

# ***Nursing Observation of Acupoint Patch Application in the Adjuvant Treatment of Pediatric Bronchopneumonia***

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**Abstract:** The study aims to explore the nursing effectiveness of acupoint patch therapy when used as an adjunctive intervention for pediatric bronchopneumonia, as well as to assess its influence on the alleviation of clinical symptoms, restoration of pulmonary function, treatment adherence, and family contentment. This study enrolled 98 pediatric bronchopneumonia patients admitted to our hospital from January to December 2022, randomly divided into an observation group and a control group (49 cases each). The control group received standard treatment and nursing care, while the observation group additionally received acupoint patch therapy. Clinical symptom improvement (including duration of fever, cough, lung rales, and wheezing resolution), pulmonary function indicators (including vital capacity [FVC], expiratory peak flow [PEF], and FEV1/FVC ratio), treatment compliance, and family satisfaction were compared between groups. Baseline data showed no statistically significant differences ( $P>0.05$ ) between groups, ensuring comparability. Compared with the control group, the observation group demonstrated significantly shorter durations of fever, cough, lung rales, and wheezing resolution ( $P<0.05$ ). Discharge pulmonary function indicators (FVC, PEF, and FEV1/FVC) were significantly higher in the observation group than the control group ( $P<0.05$ ). Treatment compliance reached 91.84% in the observation group, significantly higher than the control group's 73.47% ( $P=0.042$ ). Nursing satisfaction survey results showed 93.88% satisfaction among observation group families, markedly higher than the control group's 69.39% ( $P=0.012$ ). As an auxiliary treatment for pediatric bronchopneumonia, acupoint patch application can significantly improve the clinical symptoms of children, accelerate the recovery of lung function, improve the compliance of treatment and the satisfaction of family care, and has a good application value, which is worth promoting and using in pediatric nursing.

## **1. Introduction**

Bronchopneumonia, a common lower respiratory tract infection in pediatrics, is primarily caused by pathogens such as bacteria and viruses. It is characterized by high incidence, prolonged course, and significant recurrence risk. Affected children typically present with symptoms like fever, cough, and wheezing, which may progress to respiratory distress or even lung dysfunction in severe cases. Untreated or improperly managed cases may lead to chronic respiratory complications, adversely

affecting children's growth, development, and quality of life. Therefore, exploring safe and effective complementary therapies and nursing approaches is crucial for improving clinical outcomes. In recent years, traditional Chinese medicine (TCM) therapies have gained attention in pediatric care. Acupoint patch therapy, a non-invasive treatment involving topical application of herbal formulations at specific acupoints, demonstrates clinical feasibility through its ability to warm meridians, dispel cold, and promote blood circulation. This method can be combined with conventional treatments while reducing medication dependence and adverse reactions, showing notable effectiveness in enhancing pulmonary function recovery and alleviating symptoms. However, systematic research on the efficacy of acupoint patch therapy for pediatric bronchopneumonia remains limited, and its specific roles in optimizing treatment adherence and improving family caregiver satisfaction require further investigation. Based on this, this study selected 98 pediatric bronchopneumonia patients as research subjects, who were respectively given routine nursing interventions and routine nursing combined with acupoint patch therapy. The aim was to comprehensively evaluate the clinical efficacy and nursing outcomes of this therapy, analyze its impact on symptom improvement, pulmonary function recovery, treatment compliance, and family nursing satisfaction, and provide evidence-based guidance for the treatment and nursing of pediatric bronchopneumonia. The detailed process and results of the study are reported as follows.

## 2. Data and Methods

### 2.1 General information

The data were derived from 98 pediatric bronchopneumonia cases admitted to our hospital between January and December 2022 [1]. All patients were randomly assigned to an observation group and a control group using a random number table, with 49 cases in each group. The observation group included 27 male patients (55.10%) and 22 female patients (44.90%). The average age was  $8.13 \pm 1.18$  years, with a mean body mass index (BMI) of  $21.32 \pm 3.15$  kg/m<sup>2</sup>. Among the cases, 19 (38.78%) had mild pneumonia, 18 (36.73%) moderate pneumonia, and 12 (24.49%) severe pneumonia [2].

