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Implementation of the Semi-Fowler Position to Improve Airway Clearance in Preschool Children with Acute Upper Respiratory Tract Infection (URTI) at Buton Regional Hospital: A Case Study

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ABSTRACT

Background: Acute Respiratory Infection (ARI) is a disease affecting the respiratory system caused by microorganisms. This condition can lead to airway obstruction, resulting in increased sputum accumulation in the bronchi and alveoli, as well as shortness of breath. If not promptly managed, ARI may progress to hypoxia. One nursing intervention to improve airway clearance is airway management through the semi-Fowler position.
Objective: This study aimed to identify the improvement of airway clearance in a child with ARI who received airway management intervention.
Methods: This study employed a descriptive design in the form of a case study involving one pediatric patient diagnosed with ARI. The instruments used included nursing care documentation sheets, a standard operating procedure (SOP) for semi-Fowler positioning, and observation sheets. The intervention was conducted for three days, twice daily (morning and afternoon), with a duration of 15 minutes per session.
Results: After the implementation of the semi-Fowler position and the administration of warm fluids, the patient showed improvement, indicated by a respiratory rate of 26 breaths per minute, reduced wheezing sounds, a more regular breathing pattern, and the ability to expectorate sputum.
Conclusion: The application of the semi-Fowler position effectively improved airway clearance in a child with Acute Respiratory Infection.

ABSTRAK

Latar Belakang: Infeksi Saluran Pernapasan Akut (ISPA) adalah penyakit yang mempengaruhi organ pernapasan yang disebabkan oleh mikroorganisme. Kondisi ini dapat menyebabkan penyumbatan yang akibatnya, menyebabkan terjadi peningkatan sputum di bronkus dan alveolus dan sesak. Bila tidak segera diintervensi, kondisi ini bisa berkembang menjadi hipoksia oleh karena itu untuk mempermudah hal tersebut intervensi yang dapat dilakukan pada kasus ini adalah manajemen jalan napas (Posisi semi fowler).
Tujuan: Penelitian ini bertujuan untuk mengidentifikasi peningkatan bersihan jalan napas pada An.k dengan ISPA yang diberikan intervensi manajemen jalan napas.
Metode: Penelitian ini menggunakan desain penelitian deskriptif dalam bentuk studi kasus dengan satu subjek dengan diagnosanya yaitu ISPA. Instrumen yang digunakan berupa lembar format asuhan keperawatan, SOP terapi semi fowler, dan lembar observasi. Tindakan ini dilakukan selama 3 hari (2xsehari yaitu pagi dan sore) setiap 15 menit per sesi.
Hasil: setelah dilakukan posisi semi fowler dan memberikan minuman hangat didapatkan frekuensi napas 26x/i, suara napas weezing berkurang, pola napas teratur/membaik dan mampu mengeluarkan sputum.
Kesimpulan: dapat ditarik kesimpulan bahwa penerapan posisi semi fowler terhadap bersihan jalan napas pada An.K dengan ISPA dapat meningkatkan bersihan jalan napas.

INTRODUCTION

Acute Respiratory Infection (ARI) is a disease that affects the respiratory organs, ranging from the nose to the alveoli, and also involves the sinuses, middle ear cavity, and pleura. This disease is caused by more than 300 types of microorganisms, including bacteria, viruses, and fungi. Bacterial causes of ARI include genera such as *Streptococcus*, *Staphylococcus*, *Pneumococcus*, *Haemophilus*, *Bordetella*, and *Corynebacterium*. Meanwhile, viruses that can cause ARI include myxoviruses, adenoviruses, coronaviruses, picornaviruses, mycoplasma, herpesviruses, and others (Zolanda, Raharjo, & Setiani, 2021).

According to the World Health Organization (WHO), in 2020, ARI was the leading cause of morbidity and mortality due to infectious diseases in developing countries. Each year, an estimated 4.25 million people die from

ARI. Among children aged 1 to 5 years, WHO data indicate approximately 1,988 ARI cases, with a prevalence rate of 42.91% (Anggraini etal., 2023).

