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Application of Interactive Health Education in the Nursing of Children with Pneumonia

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Abstract: *Objective:* To explore the application effect of interactive health education in the nursing of children with pneumonia. *Methods:* This study selected 100 children with pneumonia who were admitted to a hospital in Shanghai from April 2023 to April 2024 as the main research subjects. Using the digital random table method, 100 cases of children were divided into a control group and an experimental group, with 50 cases in each group. The control group received conventional nursing while the experimental group adopted interactive health education on the basis of conventional nursing. The time to clinical symptom resolution, parents' nursing satisfaction, parents' awareness of health knowledge, and length of hospitalization were compared between the two groups. *Results:* Parents' nursing satisfaction and nursing knowledge awareness in the control group were lower than those in the experimental group ($P < 0.05$). The length of hospitalization and the time to clinical symptom resolution in the control group were significantly longer than those in the experimental group ($P < 0.05$). *Conclusion:* With the application of interactive health education in the nursing of children with pneumonia, the treatment effect is significant, offering quick relief of patient's symptoms and convenience for disease treatment. Interactive health education also enhances parents' nursing satisfaction and knowledge of pediatric pneumonia and other complications and related nursing content, providing great advantages for children requiring long-term care after discharge.

Keywords: Interactive health education; Pediatric pneumonia; Nursing care

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1. Introduction

Young children have underdeveloped immune systems, making them particularly susceptible to illnesses, with pediatric pneumonia being one of the most common and serious conditions. As a high-incidence disease, pediatric pneumonia poses a significant threat to children's health and even their lives [1]. In the neonatal period, pneumonia is often caused by aspiration of amniotic fluid, leading to infection and inflammation. In contrast, pneumonia in infants and older children typically results from pathogen infections. Depending on the type of pathogen, the

disease can exhibit varying pathological characteristics, including bacterial pneumonia, mycoplasma pneumonia, chlamydia pneumonia, viral pneumonia, and fungal pneumonia [2]. Treatment for pediatric pneumonia generally involves antimicrobial therapies prescribed by attending physicians, along with nebulization to administer hormone medications that help reduce phlegm. However, younger children often struggle to cooperate with parents or nurses during treatment, which limits the effectiveness of conventional nursing approaches and can lead to stagnation in their recovery [3]. Conventional nursing care has been shown to be less effective in managing pediatric pneumonia, particularly in addressing moderate negative emotions in children and improving their compliance with treatment protocols. Interactive health education offers a potential solution by creating a collaborative framework that connects doctors, patients, nursing staff, and family members. This approach enhances communication and interaction, fostering trust and improving compliance among patients [4]. The aim of this study was to evaluate the effectiveness of interactive health education in the nursing care of children with pneumonia.

2. General information and methods

2.1. General information

This study selected 100 children with pneumonia who were admitted to a hospital in Shanghai from April 2023 to April 2024 as the main research subjects. The subjects were divided into the control group and the experimental group, with 50 subjects in each group. In the experimental group, there were 34 boys and 16 girls, with an average age of about two years and an average course of disease of about three days. The proportion of male children in the control group was also relatively large, with 32 boys and 18 girls, the average age was around two years old, and the average course of disease was mostly about three days. The comparison of the general information of the two groups of children with pneumonia found no significant difference ($P > 0.05$) and was comparable.

Inclusion criteria: (1) Clinical manifestation records and medical records of all patients must be complete, which is convenient for later comparative analysis and accurate reporting data; (2) The informed consent form must be signed by the patients or their family members in person, agreeing to participate in the study and receive relevant examinations and treatments; (3) The clinical symptoms and diagnostic criteria of pneumonia in children confirmed by the examinations; (4) There are no allergic reactions to drugs; (5) Children over 6 months of age.

Exclusion criteria: (1) Children with severe complications; (2) Children with missing clinical data; (3) Children with important organ lesions; (4) Children with immune system disorders.

2.2. Methods

In the control group, conventional nursing for parent guidance was as follows: First, the nurses led the children with pneumonia and their parents to the hospital, and briefly introduced the hospital environment and the basic information of the medical staff in charge of treatment, as well as some knowledge about pneumonia, so as to improve parents' cognition [5]. Second, in the process of treatment, nurses strictly followed the doctor's advice, provided timely and accurate medication for children with pneumonia, and implemented medication guidance; they also provided diet guidance and regular expectoration treatment for children with pneumonia. Third, near the completion of the treatment, the parents were informed of the relevant precautions after discharge.

For the nursing of children with pneumonia in the control group, particular attention was given to their diet during hospitalization. Nurses developed scientifically balanced dietary plans for the children, strictly prohibiting high-sugar, high-fat, and spicy or irritating foods to avoid exacerbating the condition [6]. Additionally,

nursing staff ensured that children's clothing was adjusted promptly in response to changes in weather and ward temperature, maintaining a stable and healthy body temperature. Regarding medication, strict adherence to the doctor's prescriptions and recommended drug dosages was observed, with children receiving oral medications or intravenous drips as needed. Nurses closely monitored the children's condition at all times. In cases of symptoms such as difficulty breathing or inability to expel phlegm, nebulization therapy was promptly administered to alleviate these issues and support their recovery [7].

