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Analysis of the Application Effect of Systematic Nursing Intervention in Patients with Knee Osteoarthritis

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Abstract: *Objective:* To analyze the value of systematic nursing care received by patients with knee osteoarthritis (OA). *Methods:* Eighty-two OA patients who visited the hospital from August 2023 to August 2024 were selected as samples and divided into groups by drawing. Group A received systematic nursing, while Group B received routine nursing. Emotional scores, pain scores, knee joint assessments, quality of life scores, and adverse reactions were compared. *Results:* After 3 weeks of nursing, Group A had lower scores for anxiety (SAS), depression (SDS), and visual analog scale (VAS) compared to Group B, with $P < 0.05$. At 1 week, 2 weeks, and 3 weeks of nursing, Group A had higher scores on the American Hospital for Special Surgery (HHS) scale compared to Group B, with $P < 0.05$. After 3 weeks of nursing, Group A had higher scores for quality of life (SF-36) compared to Group B, with $P < 0.05$. The adverse reaction rate in Group A was lower than that in Group B, with $P < 0.05$. *Conclusion:* Systematic nursing care for OA patients results in improved knee function, pain relief, emotional stability, and improved quality of life, making it highly effective and feasible.

Keywords: Knee osteoarthritis; Systematic nursing; Nursing value

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1. Introduction

OA is a high-incidence joint disease among middle-aged and elderly people, which progresses slowly and can cause swelling, pain, and stiffness of the knee joint. In severe cases, it can lead to changes in joint morphology and even secondary joint deformities, which have a significant impact on daily life. Comprehensive treatment should be started as early as possible. Both local administration of medications to the joint and oral non-steroidal anti-inflammatory drugs can inhibit the progression of OA. Based on this, nursing intervention can shorten the course of OA and relieve joint pain. Routine OA management focuses on disease control, and the overall control effect is poor. Systematic nursing, which integrates individualized service concepts and rapid recovery concepts, can relieve OA symptoms and optimize the quality of life of OA patients. It is a targeted intervention strategy [1]. This study explores the value of systematic nursing using 82 OA patients who visited the hospital from August 2023 to

August 2024 as samples.

2. Materials and methods

2.1. Materials

Eighty-two OA patients who visited the hospital from August 2023 to August 2024 are selected as samples and divided into groups by drawing. The baseline data of OA patients in Group A are compared with those in Group B, with $P > 0.05$, as shown in **Table 1**.

Table 1. Baseline data of OA patients

Group	n	Gender(%)		Age (years)		BMI(kg/m^2)	
		Male	Female	Range	Mean	Left	Right
Group A	41	21(51.22)	20(48.78)	61–79	67.58 ± 2.11	20–29	26.11 ± 1.24
Group B	41	22(53.66)	19(46.34)	61–80	67.61 ± 2.13	20–28	26.08 ± 1.26
X^2/t	-	0.0489		0.0641		0.1087	
P	-	0.8250		0.9491		0.9137	

2.2. Inclusion and exclusion criteria

Inclusion criteria: (1) Consistent with OA in the "Expert Consensus on TCM Diagnosis and Treatment of Knee Osteoarthritis" [2]; (2) Joint stiffness and swelling occurred;(3) Signed informed consent; (4) Complete information provided.

Exclusion criteria: (1) Ligament damage; (2) Meniscus damage;(3)Organ lesions; (4) History of major surgery.

2.3. Methods

2.3.1. Group A

(1) Psychological counseling

OA patients tend to experience depression and anxiety due to the pain and discomfort caused by joint pain. Therefore, it is important to actively communicate with OA patients, find topics to distract their attention, and patiently answer their questions about OA knowledge and nursing knowledge, while respecting the patients. During nursing, potential complications of OA should be explained, and the nursing process and the value of following medical advice should be clarified. Family members of OA patients should be advised to provide comfort and companionship, and to stabilize their emotions through various means such as chatting and listening to soft music.

(2) Education

Strengthen OA patients' understanding of the disease through multiple forms such as WeChat videos and manuals, and urge them to cooperate with medical operations. Provide targeted education based on the age, inflammatory state, degree of joint damage, and muscle weakness of OA patients, and use pictures to deepen their understanding.