The under-five mortality rate (UFMR) related to ARI is recorded at approximately 41 per 1,000 children, while the infant mortality rate reaches 45 per 1,000 children. In developed countries, ARI is predominantly caused by viral infections, whereas in developing countries it is more commonly caused by bacterial infections (Perangin-angin et al., 2024).

Based on data from the 2018 Basic Health Research (*Riskesdas*), the prevalence of ARI among preschool children in Indonesia varies significantly across provinces. Nationally, the prevalence of ARI among children under five years old reached 9.3% (Putri & Tahangnacca, 2022). Data show that ARI cases among preschool children in Southeast Sulawesi totaled 6,400 cases in 2020, increased to 3,759 cases in 2021, and rose again to 4,351 cases in 2022 (Amay & Tosepu, 2024).

ARI is a common acute respiratory infection experienced by children due to their immature immune systems. Children with ARI generally experience shortness of breath caused by obstruction in the larynx, bronchi, and bronchioles, which interferes with airflow to the alveoli. Consequently, mucus (secretions) accumulates in the bronchi and alveoli, worsening respiratory distress. If not promptly managed, this condition may progress to hypoxia. Therefore, timely and appropriate intervention is necessary to prevent further complications (Agusty, 2023).

One intervention to improve airway clearance is the semi-Fowler position. The semi-Fowler position places the patient's head higher than the lower body according to the patient's comfort level, shifting the head from a flat supine position to an elevated angle of 45° to 90° to support respiratory function. This position maximizes chest and lung expansion, helps open areas of atelectasis, and enhances the effect of gravity, allowing breathing to occur without obstruction (Mulyaningtyas & Musta'in, 2024).

The semi-Fowler position is a semi-sitting or sitting position in which the head of the bed is elevated. It is performed using pillows to support the patient's back and is applied when breathing difficulty occurs due to mucus accumulation. This position aims to maintain patient comfort and facilitate respiratory function. The semi-Fowler position assists airway clearance in ARI patients by maximizing lung expansion, facilitating secretion removal, and reducing pressure on the diaphragm. This position enables more effective coughing, reduces the work of breathing, enhances lung expansion, promotes secretion expectoration, decreases diaphragmatic pressure, and alleviates shortness of breath. Therefore, the semi-Fowler position is an important nursing intervention in the care of ARI patients to improve airway clearance and reduce the risk of respiratory complications (Handayani et al., 2021).

The semi-Fowler position, with the head of the bed elevated at approximately 30–45 degrees, is a beneficial nursing intervention for airway clearance in patients with ARI. In this position, lung expansion is optimized due to increased diaphragmatic movement, allowing more effective gas exchange. Additionally, gravity facilitates the movement of mucus from smaller airways to larger airways, making it easier to expel through coughing or suctioning. This is particularly useful for ARI patients who often experience increased mucus production and difficulty clearing secretions. In addition to improving respiratory function, the semi-Fowler position reduces pressure from abdominal organs on the diaphragm, thereby decreasing the workload of breathing and increasing patient comfort. This position also supports more effective coughing by allowing respiratory muscles to function optimally, which enhances mucus clearance and minimizes the risk of complications such as lung collapse or secondary infections. Thus, the semi-Fowler position is a simple yet important non-pharmacological intervention in supporting the recovery of ARI patients (Mulyaningtyas & Musta'in, 2024).

Research findings indicate that the application of semi-Fowler positioning therapy is effective in maintaining airway clearance in ARI patients. Data show that in the first patient, the respiratory rate was 40 breaths per minute before the intervention and decreased to 35 breaths per minute after therapy. In the second patient, the respiratory rate decreased from 45 breaths per minute before the intervention to 40 breaths per minute after the semi-Fowler position was applied (Nursa et al., 2023). These findings are consistent with the study by Mulyaningtyas and Musta'in (2024), which reported that after implementing the semi-Fowler position and effective coughing for 3×24 hours, ARI patients were able to expectorate sputum, respiratory rates decreased to 22 breaths per minute, and oxygen saturation levels improved.

