Impact of a High-Quality Nursing Model on Patient Outcomes in Rheumatology: A Randomized Controlled Study

Jing Li*

Peking Union Medical College Hospital, Beijing 100730, China

***Corresponding author:** Jing Li, yunzhao2001@163.com

Abstract: *Objective:* To enhance the overall nursing effectiveness in the rheumatology and immunology department, explore specific strategies to improve nursing quality using a high-quality care model, and develop a comprehensive nursing system. *Methods:* A total of 120 hospitalized patients with rheumatoid arthritis from 2022 to January 2024 were selected. These patients were randomly divided into two groups: an observation group (60 patients) and a control group (60 patients). The control group received conventional nursing care, which included creating a good care environment, providing drug guidance, and offering psychological support. In the observation group, a high-quality nursing model was implemented with a focus on meeting the specific needs of the patients. The two groups were compared in terms of complication rates, treatment compliance, nurse-patient disputes, patient satisfaction with nursing care, sleep quality (PSQI score), and pain levels (VAS score). *Results:* The incidence of complications in the observation group was 3.33%, significantly lower than that of the control group, with a statistically significant difference ($P < 0.05$). Nursing compliance in the observation group was 100%, and patient satisfaction was 96.67%, both higher than in the control group, with a statistically significant difference ($P < 0.05$). Additionally, the VAS pain score in the observation group decreased to 2.12 ± 1.89, and the PSQI sleep quality score decreased to 6.89 ± 0.33, both lower than in the control group, with statistically significant differences ($P < 0.05$). *Conclusion:* Focusing on the needs of patients through a high-quality nursing model provides targeted care that improves overall nursing effectiveness for patients with rheumatoid arthritis. This approach enhances patient satisfaction with nursing care, increases treatment compliance, reduces the incidence of complications and nurse-patient disputes, improves sleep quality, and alleviates pain. This model holds significant value for broader applications.

Keywords: High-quality nursing; Rheumatology and immunology department; Nursing model; Nursing effect

1. Introduction

Rheumatoid immune diseases are systemic conditions characterized by difficulty in treatment and a high

likelihood of recurrence, causing significant physical trauma to patients. In recent years, with advancements in clinical medical technology in China, breakthroughs have been made in the treatment of rheumatoid immune diseases. However, implementing scientific nursing measures remains crucial. Many patients in the departments of rheumatology and immunology face long-standing issues with "doubts, difficulties, miscellaneous symptoms, and complex diseases" [1]. These conditions often have unknown causes, progress rapidly, and frequently change, leading to critically ill patients. The complexity of these diseases demands that medical staff carefully observe and assess patients, respond promptly to changes in condition, and take effective measures to improve the safety and quality of nursing care.

Guided by the demands of high-quality nursing models, it is essential to address the personalized needs of patients with rheumatoid diseases. Focusing on the patient's perspective ensures a clearer and more complete understanding of their condition, allowing for the delivery of better clinical nursing services. In the current context, attention to high-quality nursing services has become the primary development direction in nursing care for patients with rheumatoid conditions. Based on this, a study was conducted at Peking Union Medical College Hospital to evaluate the quality of nursing care provided to patients with rheumatoid diseases [2].

2. Materials and methods

2.1. General information

A total of 120 patients admitted to Peking Union Medical College Hospital between January 2022 and January 2024 were selected. The patients were randomly divided into two groups, with 60 patients in each group. The observation group consisted of 29 males and 31 females, aged 25 to 79 years, with an average age of 63.54 ± 3.42 years. Of these, 45% had rheumatoid arthritis, 20% had systemic lupus erythematosus (SLE), and 35% had gouty arthritis. The control group included 28 males and 32 females, aged 25 to 77 years, with an average age of 62.95 ± 3.98 years. In this group, 45% had rheumatoid arthritis, 20% had SLE, and 35% had gouty arthritis. There were no statistically significant differences in age or gender between the two groups, making them comparable ($P > 0.05$) [3].

