GENIUS JOURNAL
general nursing science journal
e-ISSN: 2723-7729
Vol. 7 No. 1 PP. 182-190 E-ISSN 2723-7729

Strengthening the Role of Nurses in Managing Respiratory Problems in Infants with Bronchiolitis: A Literature Review

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DOI: https://doi.org/10.56359/gj.v7i1.951

Abstract

Introduction: Bronchiolitis is a major cause of hospitalization in infants and remains a leading respiratory challenge in paediatric care worldwide. Triggered mainly by the *Respiratory Syncytial Virus (RSV),* this condition causes airway inflammation, mucus obstruction, and respiratory distress that can rapidly progress to oxygenation failure. While most cases are self-limiting, inadequate nursing interventions often lead to prolonged illness and complications. Therefore, implementing evidence-based nursing strategies, including observation, education, therapeutic, and collaborative approaches, is essential to ensure comprehensive respiratory management and faster recovery in affected infants.
Objective: This study aims to analyse the implementation of nursing care strategies through observation, education, therapeutic, and collaborative approaches to optimize respiratory management and recovery in infants with bronchiolitis.
Method: This study used a literature review design by analysing six relevant articles published between 2021 and 2025 obtained from *Google Scholar.* The literature selection followed the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)* guidelines, focusing on the implementation of nursing strategies in managing respiratory problems in bronchiolitis.
Result: The review found that observation was the most frequently applied nursing intervention, serving as the foundation for assessing physiological responses. Therapeutic and collaborative actions, such as chest physiotherapy, semi-fowler, positioning, nebulization, and oxygen therapy, were effective in improving oxygen saturation and reducing respiratory effort. Educational interventions, although less common, significantly strengthened family involvement and awareness of home care practices. The integration of these four strategies enhanced recovery, improved comfort, and demonstrated measurable clinical benefits for infants with bronchiolitis.

Conclusion: The balanced and evidence-based application of observation, education, therapeutic, and collaborative strategies strengthens nursing care quality, accelerates respiratory recovery, and reinforces the nurse's essential role in holistic management of bronchiolitis

Keywords: bronchiolitis, collaborative, education, nursing strategies

Introduction

Bronchiolitis is a viral infection of the lower respiratory tract, most commonly caused by the Respiratory Syncytial Virus (RSV) (Asseri, 2025). This condition is characterized by airway obstruction, tachypnea, and wheezing, which may progress to respiratory failure (Bozzola et al., 2024). According to data from the World Health Organization and UNICEF, more than 33 million cases of bronchiolitis occur annually worldwide, resulting in approximately 3.6 million hospitalizations and over 100,000 deaths among children under five years of age in low- and middle-income countries (WHO & UNICEF, 2023). These findings indicate that bronchiolitis remains a major contributor to global childhood morbidity and mortality (Bozzola et al., 2024; Koliou et al., 2023). Therefore, effective and comprehensive health service interventions are urgently required.

Management of bronchiolitis commonly includes pharmacological therapies such as bronchodilators, corticosteroids, antibiotics, and oxygen administration (Twomey & Jones, 2024; Wijaya, 2022). However, these treatments may cause adverse effects in pediatric patients (Hidayah et al., 2023). To reduce potential side effects, evidence-based non-pharmacological interventions have been developed, including the semi-Fowler position, chest physiotherapy, and family education (Faozi & Noviana, 2024; Perrotta et al., 2023). During hospitalization, nurses play a crucial role in delivering holistic care that is not solely dependent on pharmacological therapy. In addition to acting as clinical practitioners, nurses function as educators, communicators, and collaborators to ensure continuity of care throughout the recovery process (Nurhasanah & Hasanah, 2024).

The quality of nursing care is not determined solely by accurate assessment and nursing diagnoses, but also by the effective implementation of essential nursing interventions. These include early observation of respiratory distress signs, oxygen saturation monitoring, supportive therapy, and family education regarding warning signs that require immediate attention (Rahmawati & Sitorus, 2025). Proper alignment of nursing interventions is essential to minimize the risk of complications such as respiratory failure (Guidi et al., 2024).

