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Analysis of the Effect of Comprehensive Nursing on the Psychological State of Patients with Pulmonary Micro-nodules

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Abstract: *Objective:* To explore the effect of comprehensive nursing on relieving psychological pressure in patients with pulmonary micro-nodules. *Methods:* One hundred and twenty patients with pulmonary micro-nodules who received diagnosis and treatment in our hospital from January 2024 to December 2024 were randomly divided into control and observation groups. The control group received routine nursing, while the observation group received comprehensive nursing. The Self-Rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS) were used to evaluate the patients' psychological states before and after nursing. Patient satisfaction with nursing was analyzed using a nursing satisfaction survey scale. *Results:* After nursing, the SAS and SDS scores of the observation group were significantly lower than those of the control group ($P < 0.05$). The nursing satisfaction rates of the observation and control groups were 98.33% and 83.33%, respectively, with statistically significant differences ($P < 0.05$). *Conclusion:* Comprehensive nursing intervention for patients with pulmonary micro-nodules can effectively relieve their psychological pressure and improve nursing satisfaction, demonstrating clinical value.

Keywords: Pulmonary micro-nodules; Comprehensive nursing; SAS; SDS; Nursing satisfaction

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1. Introduction

Pulmonary micro-nodules generally refer to nodules with a diameter of < 1 cm, which are a common clinical lung disease with various inducing factors [1–3]. With the popularization of low-dose lung cancer screening, more and more pulmonary micro-nodules are being detected. Pulmonary micro-nodules carry a certain risk of malignancy, and some patients may experience clinical symptoms such as elevated body temperature, cough, night sweats, and loss of appetite, which can stimulate patients psychologically and physiologically and reduce their quality of life. Therefore, this disease requires high attention.

Numerous clinical studies have shown that scientific and effective nursing intervention combined with

clinical treatment for patients with pulmonary micro-nodules can relieve their psychological pressure, improve treatment compliance, and assist in enhancing clinical efficacy [4]. However, conventional nursing intervention has significant limitations and cannot meet the clinical treatment needs of patients. Comprehensive nursing intervention is a clinically classic nursing measure that emphasizes providing patients with various nursing services, such as psychological, lifestyle, and health education to meet clinical treatment needs and thereby assist in improving clinical efficacy [5]. Based on the above, this study focused on analyzing the effect of comprehensive nursing on relieving psychological pressure in patients with pulmonary micro-nodules, aiming to provide a reference for subsequent clinical nursing.

2. Materials and methods

2.1. Basic data source

The sample consists of 120 patients with pulmonary micro-nodules, recorded from January 2024 to December 2024. They were randomly divided into a control group and an observation group, with 60 patients in each group. Among them, 75 patients presented with varying degrees of cough, chest tightness, chest pain, etc., while the other 45 patients were asymptomatic and were discovered through health screenings. The control group consisted of 39 males and 21 females, aged between 45 and 75 (mean age: 60.25 ± 6.23 years). The observation group consisted of 41 males and 19 females, aged between 44 and 76 (mean age: 60.96 ± 6.25 years). A comparison of the basic information between the two groups showed $P > 0.05$, indicating that the results are comparable.

Inclusion criteria: Patients who underwent CT scanning and were found to have round or quasi-circular nodules in their lungs, with nodule diameters less than 0.5 cm; patients with good compliance, normal understanding ability, and agreement to participate in this study.

Exclusion criteria: Patients with cognitive dysfunction or mental illness; patients with atelectasis, obstructive pneumonia, pleural effusion, or other pathological conditions.

2.2. Methods

2.2.1. Nursing in the control group patients

This group received routine nursing intervention, including medication nursing based on the patient's treatment plan, distributing health education brochures, patiently explaining factors related to the occurrence of the disease, treatment measures, precautions, and general treatment effects, to enhance patients' treatment information. Additionally, disease monitoring was strengthened, and any abnormalities were promptly reported to the doctor for treatment.

2.2.2. Nursing in the observation group

Patients in this group received comprehensive nursing intervention, which included the following aspects:

(1) Psychological nursing

After detecting pulmonary micro-nodules, patients may experience anxiety, nervousness, and other negative emotions, mainly due to concerns about the deterioration of the nodules. At this time, nurses need to actively communicate with patients, patiently explain the universality of this situation, popularize relevant medical knowledge about pulmonary micro-nodules, and correct patients' cognitive biases. Some patients may become emotionally excited or use excessive language after learning about their disease

condition. In such cases, nursing staff should maintain sufficient patience, provide explanations, help patients calm down, and encourage them to undergo treatment in their best state. Additionally, nurses need to communicate with patients' families and urge them to provide emotional support to the patients [6]. Playing soft music can also help divert their attention and relieve emotional stress.