METHODS

This study used a descriptive case study design involving a preschool child diagnosed with Acute Respiratory Tract Infection (ISPA) and experiencing ineffective airway clearance at Buton Regional Hospital. The intervention

consisted of positioning the patient in a semi-Fowler position with the head of the bed elevated at 30–45 degrees, administered twice daily for three consecutive days, with each session lasting approximately 15 minutes in accordance with standard operating procedures. Data were collected through interviews, observation, physical examination, and medical record review using nursing care and observation sheets. Data were analyzed descriptively by comparing the patient's condition before and after the intervention. Ethical principles, including informed consent, anonymity, and confidentiality, were applied throughout the study.

RESULTS

1. Nursing Assessment

a. General Description

This study was conducted at the Pediatric Ward Class III of BLUD RSUD Buton on May 28, 2025. The ward consisted of one room containing four beds. The subject selection criteria included patients diagnosed with Acute Respiratory Tract Infection (ISPA), patients experiencing ineffective airway clearance as a nursing problem, patients presenting with shortness of breath, and those who were willing and cooperative to pISPAcipate in the study. The respondent was identified by the initials An. K with medical record number 05-12-70, a 5-year-old male living in Dusun Lajangku, Wabula 1. An. K is the first of two siblings and lives with both parents. The patient was diagnosed with ISPA accompanied by shortness of breath.

b. Present Health History

Based on the current health history, there was one respondent who met the inclusion criteria. The patient's mother reported that the child had experienced shortness of breath one day prior to hospital admission, accompanied by productive cough and dyspnea. On examination, the respiratory rate was 34 breaths per minute, pulse rate was 88 beats per minute, and body temperature was 36°C.

c. Past and Family Health History

The patient's mother stated that the child had previously received treatment at a primary health center for similar complaints. In addition, a family history of similar illness was reported, specifically in the patient's father.

d. Basic Needs Assessment

According to the patient's mother, prior to illness the child's oxygenation status was normal, with a respiratory rate of 24 breaths per minute and no symptoms of productive cough or dyspnea. After the onset of illness, the child experienced respiratory distress characterized by shortness of breath, an increased respiratory rate of 34 breaths per minute, and productive cough. Nutritional needs prior to illness were well fulfilled, with a regular eating pattern of three meals per day and the ability to finish one full portion per meal. However, following illness, the child experienced a decreased appetite.

Before illness, the child's sleep needs were adequately met, consisting of approximately two hours of daytime sleep between 12:00 and 13:11 WITA and 6–8 hours of nighttime sleep from 22:00 to 07:00 WITA without difficulty initiating sleep. After becoming ill, the child experienced sleep disturbances due to frequent coughing and shortness of breath, exhibited irritability, and expressed a desire to return home due to discomfort in the hospital environment.

Prior to illness, the child was able to perform daily activities independently, including changing positions from lying to sitting and from sitting to standing without assistance or assistive devices. After illness, the child's activity was limited to bed rest and required assistance from parents or family members for movement.

During pregnancy, the mother reported no health complications. The child was delivered at 39 weeks of gestation through a normal vaginal delivery assisted by a midwife, with a birth weight of 3.3 kg and a body length of 50 cm. Throughout growth and development, no delays or abnormalities were noted. At present, the child weighs 16 kg and has a height of 103 cm, with good nutritional status (BMI: 15.08).

The child's cognitive development was considered adequate, as reported by the mother, including the ability to imitate adult actions and speech. Psychosocial development was also observed, characterized by fear when separated from the mother and sensitivity to loud noises. The mother reported that the child interacted well with peers and did not exhibit fear or shyness toward unfamiliar individuals.

Pharmacological therapies administered to An. K included injectable paracetamol (PCT) 110 mg every 8 hours, zinc syrup 20 mg once daily, L-Bio one sachet every 24 hours, intravenous fluid KaEN 3B at 15

drops per minute (macro), salbutamol, pyridoxine 1.6 mg three times daily, Lasalcom, JResp every 4 hours, and ambroxol syrup ½ teaspoon three times daily.