Inclusion criteria: (1) Age less than 80 years; (2) Signed informed consent; (3) Ethics committee approval.

Exclusion criteria: (1) Coexisting heart disease; (2) Coexisting liver disease; (3) Pregnancy or lactation; (4) Mental disorders; (5) Low cognitive ability.

2.2. Methods

The control group received conventional clinical nursing care. After the patients were admitted to the hospital, the nursing staff assessed their conditions and maintained records in accordance with the handbook for patients with rheumatoid conditions. Targeted nursing interventions were then provided based on this assessment. A suitable care environment was created, and nursing was carried out according to a grading system. Guidance was given for drug administration and rehabilitation [4].

For the observation group, in addition to conventional care, a high-quality nursing model was implemented, guided by patient needs:

(1) Patient needs assessment: Patients were interviewed about their understanding of rheumatoid diseases. For instance, patients with SLE were asked about their knowledge of the disease, including its causes, symptoms, treatment options, and possible complications. Cognitive-behavioral assessments were

performed to determine the severity and duration of symptoms such as joint pain, rash, and fatigue, as well as their impact on the patient's daily life. The current treatment plan was reviewed, and treatment compliance was analyzed. Questions included whether the patients were taking their medications as prescribed and attending regular checkups. Patients' emotional states were evaluated using the Self-rating Anxiety Scale (SAS) and the Self-rating Depression Scale (SDS), and they were asked what type of support (family support, psychological counseling, rehabilitation training, etc.) they needed during treatment [5].

(2) Development of a care plan: A nursing team consisting of rehabilitation therapists, pharmacists, the medical team, and psychological nursing staff was established to discuss the patient's needs. A corresponding nursing plan was formulated to provide better patient-centered clinical care. This plan aimed to improve patients' sleep quality, alleviate symptoms during nursing, and follow up on physical rehabilitation during hospitalization. The care plan was adjusted as necessary.

(3) Emphasis on patient privacy protection: The patient needs assessment and care plan formulation was conducted confidentially, providing humane services and respecting the patients' emotions. If patients had difficulties communicating verbally, they were provided with paper and a pen or a phone to write down their needs. This ensured effective communication between the patient and nursing staff without the involvement of a third party.

(4) Targeted sleep nursing services: A conducive sleep environment was created using window shades to promote better sleep. The nursing staff, patients, and their families communicated to offer better family support. Social workers were involved to provide additional social support, reducing patients' anxiety. Nursing staff and psychological doctors analyzed the psychological status of patients, offering psychological nursing guidance. Patients were advised to develop good sleep habits, such as eating in moderation before bedtime, avoiding food four hours before sleep, and maintaining a strict sleep schedule (sleeping at 9 p.m. and waking at 6 a.m.). These measures aimed to improve patients' sleep experience [6].

(5) Targeted drug care: Patients were given detailed explanations regarding the effects, dosage, timing, potential side effects of their medications, and how to manage those side effects. The importance of taking medication on time and in the correct dose was emphasized, as well as the consequences of non-compliance. Patients were guided to use tools such as PCS, mobile phones, or calendars to track their medication intake. The nursing team communicated with the patients about any drug reactions to adjust dosages. Patients were taught to identify possible side effects, particularly infections, gastrointestinal issues, osteoporosis, and liver and kidney dysfunction. Regular blood tests, urinalysis, and liver and kidney function tests were conducted to monitor the effects of the medication. Patients were advised not to self-medicate with prescription, over-the-counter drugs, or supplements without a doctor's approval.

(6) Guidance on lifestyle adjustments and continued home care: Patients were given advice on diet, such as consuming a high-calcium diet to prevent osteoporosis in cases of SLE. Patients were also reminded to quit smoking and drinking, maintain a healthy lifestyle, reduce psychological stress, and avoid irritants.

2.3. Observation indicators

(1) The two groups were compared in terms of immune level changes and complications, including gastrointestinal discomfort, osteoporosis, and infections. Complication rate = number of patients with

complications / total number of patients.

