile phones for documenting activities (with permission).

4. Supporting Materials for Massage Practice

- Telon oil or baby oil: Used during massage practice to facilitate hand movements and increase the baby's comfort.
- Clean mat or towel: For a safe and hygienic massage practice area for babies.

Data analysis

The data analysis technique in this study was conducted quantitatively, with two main approaches, namely descriptive analysis and inferential analysis, as follows:

1. Descriptive Analysis

Descriptive analysis was used to describe the characteristics of respondents based on demographic data, such as:

- Mother's age (categorized into specific age ranges, for example: <20 years, 20–30 years, >30 years)
- Highest level of education (elementary school, junior high school, high school, university)

This data is coded in numerical form to facilitate processing, then presented in the form of frequency distributions and percentages, using tables.

2. Inferential Analysis

To determine the difference in mothers' knowledge before and after being given education and practicing common cold massage, a paired t-test was used.

This test was used because:

- The data consisted of pre-test and post-test scores that were numerical (interval/ratio)
- The research involved one group that was measured twice (before and after the intervention)

The t-test is used to determine whether there is a statistically significant difference between the pre-test and post-test scores.

The test was conducted at a significance level of $\alpha = 0.05$ (5%), with the following criteria:

- If the p-value < 0.05, then there is a significant difference

- If the p-value is ≥ 0.05, then there is no significant difference

3. Data Processing

All data were analyzed using Microsoft Excel and/or SPSS version 25 to obtain accurate and standardized results.

RESULTS AND DISCUSSION

This study aims to determine the effectiveness of common cold education in increasing mothers' knowledge in managing colds in infants and toddlers. The data were analyzed descriptively and inferentially.

1. Descriptive Statistics

The characteristics of respondents based on age and education are presented in the following table:

Table 1. Characteristics of Respondents based on Age and Education

Characteristics	Category	Frequency	Percentage (%)
Age	< 20 years old	4	15,4
	20–30 years old	17	65,4
	> 30 years old	5	19,2
Education	Junior high school	3	11,5
	Senior high school	15	57,7
	College	8	30,8

2. Pre-test and Post-test Results

The scores of mothers' knowledge before and after receiving education and practicing common cold massage are presented in Table 2.

Table 2. Average Scores of Mothers' Knowledge (N = 26)

Variabel	Mean	SD	Min	Max
Pre-test	60,4	8,7	40	80
Post-test	84,6	6,2	70	100

3. Hypothesis Testing (Paired Sample T-Test)

A paired t-test was conducted to determine the significant difference between the pre-test and post-test scores.

Table 3. Paired t-Test Results

Variabel	Mean Difference	t	df	Sig. (2-tailed)
Pre vs Post-test	24,2	12,35	25	0,000

Interpretation: A p-value of 0.000 < 0.05 indicates that there is a significant difference between mothers' knowledge before and after education. This indicates that common cold massage education is effective in increasing mothers' understanding.

The results of the study indicate a significant increase in mothers' knowledge after receiving education on common cold care. These results are in line with the study by Aspriyani & Purwani (2023), which states that education using visual media and direct practice can increase mothers' understanding of baby massage as a non-pharmacological intervention - pharmacological intervention in treating colds.

In addition, Ausubel's cognitive learning theory emphasizes that deep understanding occurs when new information is linked to previously acquired knowledge. In this study, the use of leaflets, PPTs, and puppets supported a more effective learning process.

This study also reinforces previous findings by Rahayu et al. (2022) found that infant massage training can increase mothers' knowledge and skills in performing home care independently.

However, these results differ from a study by Lestari (2021), which states that education without direct practice tends to be less effective in significantly increasing knowledge. This difference indicates that a combination of theoretical education and direct practice contributes more to the learning process. Thus, this research contributes to the development of maternal and child health education methods, particularly in treating colds without

medication. This intervention is also environmentally friendly and low risk, so it can be widely applied in community health services in the learning process. Thus, this research contributes to the development of health education methods for mothers and children, particularly in the treatment of cough without medication. This intervention is also environmentally friendly and low risk, so it can be widely applied in community health services.

Figure 1. Image of the implementation of common cold massage education

Figure 2. Image of the implementation of common cold massage education

CONCLUSIONS AND RECOMMENDATIONS

Based on the study that has been conducted, it can be summarized that the level of knowledge of mothers before the educational intervention regarding the common cold was in the adequate category, with a pre-test average score of 67.31. This indicates that many of the respondents had minimal initial understanding of the management of coughs and colds in infants. After the education session on common cold massage, there was a significant increase in the post-test scores, with an average of 95.00. All respondents scored ≥90, indicating that the intervention was very successful in increasing mothers' knowledge. Statistical analysis using a paired t-test showed a significant difference between the pre-test and post-test scores ($p < 0.05$), This reinforces the conclusion that common cold education is effective in expanding mothers' understanding of non-pharmacological treatment of colds in infants.

Respondent characteristics, such as age and education, also played a role in the effectiveness of the intervention. Most respondents were of productive age (21–30 years) and had a medium to high level of education, which made them more capable of accepting and understanding the information conveyed.

This program was designed to broaden mothers' knowledge about coughs and colds in infants and toddlers, as well as massage techniques for infants, through learning sessions in toddler classes. Through these small discussions, there was an increase in mothers' understanding after attending toddler classes on massage

for the non-pharmacological treatment of the common cold in infants.

Recommendations

Based on the results of research on the effectiveness of common cold massage in treating coughs and colds in infants, researchers provide several recommendations for mothers or caregivers. It is hoped that mothers can apply the knowledge gained from the common cold massage education regularly and appropriately, in order to help reduce the symptoms of colds in infants naturally and safely. For health workers, it is recommended that health workers, especially midwives at TPMB, continue to provide regular education about common cold massage and its benefits, so that mothers' knowledge increases and can be applied properly at home. Health service facilities at Puskesmas and TPMB can make education about common cold massage one of their routine counseling programs in toddler classes or Posyandu to encourage family-based self-care practices. For Health or Education Institutions, it is hoped that health or education institutions can include infant massage, especially common cold massage, in training or curriculum as a form of promotion and prevention of infant health problems. For further research, it is recommended to use a more complex design, involving a control group and a larger sample size, and conducted over a longer period of time to observe the long-term effects of common cold massage therapy.

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