2. Nursing Diagnosis and Interventions

Table 1. Nursing Diagnosis and Interventions

Component	Description
Nursing Diagnosis (SDKI)	**Ineffective Airway Clearance (D.0001)**
Related Factors (Etiology)	Accumulation of airway secretions and increased mucus production related to respiratory tract infection
Defining Characteristics	- Productive cough - Shortness of breath - Increased respiratory rate (34 breaths/minute) - resence of wheezing - Use of accessory respiratory muscles
Nursing Outcome (SLKI)	**Airway Clearance**
Outcome Indicators	- Respiratory rate within normal limits (16–24 breaths/minute) - Reduced dyspnea - Effective cough - Absence or reduction of wheezing - Oxygen saturation ≥95%
Target Outcome	Airway clearance improves within 3×24 hours of nursing intervention
Nursing Intervention (SIKI)	**Airway Management**
Specific Intervention	**Positioning: Semi-Fowler Position**
Intervention Activities	- Assess respiratory status (rate, depth, rhythm, and effort) - Monitor oxygen saturation using pulse oximetry - Assess breath sounds for wheezing or crackles - Position the patient in a semi-Fowler position (30–45°) - Encourage effective coughing to facilitate secretion clearance - Provide comfort and maintain airway patency
Frequency and Duration	- Performed twice daily (morning and evening) - Duration ±15 minutes per session - Implemented for 3 consecutive days (3×24 hours)
Rationale	The semi-Fowler position facilitates lung expansion, reduces pressure on the diaphragm, improves ventilation, and promotes effective airway clearance in pediatric patients with respiratory infection
Evaluation (SLKI-based)	After 3×24 hours of intervention, respiratory rate decreased from 34 to within normal limits, wheezing was reduced, coughing became more effective, oxygen saturation increased to ≥95%, and the patient's breathing pattern improved

3. Implementation and Evaluation

Table 2. Implementation Results and Nursing Evaluation of Semi-Fowler Position Therapy

Day	Intervention	Morning Outcome	Afternoon Outcome
Day 1 (28 May 2025)	Semi-Fowler position (30–45°) for 15 minutes and warm fluid (35–37°C)	RR decreased from 34 to 33 breaths/min; wheezing still present; sputum difficult to expectorate	RR decreased from 33 to 32 breaths/min; wheezing persisted
Day 2 (29 May 2025)	Semi-Fowler position (30–45°) for 15 minutes and warm fluid (35–37°C)	RR decreased from 32 to 31 breaths/min; wheezing reduced; sputum became thinner and could be expelled	RR decreased from 31 to 30 breaths/min; breathing pattern improved
Day 3 (30 May 2025)	Semi-Fowler position (30–45°) for 15 minutes and warm fluid (35–37°C)	RR decreased from 30 to 28 breaths/min; wheezing minimal; effective cough	RR decreased from 28 to 26 breaths/min; breathing pattern stable and regular

Source: Primary data, 2025

The implementation of the semi-Fowler position combined with the administration of warm fluids demonstrated a progressive improvement in the patient's respiratory status over three consecutive days. On the first day, the intervention resulted in a slight reduction in respiratory rate, although wheezing and difficulty in sputum expectoration persisted, indicating pISPAal airway obstruction. This finding reflects an early physiological response to improved lung expansion and reduced diaphragmatic pressure.

On the second day, a more noticeable clinical improvement was observed, characterized by a further reduction in respiratory rate, decreased wheezing, and improved sputum clearance. These changes suggest enhanced ventilation and more effective airway clearance facilitated by gravitational assistance and secretion thinning. By the third day, the patient's respiratory rate approached age-appropriate normal limits, wheezing was minimal, and the breathing pattern became regular and stable.

Overall, these findings indicate that the combination of semi-Fowler positioning and warm fluid administration was effective in improving airway clearance and respiratory function in a pediatric patient with acute respiratory tract infection. The nursing problem of ineffective airway clearance was therefore considered pISPAally to fully resolved, consistent with the expected nursing outcomes.

Table 3. Evaluation Results of Airway Clearance Before and After Semi-Fowler Position Therapy

Day/ Date	Observation	Morning		Afternoon	
		pre	Post	pre	Post
Wednesday, 28 May 2025	Sputum production	1	1	1	1
	Wheezing	1	1	1	1
	Respiratory rate	1	2	2	3
Thursday, 29 May 2025	Sputum production	1	2	3	3
	Wheezing	1	2	3	3
	Respiratory rate	3	3	4	5
Friday, 30 May 2025	Sputum production	3	4	4	5
	Wheezing	3	4	4	5
	Respiratory rate	3	4	5	5

Source: Primary data, 2025

Scoring description:
1 = increased
2 = moderately increased
3 = moderate
4 = moderately decreased
5 = decreased

On the first day (Wednesday, 28 May 2025), the patient's condition was still classified as poor. This was indicated by a consistent score of 1 for sputum production and wheezing during both morning and afternoon observations, before and after the intervention. These findings suggest that airway obstruction and excessive secretions were still present. However, a slight improvement was observed in respiratory rate, with scores increasing from 1 to 2 in the morning and from 2 to 3 in the afternoon, indicating an early response to the intervention.