Despite established guidelines, nurses continue to require support in implementing optimal nursing care for infants and children with bronchiolitis. In clinical practice, nursing care often emphasizes collaborative medical actions, while observation, education, and therapeutic interventions may receive less attention (Muhammad et al., 2024). Therefore, this study aims to review the application of nursing care, including observation, education, therapeutic interventions, and collaboration, to accelerate recovery and prevent complications in children with bronchiolitis.

Objective

This study aims to analyse the application of nursing care through observation, education, therapeutic actions, and collaborations to optimize respiratory management and accelerate recovery in infants with bronchiolitis.

Method

This study employed a literature review design aimed at identifying and synthesizing evidence related to the application of nursing care in infants with bronchiolitis. The research strategy was developed using the PEO framework, which consisted of Population (infants with bronchiolitis), Exposure (implementation of nursing care), and Outcome (relief or improvement of respiratory conditions). This framework guided the formulation of research questions and the literature search process (Bozzola et al., 2024; Koliou et al., 2023).

Literature searching was conducted using the Google Scholar database. Prior to the search, inclusion and exclusion criteria were determined. The inclusion criteria comprised research articles published between 2021 and 2025, written in Indonesian or English, available in full text, employing case study or clinical research designs, and specifically discussing the implementation of nursing care in infants with bronchiolitis. Articles were excluded if they were non-nursing studies, literature reviews, systematic reviews, proceedings, symposium papers, or opinion articles (Nurhasanah & Hasanah, 2024; Twomey & Jones, 2024).

The article selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Retrieved articles were screened based on titles and abstracts, followed by full-text assessment to ensure eligibility. All selected articles were organized and managed using bibliographic management software (Mendeley version 2.80.1) to facilitate data handling and review (Perrotta et al., 2023).

The results of the literature review were presented descriptively and systematically, focusing on the characteristics of study participants, research objectives, and types of nursing care provided to infants with bronchiolitis during hospitalization. The synthesis emphasized key components of nursing care, including observation, education, therapeutic interventions, and collaboration, to illustrate their roles in accelerating recovery and preventing complications (Rahmawati & Sitorus, 2025; Wijaya, 2022).

Result

The characteristic overview of the entire article (n = 6) describes the entire nursing care process in infants with bronchiolitis. It is known that as many as 83.3% (n=8) articles explain the implementation of nursing to overcome airway clearance disorders and respiratory distress, and 16.7% (n=2) articles are about strengthening the educational role of nurses to families. As many as 66.7% (n=7) of the article emphasized that the implementation of nursing needs to be carried out completely and integrated with the problem of bronchiolitis as a whole. In comparison, 33.3% (n=3) of the article proved that a thorough implementation can accelerate respiratory recovery in infants with bronchiolitis (Table 2).

The researchers analysed four main delivery points from all the articles studied, namely: (1) observational implementation, (2) educational implementation, (3) therapeutic implementation, and (4) collaborative implementation.