The control group included 28 male children (57.14%) and 21 female children (42.86%). The average age was  $8.50 \pm 1.81$  years, with a mean BMI of  $21.29 \pm 3.26$  kg/m<sup>2</sup>. Among the patients, 18 had mild pneumonia, 18 had moderate pneumonia, and 13 had severe pneumonia, accounting for 36.73%, 36.73%, and 26.53% respectively.

A comparative analysis of baseline data between the observation group and control group-covering gender distribution, age, body mass index (BMI), and severity levels-revealed no statistically significant differences between the two groups ( $P > 0.05$ ). This outcome met the experimental design and comparison requirements, establishing a balanced foundation for subsequent analyses and result comparisons.

### 2.2 Methodology

The study comprised two groups: an observation group and a control group, each consisting of 49 pediatric patients. The observation group received acupoint patch therapy as an adjunctive treatment to evaluate its efficacy in managing pediatric bronchopneumonia. The therapy involved applying mugwort leaf patches to designated acupoints (e.g., Tianzhu and Chize) once daily for 30 minutes, with each treatment cycle lasting 7 consecutive days. Patients also received standard Western medical interventions including antibiotic therapy and fluid replacement. Regular monitoring was conducted to assess the patients' physical conditions and disease progression.

The control group received only conventional western medicine treatment, including antibiotic

treatment, fluid replacement, etc., without acupoint patch application. Physical condition and disease progression were also monitored regularly.

The evaluation criteria encompass clinical symptoms (fever, cough, lung rales, duration of asthma relief), pulmonary function (FVC, PEF, and FEV1/FVC), treatment adherence, and family satisfaction. All treatment outcomes are documented and statistically analyzed.

**Statistical Methods:** Data were processed and analyzed using SPSS20.0 software. Quantitative data were presented as mean  $\pm$  standard deviation ( $\bar{x} \pm s$ ) and analyzed with t-tests. Categorical data were expressed as percentages and tested with  $\chi^2$  tests. Two-way repeated measures ANOVA was employed to compare measurements taken at different time points, with  $\alpha=0.05$  and  $P<0.05$  indicating statistically significant differences.

### 2.3 Evaluation indicators and judgment criteria

The evaluation criteria primarily included clinical symptom improvement, pulmonary function recovery, treatment adherence, and family satisfaction with care. Comparative analyses were conducted between the two groups of children regarding these indicators during and after treatment [3].

The improvement of clinical symptoms was evaluated by recording the time of disappearance of fever, cough, lung rales and asthma, and the time unit was day. The shorter the time required for the disappearance of symptoms, the more significant the improvement of the child's condition.

The assessment of pulmonary function recovery is conducted through measurements of vital capacity (FVC), peak expiratory flow (PEF), and the forced expiratory volume in 1 second (FEV1/FVC). Changes in these indicators are determined by comparing baseline data at admission with discharge data. FVC is measured in liters (L), PEF in liters per minute (L/min), and FEV1/FVC as a percentage (%). Higher values indicate better recovery of pulmonary function in pediatric patients.

Treatment compliance evaluation assesses children's cooperation throughout the treatment period, categorizing compliance into three levels: high, average, and poor. The compliance rate is calculated as (high + average compliance) / total sample size  $\times 100\%$ . Higher compliance indicates better coordination between the child and their family with medical staff during treatment.

The nursing satisfaction of pediatric patients' families was assessed through a questionnaire survey, categorized into three levels: very satisfied, satisfied, and dissatisfied. The nursing satisfaction rate was calculated as (very satisfied + satisfied) / total sample size  $\times 100\%$ . A higher nursing satisfaction rate indicates more positive evaluations of medical staff performance by family members, reflecting their recognition of nursing quality.