On the second day (Thursday, 29 May 2025), the patient began to show noticeable improvement. Scores for sputum production and wheezing increased from 1 to 2 in the morning and reached 3 in the afternoon, reflecting a reduction in symptom severity from moderately increased to moderate. Respiratory rate also demonstrated a positive trend, improving from a score of 3 in the morning to 5 in the afternoon, which indicates a return toward normal respiratory patterns.

On the third day (Friday, 30 May 2025), the patient showed significant clinical improvement. Scores for sputum production, wheezing, and respiratory rate ranged from 3 to 5 during both morning and afternoon evaluations. A score of 5 indicates that symptoms such as productive cough, wheezing, and dyspnea were markedly reduced. This progression demonstrates a consistent and positive response to the intervention.

Overall, during the three-day observation period, the patient's condition improved gradually from a severe state (score 1) to a markedly improved condition (score 5), pISPAcularly evident on the third day. These findings indicate that the implementation of semi-Fowler position therapy, administered twice daily for 15 minutes over three consecutive days, was effective in improving airway clearance in a 5-year-old child with Acute Respiratory Tract Infection (ISPA) at RSUD Kabupaten Buton.

DISCUSSION

Based on the results of the study conducted in the pediatric ward of BLUD RSUD Kabupaten Buton, it was found that An. K was diagnosed with Acute Respiratory Tract Infection (ISPA) accompanied by the nursing problem of ineffective airway clearance due to airway spasm. Patients with ISPA commonly experience difficulty clearing secretions from the respiratory tract. This condition occurs as a result of inflammation that increases mucus production, damages the cilia (fine hairs lining the airway), and weakens the cough reflex, making secretion expulsion difficult (Prasetyo T, 2023).

Sangu and Guru (2023) reported that many children with ISPA experience ineffective coughing, wheezing, and tachypnea. If secretions continue to accumulate and are not promptly removed, this condition may lead to dyspnea, hypoxia, and even pulmonary infections such as pneumonia. Several studies have indicated that a semi-sitting sleeping position (semi-Fowler) and the administration of warm fluids can help thin and mobilize secretions, thereby improving breathing comfort. Therefore, early management of airway clearance disorders is essential to prevent deterioration of the patient's condition.

Airway clearance refers to the body's ability to remove secretions, debris, or foreign materials from the respiratory tract to maintain airway patency. This process occurs naturally through mechanisms such as coughing and ciliary movement that propel secretions outward. Effective airway clearance is crucial to ensure adequate oxygen delivery to the lungs and removal of carbon dioxide from the body. When this process is disrupted—such as by excessive mucus production or an ineffective cough—secretions can accumulate and obstruct the airway, leading to dyspnea, hypoxia, and infections such as pneumonia. Therefore, maintaining airway cleanliness is pISPAcularly important in patients with respiratory illnesses such as ISPA, asthma, or other respiratory disorders (Arini & Syarli, 2022).

In this study, the intervention provided to An. K consisted of positioning the patient in a semi-Fowler position for three consecutive days, with a frequency of twice daily and a duration of 15 minutes per session. The results demonstrated that the application of the semi-Fowler position was effective in improving airway clearance in An. K with ISPA. This study also explains that therapies such as semi-Fowler positioning or bronchodilator use may require more than 24 hours to produce noticeable clinical effects on breathing patterns and breath sounds. Therefore, the absence of significant changes on the first day is not uncommon and emphasizes the importance of continuous monitoring and evaluation to ensure therapeutic effectiveness.