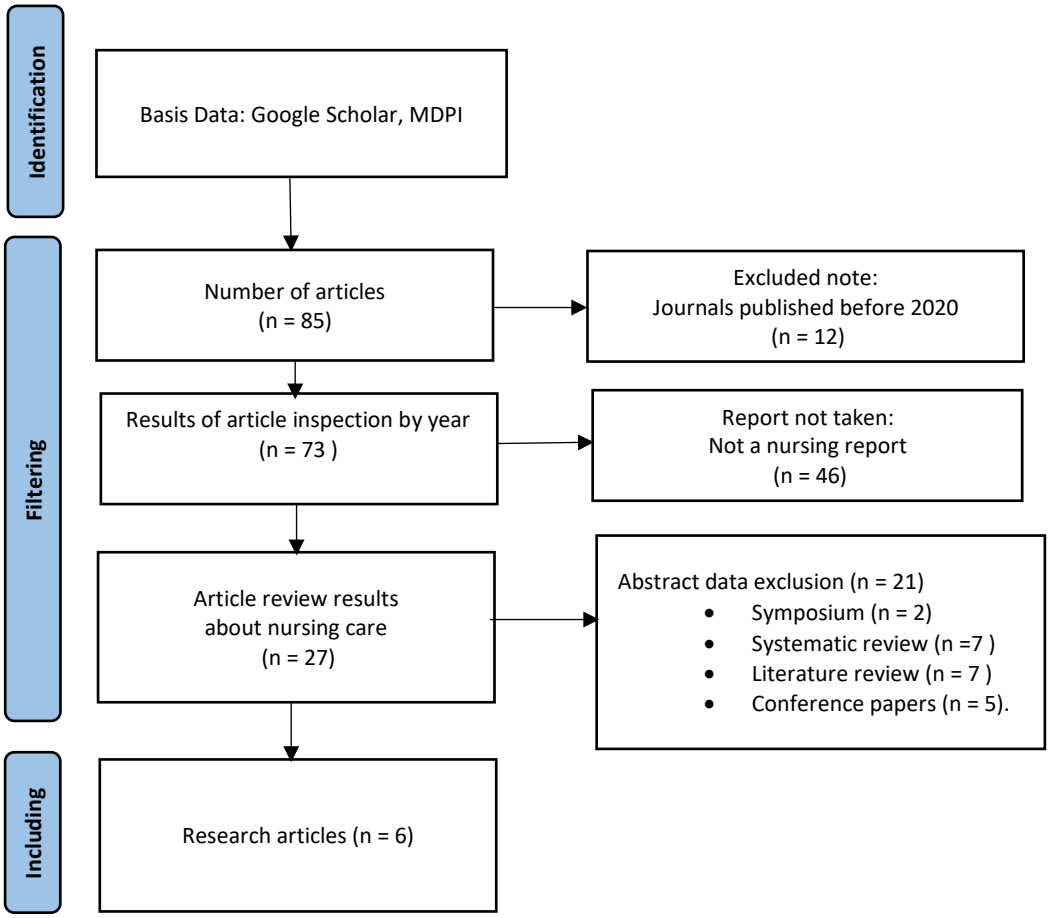

Figure 1. PRISMA's step-by-step flowchart in selecting articles for review

Implementation of observation

All articles describe the implementation of nursing observation on patient's condition, identifying the observations made by nurses physiologically (100%) and psychologically (70%).

Implementation of education

It is shown that as many as 33.3% (n=2) of articles provide educational implementation to parents regarding bronchiolitis education and instruction on caring for infants with bronchiolitis.

Implementation of therapy

Of all the articles, only 83.3% (n=5) demonstrated therapeutic action for children with bronchiolitis. Meanwhile, 50% (n=3) of the article performed the semi-fowler position procedure, 33.3% (n=2) of the article acted as a provider of chest physiotherapy. In addition, several articles also report the administration of oxygen according to clinical indications to maintain oxygen saturation above 94%.

Collaborative implementation

It is discovered that 83.3% (n= 8) of the articles performed collaborative therapy instructed by the doctor by giving oxygen therapy, 66.7% (n = 6) of the articles gave antibiotics, and 33.3% (n=2) gave oxygen therapy with the nassal cannula.

Search Title: The Effect of Nursing Implementation in Strengthening the Role of Nurses to Manage Respiratory Problems in Infants with Bronchiolitis
Research Question: Can the implementation of nursing have a restorative effect on infants with bronchiolitis?