(2) Compliance in both groups was measured using a self-made scale, with a score of 100 points. Scores above 80 were considered compliant, 60–80 were considered general compliance, and below 60 were considered non-compliant. Compliance rate = (compliant + general) / total number of patients.

(3) The incidence of nurse-patient disputes was compared between the two groups. Incidence of disputes = number of disputes / total number of patients.

(4) Patient satisfaction with nursing services was also measured using a self-made scale, with a full score of 100 points. Scores above 80 were considered satisfied, 60–80 were general, and below 60 were dissatisfied. Satisfaction rate = (satisfied + general) / total number of patients.

(5) The sleep quality score (PSQI) and pain score (VAS) were compared between the two groups.

2.4. Statistical analysis

Data were analyzed using SPSS 21.0. Measurement data were expressed as mean ± standard deviation (SD) and analyzed with the t-test. Count data were expressed as rates (%) and analyzed with the chi-square test (χ^2). A P-value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of complications between the two groups

Table 1 shows that the complication rate in the observation group was significantly lower than that in the control group, and the difference between the two groups was statistically significant ($P < 0.05$).

Table 1. Comparison of complications between the two groups [n (%)]

Groups	n	Gastrointestinal reactions	Infection	Osteoporosis	Total incidence
Observation group	60	2 (3.33)	0	0	2 (3.33)
Control group	60	8 (13.33)	2 (3.33)	2 (3.33)	12 (20.00)
χ^2					13.121
P					< 0.05

3.2. Comparison of nursing compliance between the two groups

As shown in **Table 2**, the nursing compliance in the observation group was significantly higher than that in the control group, with a statistically significant difference between the two groups ($P < 0.05$).

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

Groups	n	Compliance	General	Noncompliance	Total compliance
Observation group	60	52 (86.67)	8 (13.33)	0 (0.0)	60 (100.00)
Control group	60	38 (63.33)	2 (3.33)	10 (16.67)	40 (83.33)
χ^2	-	-			16.903
P					< 0.05

3.3. Comparison of nursing satisfaction between the two groups

Table 3 shows that the nursing satisfaction in the observation group was significantly higher than that in the control group, with a statistically significant difference between the two groups ($P < 0.05$).

Table 3. Comparison of nursing satisfaction between the two groups [n (%)]

Groups	n	Satisfied	General	Dissatisfied	Total satisfaction
Observation group	60	56 (93.33)	2 (3.33)	2 (3.33)	58 (96.67)
Control group	60	40 (66.67)	10 (16.67)	5 (8.33)	50 (93.33)
χ^2	-	-			14.203
P					< 0.05

3.4. Comparison of nursing disputes between the two groups

As shown in **Table 4**, the incidence of nursing disputes in the observation group was significantly lower than in the control group, with a statistically significant difference between the two groups ($P < 0.05$).

Table 4. Comparison of nursing disputes between the two groups (%)

Groups	Total rate (%)
Observation group	3.33
Control group	6.67
χ^2	12.234
P	< 0.05

3.5. Comparison of sleep quality and pain between the two groups

Table 5 shows that the sleep quality and pain levels in the observation group were significantly better than those in the control group, and the differences between the two groups were statistically significant ($P < 0.05$).

Table 5. Comparison of sleep quality and pain between the two groups (mean ± SD, points)

Groups	VAS		PSQI	
	Before care	After care	Before care	After care
Observation group	4.12 ± 1.79	2.12 ± 1.89	13.29 ± 1.44	6.89 ± 0.33
Control group	4.12 ± 1.88	3.11 ± 1.67	13.22 ± 1.75	8.66 ± 0.41
t	0.235	12.378	1.783	12.035
P	> 0.05	< 0.05	> 0.05	< 0.05

4. Discussion

Quality care services that respond adequately to patient needs provide personalized care. Based on demand surveys, nurses can better understand the patient's specific symptoms, course of illness, and individual needs, allowing them to create a more personalized care plan for patients with rheumatoid arthritis [7]. Nursing staff, together with the medical and rehabilitation teams, can use these surveys to discuss treatment plans, improve

patient medication adherence and nursing compliance, and enhance the overall treatment effect.