These findings are consistent with the study by Sari et al., (2022), which showed that the semi-Fowler position effectively improved airway clearance in children with ISPA. Prior to the intervention, increased sputum production, wheezing, and elevated respiratory rate (RR 34 breaths/minute) were observed. After therapy, gradual reductions in respiratory rate and respiratory symptoms were noted. By the second and third days, the patient's condition improved significantly, as indicated by decreased sputum production, reduced wheezing, and a respiratory rate decreasing to 26 breaths/minute. This suggests that the semi-Fowler position helps improve breathing patterns and progressively reduces airway obstruction.

Similarly, Umaternate, S., et al (2023) reported that the implementation of semi-Fowler positioning was effective in maintaining airway clearance in patients with ISPA. Their findings showed that in the first patient, the respiratory rate decreased from 40 breaths/minute before the intervention to 35 breaths/minute after therapy. In the second patient, the respiratory rate decreased from 45 breaths/minute before the intervention to 40 breaths/minute following semi-Fowler positioning.

Mulyaningtyas and Musta'in (2024) also explained that after implementing semi-Fowler positioning combined with effective coughing for 3×24 hours, ISPA patients were able to expectorate sputum, experienced a reduction in respiratory rate to 22 breaths/minute, and showed increased oxygen saturation levels. Although these results were positive, the authors emphasized that this method serves as a supportive intervention to improve airway clearance and does not replace medical treatment prescribed by physicians. Overall, the semi-Fowler position is effective in facilitating airway clearance in ISPA patients; however, further research is required to strengthen the evidence and broaden its clinical application.

The semi-Fowler position involves elevating the patient's head above the lower body within the patient's comfort range, typically at an angle of 45° to 90°, to assist respiratory function. One of the primary advantages of this position is its ability to maximize chest and lung expansion. It also helps optimally open areas of atelectasis and enhances gravitational effects, allowing breathing to occur with less obstruction (Potter, Perry et al., 2021).

Positioning the patient in a semi-Fowler position with the head elevated at 30°–45° facilitates airway clearance by allowing gravity to move secretions from smaller airways to larger airways, making them easier to expel through coughing. This position also promotes lung expansion, maintains the patency of small airways, and enhances mucociliary clearance. The combined effects of gravity, improved lung expansion, and effective coughing make the semi-Fowler position highly beneficial for airway clearance (Huck, Murgia et al., 2022).

The semi-Fowler position, characterized by elevating the head and chest approximately 30°–45°, facilitates lung expansion, thereby improving oxygen flow into the body and reducing dyspnea. In addition, this position aids in the removal of accumulated secretions in the respiratory tract, as gravitational forces direct secretions downward, making coughing more effective. Consequently, breathing becomes more regular, and the patient experiences improved comfort. This position is pISPAcularly beneficial for patients with ISPA (Fransiska et al., 2023).

During the early stages of respiratory interventions, significant clinical changes are often not immediately observed, as physiological responses require time to develop. According to respiratory physiology theory, improvements in airway function, including mucus reduction and ciliary recovery, occur gradually. Furthermore, inflammatory responses that cause symptoms such as wheezing and increased respiratory rate do not resolve after a single intervention (Olviani & Nurhanifah, 2024).

In this study, in addition to semi-Fowler positioning, the researcher also administered warm fluids to improve airway clearance in An. K. The combination of semi-Fowler positioning and warm fluid administration has been shown to be effective in improving airway clearance in children aged 3–6 years with ISPA. This approach contributes to reduced respiratory rate, increased oxygen saturation, facilitation of sputum expectoration, and reduction of abnormal breath sounds such as wheezing. Therefore, this therapy is recommended as part of a non-pharmacological care approach for children with ISPA (Sangu & Guru, 2023).

Warm fluids provide physiological benefits for airway clearance, primarily through their ability to thin thick mucus secretions in the respiratory tract. Increased mucosal moisture resulting from warm fluid intake or inhalation enhances ciliary activity, facilitating mucus removal. Additionally, warmth helps relax bronchial smooth muscles and increases local blood flow, accelerating healing processes and supporting immune responses. These combined effects promote productive coughing, helping maintain a clear and patent airway. Warm fluid administration was chosen because it helps liquefy respiratory secretions, making them easier to expel during coughing. It also soothes the throat, reduces irritation, and enhances patient comfort. In this study, warm fluids were administered alongside semi-Fowler positioning and were shown to reduce respiratory rate, decrease wheezing, and accelerate sputum expulsion. Thus, warm fluid intake plays a crucial role in enhancing airway clearance effectiveness (Yuliana, 2023).