Table 1. Literature Research with PEO

Research Topic Components	P (Population)		E (Exposure)		O (Results)
Key terms	Infants with bronchiolitis	AND	Nursing implementation	AND	Relief
Alternative Terms	Children with RSV infection	OR	Bronchiolitisis nursing care	AND	Improved oxygenation
Alternative Terms	Infants with lower respiratory disorders	OR	Implementation of nursing interventions	AND	Reduced shortness of breath
Alternative Terms	Pediatric patients with respiratory problems	OR	Observational, educational, therapeutic, and collaborative actions	OR	Children are more comfortable and airways are effective

Table 2. Review Articles

Author (Year)	Research objectives	Length of treatment	Result
Lestari & Utami (2021)	To understand nursing care that has ineffective airway clearance issues	3 days	There is an improvement in the frequency of breathing, the rheumatism is reduced, and the baby is calmer, but there is still light phlegm
Putri & Anggaraini (2022)	To understand therapeutic and collaborative implementations to address shortness of breath	3 days	The amount of mucus decreases, the sound of the roar disappears, the baby sleeps well and oxygenation increases
Sari & Musta'in (2022)	To understand nursing care with ineffective breathing patterns	3 days	Shortness of breath is significantly reduced, babies are not fussy, and oxygen saturation increases by up to 98%
Hidayah (2023)	To understand the implementation, observation, and education to improve convenience	2 days	The baby appears calm, sleeps well, and reduces chest retraction
Noviana & Faozi (2024)	To understand collaborative nursing care in the delivery of oxygen therapy	3 days	Breathing rate drops to 40x/minute, baby less restless and more relaxed
Susanti (2025)	To understand comprehensive nursing implementation	3 days	Babies experience relief, are able to breastfeed, sleep peacefully, and have no signs of tightness

Table 3. Review of nursing implementation in children with bronchiolitis

Author (Year)	Observation	Education	Terapeutic	Collaboration
Lestari & Utami (2021)	Physiological observation: monitoring breathing rate, chest retraction and roneous breathing sound	Educate parents about semi-fowler positions and congestion signs	Provide chest physiotherapy for 10 minutes (2 times/day)	Oxygen therapy 1 liter/min with nassal cannula
Putri & Anggaraini (2022)	Physiological observations: monitoring of rhonchi, and oxygen saturation	Provide education on providing warm fluids and adequate rest	Provides chest physiotherapy and semi-fowler positions	Nebulization of salbutamol + NaCL 0,9%
Sari & Musta'in (2022)	Physiological observation: auscultation of breathing sounds, monitoring skin tone	Provide information to parents about the recognition of severe symptoms	Provides puffy lip breathing	Antibiotics and oxygen therapy
Hidayah (2023)	Physiological observations: observing vital signs and retraction of the chest	Providing education about care for infants	Warm compresses of the chest and warm water vapor	Nebulization of salbutamol 1 ampoule every 8 hours
Noviana & Faozi (2024)	Psychological physiological: observing fussy or restless babies	Teaching families how to nebulize at home	Chest physiotherapy and semi-fowler positions	Corticosteroids + salbutamol through a doctor
Susanti (2025)	Physiological observation: monitoring vital signs and therapeutic responses	Providing advanced education on the prevention of recurrent infections	Regular chest physiotherapy and semi-fowler positions	Collaboration of pediatricians in the evaluation of therapy and oxygen

Discussion

The results of the literature review show that nursing strategies in treating bronchiolitis infants include four main components, namely observation, education, therapeutic action, and collaboration. The various cases and implementations reviewed show that observation is the most frequent action, and education is the least action. These four aspects are the basis for providing comprehensive and continuous care to improve the physiological and psychological condition of children.

Observation is the most common action performed by nurses. Monitoring the condition of infants with bronchiolitis is essential to assess and understand the patient's response to the breathing problems experienced. Through observation, nurses can recognize breathing frequency, chest retraction, rhonchi breath tone, skin tone, and oxygen saturation (Lestari & Utami, 2021, Sari & Musta'in, 2022). Good observation helps nurses detect respiratory danger signs early and determine appropriate interventions to prevent complications.