(2) Diet nursing

After the onset of the disease, some patients may experience loss of appetite, which can affect the body's nutrition in the long run. Therefore, it is essential to emphasize dietary nursing for patients with pulmonary micro-nodules. Patients are advised to consume a diet rich in calories, protein, and vitamins, with a reasonable combination of foods, and to eat more fresh fruits and vegetables to enhance their body's resistance. During the treatment phase of the disease, patients should try to reduce their intake of fatty meat, dairy products, and spicy foods.

(3) Lifestyle nursing

For patients with a history of smoking, they are advised to quit smoking to avoid increasing the pressure on lung organs. They should avoid going to places with severe dust and pollen pollution, and if they do, they should wear a mask.

(4) Exercise nursing

Nurses guide patients in performing appropriate exercises based on their recovery status, thus promoting disease rehabilitation. Exercise programs can include Tai Chi, dancing, walking, jogging, etc., while actively participating in social activities to gain more support.

(5) Medication nursing

Patients are advised to strictly follow medical advice regarding medication. During medication, patients should be provided with detailed instructions on drug usage, possible adverse reactions, and response measures to reduce their resistance and fully enhance their medication compliance.

(6) Environmental nursing

During hospitalization, due to the large volume of hospital traffic and various microorganisms in the air, it is not conducive to disease recovery. Therefore, it is necessary to strengthen the environmental nursing of the ward, maintaining a quiet and clean environment while controlling the appropriate temperature and humidity.

2.3. Observation indicators

2.3.1. Psychological state evaluation

The SAS and SDS scales were used to evaluate patients' anxiety and depression before and after nursing. The total scores of both scales are 100 points. For the SAS scale, a critical value of 50 points indicates the presence of anxiety, and a higher score indicates more pronounced anxiety. For the SDS scale, a critical value of 53 points indicates the presence of depression, and a higher score indicates more pronounced depression.

2.3.2. Nursing satisfaction

A self-made nursing satisfaction survey scale was used to analyze patients' satisfaction with different nursing services, evaluating aspects such as nurses' language, tone, service content, and skills. The scale was divided into three levels: satisfied, basically satisfied, and unsatisfied. The sum of the satisfaction rate and the basic satisfaction rate represents the total satisfaction rate.

2.4. Statistical analysis

Statistical software SPSS 24.0 was used to analyze the differences between data. Chi-square and t-tests were used for counting and measurement data, respectively, with a significance level of $\alpha = 0.05$.

3. Results

3.1. Comparison of psychological states

Before nursing intervention, the scores of the SAS and SDS scales were similar between the two groups. After nursing intervention, the scores of the observation group were lower than those of the control group, with statistically significant differences ($P < 0.05$). The results are shown in **Table 1**.

Table 1. Comparison of SAS and SDS scale scores before and after nursing intervention between the two groups [(±s) points]

Group	SAS		SDS	
	Before nursing	After nursing	Before nursing	After nursing
Observation group (n = 60)	45.12 ± 2.32	30.05 ± 2.12	40.01 ± 3.58	29.56 ± 2.82
Control group (n = 60)	44.53 ± 3.96	34.46 ± 1.95	40.25 ± 3.25	33.03 ± 4.14
t Value	1.812	3.630	0.718	2.295
P Value	0.239	0.001	0.416	0.001

3.2. Comparison of nursing satisfaction

Under different nursing service conditions, the total nursing satisfaction rates of the observation group and the control group were 98.33% and 83.33%, respectively, with statistically significant differences ($P < 0.05$). The results are shown in **Table 2**.

Table 2. Comparison of nursing satisfaction between the two groups [n(%)]

Group	Number of cases	Satisfied	Basically satisfied	Dissatisfied	Overall satisfaction rate
Observation group	60	41(68.33)	18(30.00)	1(1.67)	59(98.33)
Control group	60	30(50.00)	20(33.33)	10(16.67)	50(83.33)
χ^2 value					4.915
P value					0.024

4. Discussion

In clinical diseases, the lungs are organs prone to diagnosing space-occupying lesions. Especially with the rapid development of diagnostic technology today, spiral CT and other methods can be used for qualitative analysis of patients' conditions. Pulmonary micro-nodules are non-infectious, and in clinical induction mechanisms, benign tumors, malignant tumors, fungal infections, tuberculosis, and pulmonary vascular abnormalities are all associated factors. Some patients may have no obvious symptoms after the onset of the disease, and continuous disease progression can delay the best treatment opportunity, thereby threatening the patient's life safety [7, 8].