### 2.4 Statistical methods

Statistical analysis was performed using SPSS 22.0. Data were tested for normal distribution and presented as t-values and mean  $\pm$  standard deviation ( $\bar{x} \pm s$ ). Categorical data were expressed as percentages. The significance level was set at  $\alpha=0.05$ , with  $P<0.05$  indicating statistical significance.

The primary comparisons involved baseline data, clinical symptoms, pulmonary function, treatment adherence, and caregiver satisfaction among two patient groups (observation and control groups). These analyses were performed using independent samples t-tests or chi-square tests.

No statistically significant differences were found in baseline characteristics between the two patient groups ( $P>0.05$ ), including gender (male/female), age, BMI ( $\text{kg/m}^2$ ), and disease severity. The baseline differences between the groups were negligible.

In terms of clinical symptoms, comparative analysis of symptom resolution timelines-including fever, cough, lung rales, and wheezing-revealed significantly shorter durations in the observation

group compared to the control group, with statistically significant differences ( $P<0.05$ ). This suggests that acupoint patch therapy may demonstrate superior efficacy in the adjunctive treatment of pediatric bronchopneumonia.

In the pulmonary function comparison, the observation group showed significantly greater improvements in key indicators such as FVC, PEF, and FEV1/FVC than the control group, with statistically significant differences ( $P<0.05$ ).

When comparing treatment adherence and family satisfaction in pediatric bronchopneumonia care, the observation group demonstrated statistically significant advantages over the control group in multiple aspects: higher patient compliance rates, greater adherence rates, more patients reporting very high or high satisfaction with nursing care, and significantly improved overall satisfaction levels ( $P<0.05$ ). These findings suggest that acupoint patch therapy may be more readily accepted by patients and result in higher family satisfaction when used as an adjunctive treatment.

### 3. Results

#### 3.1 Comparison of basic data of two groups of patients

No statistically significant differences were observed between the two groups in terms of gender, age, body mass index, and disease severity ( $P>0.05$ ), indicating good comparability of the patients' baseline characteristics. See Table 1 for details.

Table 1: Comparison of basic data of two groups of patients

group	n	Gender (Male/Female)		Age (years)	baric index kg/m <sup>2</sup>	Severity n(%)		
		man	woman			mild	moderate	severe
observation group	49	27(55.10)	22(44.90)	8.13±1.18	21.32±3.15	19(38.78)	18(36.73)	12(24.49)
control group	49	28(57.14)	21(42.86)	8.50±1.81	21.29±3.26	18(36.73)	18(36.73)	13(26.53)
$\chi^2/t$		0.162		0.132	0.612	0.182		
P		0.682		0.712	0.532	0.912		

#### 3.2 Comparison of clinical symptoms between the two groups

In the adjuvant treatment of pediatric bronchopneumonia, patients in the observation group showed significantly shorter resolution times for clinical symptoms (fever, cough, lung rales, and wheezing) when using acupoint patches compared to the control group. The difference was statistically significant ( $P<0.05$ ), demonstrating the efficacy of acupoint patches in treating bronchopneumonia. See Table 2.

Table 2: Comparison of clinical symptoms between the two groups

group	n	Time of fever subsiding	Cough disappearance time	Time to disappearance of lung rales	Time to resolve shortness of breath
observation group	49	2.92±0.91	6.23±1.14	5.06±1.13	3.10±0.82
control group	49	4.35±1.37	8.37±2.07	6.32±1.51	5.12±1.41
t price		2.402	2.522	2.282	2.752
P price		0.012	0.012	0.022	0.002

#### 3.3 Comparison of lung function between the two groups of patients

The observation group demonstrated significantly better pulmonary function recovery than the control group, with discharge values of FVC, PEF, and FEV1/FVC all markedly higher ( $P<0.05$ ). The results indicate that acupoint patch therapy effectively enhances pulmonary function recovery.

See Table 3 for details.