From the results of this study, the observation group showed an increase in medication compliance and nursing satisfaction of about 20% compared to the control group. Many patients with rheumatoid arthritis experience significant pain, and demand surveys allow nursing staff to identify factors affecting patients' quality of life. This helps provide more targeted rehabilitation programs focused on pain management and daily activities, thereby alleviating the patients' limitations.

Demand surveys also enable nursing staff to identify patients experiencing significant anxiety or depression, allowing for psychological support and counseling. By understanding the patients' knowledge of their condition, nursing staff can offer targeted health education, addressing cognitive blind spots or misunderstandings. Moreover, demand-based nursing consultations help medical teams allocate resources more effectively, ensuring limited nursing resources are used to meet patient needs. This also facilitates regular monitoring of disease progression and strengthens nurse-patient communication, further improving patient satisfaction with nursing care [7].

For instance, Ms. Zhang, a 35-year-old patient in the observation group, had been diagnosed with SLE for two years. She regularly visited the rheumatology and immunology department for standardized treatment. After a needs investigation, the nursing staff discovered that her condition had fluctuated in the past three months, significantly affecting her quality of life. A detailed assessment of Ms. Zhang's daily life revealed that while she had a good understanding of SLE, her knowledge of recurrence prevention measures was insufficient. She had also been experiencing joint pain and poor sleep, which affected her work performance.

Ms. Zhang admitted that she occasionally forgot to take her medication and was apprehensive about the long-term side effects of hormone therapy. She was unsure whether forgetting her medication was due to objective reasons or subjective fears. Furthermore, Ms. Zhang revealed that her anxiety and depression worsened during periods of increased joint pain, negatively impacting her work, social life, and relationships with her family and friends.

Ms. Zhang's primary hope for care was to improve pain management and receive psychological support. In response, the nursing staff provided targeted education on SLE recurrence prevention, using videos, public information, and one-on-one face-to-face explanations. As Ms. Zhang gained more knowledge, her anxiety and depression eased to some extent. Recognizing her concerns about medication, the nursing staff also implemented a targeted pain management plan, which included regular acupuncture and massage sessions with a physical therapist and a joint pain rehabilitation training program. Ms. Zhang participated in rehabilitation training three times a week, and after a period of adjustment, her pain management and medication compliance improved significantly.

The nursing staff also provided sleep management suggestions, guiding Ms. Zhang in relaxation and meditation exercises before bedtime and adjusting her sleep schedule. Techniques such as massage, foot soaking, and listening to soft music were recommended and tailored to the changing seasons. The nursing team regularly followed up on her symptoms and medication compliance, ensuring continuous care. As a result of this quality care, Ms. Zhang's symptoms were significantly controlled, and her quality of life greatly improved.

In conclusion, quality care that is tailored to patient needs plays a pivotal role in enhancing the overall treatment outcomes for individuals with conditions like rheumatoid arthritis and systemic lupus erythematosus. Demand surveys enable nursing staff to develop personalized care plans by gaining insights into patients' specific symptoms, treatment challenges, and psychological needs. This personalized approach improves

medication adherence, nursing compliance, and satisfaction, as demonstrated by the 20% improvement in these areas among patients in the observation group. Addressing both physical symptoms, such as pain, and psychological aspects like anxiety and depression, further enhances the patient's quality of life. The case of Ms. Zhang highlights how targeted interventions in education, pain management, and psychological support can lead to significant improvements in patient well-being. Overall, the integration of individualized care strategies based on comprehensive demand surveys is essential for optimizing clinical outcomes and ensuring patient satisfaction.

Disclosure statement

The author declares no conflict of interest.

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