Currently, clinical treatment for small pulmonary nodules generally involves selecting scientific and reasonable treatment plans based on the patient's condition, including:

(1) Surgical treatment: For lung nodules exceeding 3cm or with possible malignant lesions, surgical resection of the lung lobe to remove the lesion is required.

(2) Follow-up observation: For micro-nodules, a follow-up observation mode can be adopted, generally recommending imaging examination every 3 to 6 months to determine whether the nodules have increased.

(3) Interventional therapy: Tools such as bronchoscopy and fiberoptic bronchoscopy are used to take tissue samples from lung nodules for analysis of their benignity or malignancy, thereby determining subsequent treatment plans.

However, patients may exhibit varying degrees of anxiety and nervousness when diagnosed with small pulmonary nodules, which is related to their understanding of the disease and excessive worry about factors of deterioration. At this time, corresponding nursing interventions are needed to alleviate their psychological pressure and improve treatment cooperation.

Traditional nursing involves simple nursing care according to medical advice and treatment procedures, with relatively singular nursing content and obvious limitations, which can no longer meet the treatment needs of modern patients. With the development of nursing concepts, more new nursing models have begun to be used in clinical practice, among which comprehensive nursing is a classic one. It requires providing patients with comprehensive nursing intervention, improving their comfort, and meeting treatment needs, thereby enhancing the overall quality of nursing.

In this study, patients in the control group received routine nursing, while patients in the observation group received a comprehensive nursing model. In comprehensive nursing intervention, psychological nursing helps patients alleviate psychological pressure, build confidence in treatment, and improve their compliance with subsequent treatment and nursing. Dietary nursing improves the internal environment of the body and provides more nutrition. Lifestyle nursing assists patients in correcting unhealthy habits and reducing adverse factors that affect lung health. Appropriate exercise helps patients improve their body's resistance and lung function. Medication nursing enhances patients' compliance with medication and reduces adverse events caused by improper medication. Environmental nursing reduces surrounding factors that harm the lungs.

After the above comprehensive nursing interventions, the scores of the SAS and SDS scales in the observation group were lower than those in the control group. The reason for this is that under comprehensive nursing intervention, patients can correctly understand the disease, achieve benign communication with nurses, and experience relief from psychological pressure under high-level nursing services. The total nursing satisfaction rates of the observation group and the control group were 98.33% and 83.33%, respectively. The reason for this is that during the comprehensive nursing process, nurses appropriately meet patients' treatment needs, resulting in higher satisfaction. The results obtained in this study are basically consistent with previous reports [9, 10].

In recent years, the incidence of pulmonary nodules has significantly increased due to severe environmental pollution and the increasing number of unhealthy lifestyle habits. If timely intervention is not provided for this disease, it can lead to fibrosis of lung tissue, damage to alveolar walls and interstitium, and severe impairment of patients' lung organs [11, 12]. Generally speaking, pulmonary micro-nodules are not easy to deteriorate, but timely intervention is still needed to avoid disease progression. Good nursing intervention is an important method to help improve clinical efficacy and patients' mental state. Therefore, attention should be paid to nursing during the

treatment process. In this study, after providing comprehensive nursing intervention to patients in the observation group, their psychological pressure was significantly alleviated, and they were highly satisfied with this nursing model. Therefore, it is believed that comprehensive nursing intervention for patients with pulmonary micro-nodules can effectively relieve their psychological pressure and improve nursing satisfaction, which has clinical value.

5. Conclusion

The implementation of a holistic nursing intervention for patients diagnosed with pulmonary micro-nodules has been shown to significantly alleviate psychological distress, including anxiety and depression, while substantially improving patient satisfaction with care. By integrating personalized psychological support, detailed health education, and regular follow-up monitoring, this approach not only addresses the emotional and cognitive needs of patients but also fosters better adherence to medical advice and treatment plans. Furthermore, such interventions contribute to early detection of potential complications, thereby optimizing clinical outcomes. Given its multifaceted benefits, comprehensive nursing care demonstrates considerable clinical value in the management of pulmonary micro-nodules, enhancing both patient well-being and healthcare efficiency.

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Disclosure statement

The author declares no conflict of interest.

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