Based on conventional nursing in the control group, the experimental group adopted additional interactive health education. The main nursing contents included: (1) A specialized interactive health education nursing team was established, comprising the attending doctor, head nurse, and nursing staff [8]. Team members participated in regular training sessions to enhance their knowledge and skills in interactive health education, focusing on relevant medical concepts and effective communication techniques. These sessions aimed to improve their professional expertise and adaptability, ensuring the smooth execution of nursing tasks while maintaining high standards of care. (2) A face-to-face interactive education model was implemented. Nursing staff displayed educational materials about pneumonia care within the ward, including detailed parenting tips and explanations of the disease's progression. This approach provided parents with a foundational understanding of pneumonia care, enabling them to better support their children during treatment. (3) Psychological intervention was also emphasized. Given that the patients were predominantly young children, their limited understanding of hospitals and healthcare staff often resulted in fear and anxiety. This, in turn, led to crying and non-cooperation, particularly during the initial stages of hospitalization, prolonging treatment and medication timelines and potentially affecting outcomes [8]. To address this, nursing staff were trained to observe newly admitted children closely, identify signs of distress or negative emotions, and provide timely, targeted guidance to alleviate their fears. (4) Peer-based interaction strategies were also employed. Recognizing that children at this developmental stage often enjoy making friends and engaging with older peers, nursing staff facilitated opportunities for social interaction among patients in the ward. By praising cooperative behaviors, they encouraged positive reinforcement, creating a supportive environment where children could learn from one another. This peer interaction not only improved the younger patients' ability to cope with treatment but also reduced their discomfort and crying. Older children often served as role models, fostering a culture of mutual encouragement and education, which subtly enhanced the younger patients' resilience and cooperation [9].

2.3. Observation indicators

The nursing satisfaction rate and health knowledge awareness of parents, the length of hospitalization, and the clinical symptom resolution time of children with pneumonia were compared between the two groups.

2.4. Statistical analysis

SPSS22.0 statistical software was used for data analysis. The count data were expressed by % and analyzed by χ^2 test. The measurement data were expressed by mean ± standard deviation (SD) and analyzed by *t*-test.

3. Results

3.1. Comparison of nursing satisfaction rate of parents of children with pneumonia between the two groups

The parents' nursing satisfaction in the experimental group was significantly higher than that of the parents in the

control group ($P < 0.05$), as shown in **Table 1**.

Table 1. Comparison of nursing satisfaction rate of parents of children with pneumonia [*n* (%)]

Groups	Highly satisfied	Satisfied	Unsatisfied	Total satisfaction
Experimental group ($n = 50$)	44 (88)	6 (12)	0 (0)	50 (100)
Control group ($n = 50$)	30 (60)	15 (25)	5 (10)	45 (90)
χ^2	-	-	-	2.336
P	-	-	-	< 0.05

3.2. Comparison of health knowledge awareness of parents of children with pneumonia between the two groups

The health knowledge awareness of parents of children with pneumonia in the experimental group was significantly higher than that in the control group ($P < 0.05$), as presented in **Table 2**.

Table 2. Comparison of health knowledge awareness of parents of children with pneumonia [*n* (%)]

Groups	Health awareness
Experimental group ($n = 50$)	49 (98)
Control group ($n = 50$)	38 (76)
χ^2	5.583
P	< 0.05

3.3. Comparison of clinical symptom resolution time and length of hospitalization between the two groups

The clinical symptom resolution time including fever, cough, and pulmonary rales, and the length of hospitalization in the experimental group were significantly shorter than those in the control group ($P < 0.05$), as demonstrated in **Table 3**.

Table 3. Comparison of clinical symptom resolution time and length of hospitalization (mean ± SD)

Groups	Fever resolution time	Cough resolution time	Pulmonary rales resolution time	Length of hospitalization
Experimental group ($n = 50$)	1.62 ± 0.21	2.33 ± 0.75	3.38 ± 1.16	6.33 ± 1.95
Control group ($n = 50$)	2.32 ± 0.53	4.67 ± 0.24	5.28 ± 1.88	8.62 ± 2.48
t	6.628	10.016	12.336	19.427
P	< 0.05	< 0.05	< 0.05	< 0.05

4. Discussion and conclusion

Pneumonia is a common disease in pediatric clinics, with its incidence steadily increasing. Effective treatment for pneumonia requires early intervention to prevent severe complications as the condition worsens. However, most pediatric pneumonia patients are very young, which often leads to challenges in achieving clinical cooperation. To

address this, it is essential to implement supportive measures during treatment [10]. Interactive health education, as a novel educational approach, emphasizes enhanced communication and engagement between healthcare providers, children, and their parents. This method fosters trust between families and medical staff, ensuring smoother nursing processes and facilitating the children's recovery [11].

In this study, the experimental group, which received interactive health education, demonstrated significantly better outcomes compared to the control group. Parents in the experimental group expressed higher satisfaction with the nurses and reported improved mastery of health-related knowledge. Moreover, children in the experimental group experienced faster resolution of symptoms such as fever, cough, and pulmonary rales, along with shorter hospital stays. These findings highlight the high value of interactive health education in promoting recovery and ensuring effective treatment outcomes [12]. Overall, interactive health education has been shown to have a remarkably positive effect on the nursing care of children with pneumonia. It not only increases parental satisfaction but also raises awareness and understanding of disease-related nursing practices. This approach significantly accelerates symptom improvement and facilitates earlier discharge, highlighting its role as an effective and supportive nursing intervention [13].

In practice, this approach can significantly enhance nursing care. First, establishing a dedicated nursing team improves nursing skills and knowledge, enabling more effective problem-solving during patient care [14]. Second, face-to-face communication serves as a powerful tool for educating parents and children about pneumonia, enhancing their understanding of the disease [15]. Interactive methods, such as using child-friendly language, animations, or educational books, provide a comprehensive way to convey disease-related information. Additionally, this approach boosts children's enthusiasm for treatment and strengthens their confidence in regaining health. Encouraging and comforting language from nurses further increases children's cooperation and reliance on medical care, laying a strong foundation for their overall recovery and long-term health.

Disclosure statement

The author declares no conflict of interest.

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