According to Supriani et al. (2025), routine administration of warm fluids to ISPA patients has a positive impact on respiratory tract conditions. Using a pre-experimental design involving 40 respondents with respiratory complaints, the study demonstrated a significant improvement in respiratory symptoms following warm fluid administration ($p = 0.000$).

During the nursing care process, the patient's family was educated on the importance of warm fluid administration as a non-pharmacological intervention to manage ineffective airway clearance in children with ISPA. This education was provided on the first day when the patient exhibited difficulty producing an effective cough and audible wheezing. The nurse explained that administering warm fluids three times daily, 100–150 cc per session at a temperature of 35–37°C, could help thin secretions and facilitate expectoration. Warm fluids also help moisten the airway and provide throat comfort. The family was encouraged to implement this intervention consistently for three consecutive days. Following education, the patient's mother demonstrated understanding, was able to restate the information, and agreed to continue warm fluid administration independently at home. This educational intervention aimed to actively involve the family in the child's recovery process and enhance their understanding that simple measures—such as positioning the child in a semi-Fowler position and providing warm fluids—can significantly support airway clearance. Follow-up observations showed that after consistent implementation of these interventions, the child's respiratory rate decreased and the child was able to expectorate sputum independently without assistance (Nuryanti, 2022).

If airway secretion clearance is not promptly managed, mucus accumulation can obstruct the airway, impair airflow, and result in dyspnea and hypoxia, leading to fatigue and weakness. Accumulated mucus also provides a medium for bacterial growth, potentially causing infections such as ISPA. Without timely intervention, this condition may worsen and lead to serious respiratory complications. Therefore, early management is essential to maintain airway patency and promote recovery (Arini & Syarli, 2022).

These findings are consistent with the study by Meilando and Ners (2024), which demonstrated clinical success in nursing care for patients with ISPA. Improvement was evidenced by enhanced airway clearance and increased oxygen saturation. The nursing diagnosis of ineffective airway clearance was considered resolved, as indicated by reduced sputum production, normalized respiratory rate, absence of chest wall retractions, no use of accessory respiratory muscles, and decreased wheezing. These findings reflect improved respiratory function and enhanced oxygenation status.

CONCLUSION

This study concludes that the pediatric patient with Acute Respiratory Tract Infection experienced ineffective airway clearance characterized by dyspnea, increased respiratory rate, productive cough, and wheezing. The implementation of the semi-Fowler position combined with warm fluid administration for three consecutive days, conducted twice daily for 15 minutes per session, resulted in progressive improvement in airway clearance. This was evidenced by decreased respiratory rate, reduced wheezing, improved sputum expectoration, and a more regular breathing pattern. Therefore, the semi-Fowler position accompanied by warm fluid administration is an effective, simple, and safe non-pharmacological nursing intervention to improve airway clearance in children with Acute Respiratory Tract Infection.

LIMITATIONS AND RECOMMENDATION

This study has several limitations. First, the research design was a descriptive case study involving only one subject, which limits the generalizability of the findings. Second, the intervention was conducted over a relatively short period of three

days, so long-term effects of the semi-Fowler position on airway clearance could not be evaluated. Third, the assessment relied on clinical observations without objective measurement tools such as arterial blood gas analysis or spirometry, which may affect the precision of the results. In addition, the intervention was combined with warm fluid administration, making it difficult to determine the independent effect of the semi-Fowler position alone.

Based on the findings, it is recommended that future studies use a larger sample size and experimental or quasi-experimental designs to strengthen the evidence regarding the effectiveness of the semi-Fowler position in improving airway clearance in children with ARI. Longer observation periods are also suggested to assess sustained clinical outcomes. Healthcare providers, particularly nurses, are encouraged to apply the semi-Fowler position as a non-pharmacological intervention in pediatric ARI patients to support airway clearance, in conjunction with standard medical therapy. Further research is recommended to evaluate the combined and separate effects of positioning therapy and warm fluid administration on respiratory outcomes.

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