Next, education is an important part, but it is still not implemented. Education to parents about respiratory hazards, semi-fowler positions, effective coughing techniques, and household care, such as maintaining environmental cleanliness and avoiding exposure to cigarette smoke, because they play a major role in preventing recurrence (Hidayah, 2023; Susanti, 2025). Effective education increases family understanding and involvement in the child's healing process, in accordance with the principle of family-centered care.

Therapeutic measures are carried out to support the respiratory stability of infants with bronchiolitis. Some of the nonpharmacological therapies that are often carried out include chest physiotherapy, warm compresses, warm water administration, and placement of the child in a semi-fowler position (Putri & Anggaraini, 2022; Noviana & Faozi, 2024). This intervention has been shown to help clear the airways of secretions, lower the frequency of breathing, and improve oxygen saturation up to above 94%. In addition to physiological benefits, therapeutic actions also provide a calming effect and increase comfort towards infants.

In addition, collaboration between nurses, doctors, physiotherapists, and families is a key component in achieving successful treatment. This collaboration includes the implementation of oxygen-nebulization therapy, the administration of antibiotics, and corticosteroids according to the doctor's instructions (Sari & Musta'in, 2022; Noviana & Faozi, 2024). Through good collaboration, treatment plans can be developed holistically and tailored to the individual needs of patients. However, collaborative therapy still requires strict observation to anticipate side effects and ensure the effectiveness of the action.

The results of the analysis of all the literature confirm that the four components of nursing implementation are interconnected and cannot be separated. Observation is the basis for decision-making for therapeutic interventions, education strengthens the role of the family in home care, therapeutic actions improve respiratory function directly, and collaboration ensures the sustainability of care in a multidisciplinary manner (Lestari & Utami, 2021; Putri & Anggaraini, 2022; Susanti, 2025).

A balanced approach between observational, educational, therapeutic, and collaborative has been shown to have a positive impact on the condition of infants with bronchiolitis. Infants show increased oxygen saturation, decreased shortness of breath, and increased comfort. In addition, the active involvement of the family in the educational process also strengthens the healing effect and prevents recurrence (Hidayah, 2023; Susanti, 2025). Thus, nurses play an important role as observers, educators, therapists, and collaborators in providing comprehensive nursing care to patients.

The limitations of this study are that, it is based only on a literature review that is limited to screening case studies, which were conducted in three days. Therefore, it is necessary to develop empirical research to explain the concept of nursing implementation and associate each implementation in an ongoing manner with pediatric patients with bronchioltis or other medical diagnosis problems (Susanti, 2025).

Conclusion

The application of observation, education, therapeutic measures, and collaboration by nurses has an important role in the management of infants with bronchiolitis. The optimal implementation of these four aspects helps to speed recovery, prevent complications, and improve the overall quality of nursing care.

Acknowledgment

Thank you to the Nursing Study Program, Faculty of Medicine and Health Sciences, Krida Wacana Christian University, for providing the opportunity and support in the preparation of this literature review in pediatric nursing course. as the lecturer, as well as the reviewers who have provided valuable direction and input.

Authors' Contribution

All authors contributed to the preparation of this article, including determining the topic, searching and analysing the literature, and writing the final manuscript. All authors have read and approved the final version of the article before it is published.

Conflict of Interest

The researchers declare that there is no conflict of interest regarding the implementation or publication of this research. The entire research process was carried out independently, without any influence from any party. Respondent participation was voluntary, with informed consent obtained, and their confidentiality and privacy were protected in accordance with ethical research standards. The researchers hope that the results of this study can serve as a valid reference for the development of nursing education and mental health support.

Ethical Considerations

This research is a literature review that does not directly involve human subjects. The entire process is carried out in accordance with the principles of research ethics and upholds academic integrity.

Funding

This research did not receive funding from any party and was conducted purely for academic purposes and the advancement of scientific knowledge.

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