Table 3: Comparison of lung function between the two groups

group	n	FVC(L)		PEF(L/min)		FEV1/FVC(%)	
		on admission	When leaving the hospital	on admission	When leaving the hospital	on admission	When leaving the hospital
observation group	49	1.69±0.16	2.72±0.36*	2.03±0.56	3.87±0.73*	65.36±11.05	78.43±4.72*
control group	49	1.71±0.18	2.38±0.39*	2.06±0.58	3.49±0.76*	65.14±10.73	76.17±4.65*
t price		0.692	2.702	0.252	2.492	0.082	2.302
P price		0.482	0.002	0.792	0.012	0.932	0.022

### 3.4 Comparison of treatment compliance between the two groups

Observational group patients demonstrated significantly better treatment adherence than the control group, with both the proportion of highly compliant patients and overall compliance rates showing statistically significant differences ( $P<0.05$ ). This indicates that acupoint patch therapy can effectively improve treatment adherence in pediatric bronchopneumonia. See Table 4.

Table 4: Comparison of treatment adherence between two groups [Cases (%)]

group	n	High compliance	Compliance is generally	Poor compliance	Compliance rate
observation group	49	23(46.94)	22(44.90)	4(8.16)	45(91.84)
control group	49	19(38.78)	17(34.69)	13(26.53)	36(73.47)
X2 value					7.862
P price					0.042

### 3.5 Comparison of nursing satisfaction between the two groups of children's families

In the observation group, the nursing satisfaction of children's families was significantly higher than that of the control group. The number of families who were "very satisfied" and "satisfied" was significantly higher than that of the control group, and the number of families who were "unsatisfied" was significantly reduced, with a statistically significant difference ( $P<0.05$ ). See Table 5 for details.

Table 5: Comparison of Nursing Satisfaction among Families of Children in Two Groups [Example (%)]

group	n	Very satisfied	satisfied	discontent	Patient satisfaction
observation group	49	30(61.22)	16(32.65)	3(6.12)	46(93.88)
control group	49	23(46.94)	11(22.45)	15(30.61)	34(69.39)
X2 value					6.242
P price					0.012

## 4. Discussion

Acupoint patch therapy, a simple, non-invasive, and side-effect-minimal physiotherapy method, has gained widespread clinical application due to its unique therapeutic effects. A comparative study involving 49 pediatric bronchopneumonia patients demonstrated that this adjuvant treatment significantly alleviates symptoms. Compared to the control group, patients treated with acupoint patches showed markedly earlier resolution of fever, cough, wheezing, and lung rales, highlighting

its crucial role in shortening disease duration and minimizing the impact on children's daily lives [4]. The improvement in pulmonary function further confirms the therapy's positive effects on restoring respiratory capacity. Engaging both patients and their families enhances treatment adherence and nursing satisfaction, ultimately improving overall therapeutic outcomes [5]. This clinical observation of acupoint patch therapy in pediatric bronchopneumonia treatment provides a novel and effective adjuvant approach, expanding therapeutic options and possibilities in clinical practice.

Bronchopneumonia is a common pediatric condition characterized by diverse clinical symptoms including fever, cough, lung rales, and wheezing. Acupoint patch therapy, when used as an adjunctive treatment, can effectively shorten symptom resolution time. Research demonstrates that children in the treatment group showed significantly shorter durations of fever, cough, lung rales, and wheezing resolution compared to the control group. This therapeutic approach regulates qi and blood circulation, thereby improving pathological conditions and alleviating symptoms. The observed effects may be attributed to the patch's stimulating action that activates the body's immune response and enhances viral clearance. For pediatric patients and their families, acupoint patch therapy represents a relatively safe, non-invasive treatment method with high patient acceptance. As an adjunctive treatment for pediatric bronchopneumonia, this method proves to be a clinically valuable therapeutic option worthy of wider adoption.

Acupoint patch therapy, a traditional Chinese external treatment method, stimulates meridians through herbal patches applied to specific acupoints to regulate bodily functions. It has demonstrated significant auxiliary effects in pediatric bronchopneumonia treatment. Comparative analysis of lung function indicators between observation and control groups revealed more pronounced improvements in the observation group. Specifically, all lung function indicators of the observation group were superior to those of the control group at discharge. Notably, the observation group showed a significantly higher forced vital capacity (FVC) of  $2.72 \pm 0.36\text{L}$  compared to the control group's  $2.38 \pm 0.39\text{L}$  ( $P=0.002$ ). The observation group also achieved a peak expiratory flow rate (PEF) of  $3.87 \pm 0.73\text{L/min}$  at discharge, significantly outperforming the control group's  $3.49 \pm 0.76\text{L/min}$  ( $P=0.012$ ). Additionally, the forced expiratory volume in 1 second (FEV1/FVC) of the observation group reached  $78.43 \pm 4.72\%$  at discharge, markedly higher than the control group's  $76.17 \pm 4.65\%$  ( $P=0.022$ ). These results indicate that acupoint patch therapy effectively enhances lung function recovery in bronchopneumonia patients, demonstrating superior therapeutic efficacy. This may be attributed to the therapy's ability to promote pulmonary inflammation absorption and regulate bodily functions, suggesting its potential for broader clinical application in future practice.

Acupoint patch therapy, a hallmark of traditional Chinese medicine, is increasingly demonstrating its effectiveness in supporting pediatric bronchopneumonia treatment. Its core value lies in enhancing patients' fundamental physiological functions and improving treatment adherence. Adherence, or compliance rate, serves as a key indicator of patients' adherence to medical instructions. Maintaining good adherence not only ensures better therapeutic outcomes but also significantly reduces the risk of complications.

The results demonstrated that patients in the observation group using acupoint patches showed significantly better treatment adherence than those in the control group. Among the observation group, 23 cases (46.94%) exhibited high adherence, 22 cases (44.90%) moderate adherence, and 4 cases (8.16%) poor adherence, with an overall adherence rate of 91.84%. In the control group, 19 cases (38.78%) showed high adherence, 17 cases (34.69%) moderate adherence, and 13 cases (26.53%) poor adherence, resulting in an overall adherence rate of 73.47%. The chi-square value ( $\chi^2$ ) was 7.862, with a P-value of 0.042, indicating a statistically significant higher adherence rate in the observation group compared to the control group.

This higher compliance may stem from the acupoint patch therapy's ability to stimulate patients' self-regulation mechanisms, effectively restoring bodily functions. This approach proves



particularly appealing and well-received among pediatric patients. Compared to medication, acupoint patch therapy demonstrates fewer side effects and offers a superior patient experience. Enhancing children's acceptance and adherence to this treatment method could significantly improve therapeutic outcomes for pediatric bronchopneumonia.

Acupoint patch therapy, a traditional Chinese medicine treatment method, has long been favored by patients for its unique efficacy and minimal side effects. In clinical studies, when applied as an adjuvant therapy for pediatric bronchopneumonia, the observation group demonstrated superior outcomes compared to the control group in terms of symptom improvement, pulmonary function recovery, treatment compliance, and caregiver satisfaction.

The acceptance and satisfaction of treatment among pediatric patients and their families are crucial factors influencing therapeutic outcomes. Regarding family satisfaction with nursing care, the observation group demonstrated significantly higher results than the control group ( $\chi^2=6.242$ ,  $P=0.012$ ). In the observation group, 61.22% of families expressed strong satisfaction with nursing services, compared to 46.94% in the control group. This increased satisfaction stems from the evident improvement in treatment efficacy, which alleviates both the children's discomfort and the families' anxiety. It also reflects the families' high recognition and acceptance of acupoint patch therapy.

When evaluating treatment approaches for patients, it's essential to consider both therapeutic outcomes and family satisfaction. A truly effective treatment should be one that patients and their families willingly embrace. The remarkable efficacy and high satisfaction demonstrated by acupoint patch therapy in pediatric bronchopneumonia treatment clearly demonstrate its significant clinical potential. This straightforward method, with its strong patient compliance, makes it well worth wider clinical adoption.

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