(3) Pain management

OA patients may experience pain during rehabilitation exercises. To reduce swelling and pain, analgesics

such as paracetamol can be used as prescribed by a doctor. Attention should be paid to regulating the dosage and timing of medication to avoid overdose of analgesics. Additionally, some OA patients may experience severe muscle tension due to pain in the affected area. Muscle relaxants can be administered to relieve muscle spasms, restore normal joint movement, and cold compresses can be used to stimulate blood circulation, promote the absorption of edema in the affected limb, and inhibit the progression of inflammation.

(4) Diet

Guide OA patients to plan their diet, ensuring balanced nutrition in three meals a day, increasing intake of fruits, vegetables, and high-protein foods, and avoiding stimulating and cold foods, which can optimize nutritional status.

(5) Rehabilitation exercises

(a) Passive joint exercises: Nurses and family members assist OA patients to complete joint flexion and extension exercises, gradually increasing the range of motion, while avoiding violent activities that may cause pain.

(b) Muscle strength exercises: Targeted exercises for the hamstring, quadriceps, and soleus muscles, such as preparing a chair with armrests and guiding patients to stand up and sit down for exercise; encouraging patients to walk backwards to strengthen muscle strength using ground resistance; and lifting the toes while sitting in a chair.

(c)Balance exercises: Once the patient's condition stabilizes, start static balance exercises in a standing position, such as standing on one leg, climbing stairs, etc., to improve muscle coordination and flexibility.

(d) Life skill exercises: Use walking aids and canes to walk correctly, slowly moving the healthy leg to reduce pressure on the affected knee; follow the principle of "good foot first, bad foot later" when climbing stairs to reduce pressure on the affected knee and prevent falls.

(e) Herbal wet and hot compress: Take 30g each of Chuanxiong, Niuxi, Honghua, Ruxiang, Chuanwu, Caowu, Moyao, and Weilingxian. Boil the above herbs to obtain 100ml of juice, prepare a wet compress package, soak it in the medicinal juice, heat it to 60℃, and apply it externally to the knee joint. Each wet and hot compress should last for 15–20 minutes, 2–3 times a day.

2.3.2. Group B

Guide OA patients to take medication correctly, inform them of the medication plan, precautions, and potential risks, monitor various physiological indicators, including blood routine, respiration, blood pressure, and heart rate, and follow medical advice to complete knee joint physiotherapy.

2.4. Observation indicators

(1) Emotion and pain: SAS and SDS are positively correlated with anxiety and depression in OA patients, with critical values of 50 and 53, respectively. VAS is positively correlated with pain sensation in OA patients, ranging from 0–10.

(2) Joint function: The HHS score is positively correlated with joint function, ranging from 0–100.

(3) Quality of life: The SF-36 score is positively correlated with the quality of life of OA patients, with each dimension ranging from 0–100.

(4) Adverse reactions: Record the number of cases of edema and infection.

2.5. Statistical analysis

Data is processed using SPSS 23.0. Count data (%) is tested using the X^2 test, and measurement data ($\bar{x} \pm s$) is tested using the t-test. There is a statistically significant difference with $P < 0.05$.

3. Results

3.1. Emotion and pain

After 3 weeks of nursing, the scores of SAS, SDS, and VAS in Group A were lower than those in Group B, with $P < 0.05$. The results are shown in **Table 2**.

Table 2. Comparison of emotion and pain scores ($\bar{x} \pm s$)

Group	SAS(score)		SDS(score)		VAS(score)	
	Before nursing	3 weeks of nursing	Before nursing	3 weeks of nursing	Before nursing	3 weeks of nursing
Group A (n=41)	55.19 ± 2.61	34.21 ± 1.26	54.28 ± 2.57	34.17 ± 1.29	6.59 ± 1.25	1.66 ± 0.36
Group B (n=41)	55.21 ± 2.58	42.62 ± 1.96	54.32 ± 2.59	43.06 ± 1.88	6.61 ± 1.27	2.91 ± 0.43
t	0.0349	23.1111	0.0702	24.9663	0.0719	14.2722
P	0.9723	0.0000	0.9442	0.0000	0.9429	0.0000

3.2. Joint function

After 1, 2, and 3 weeks of nursing, the HHS scores of Group A were higher than those of Group B, with $P < 0.05$, as shown in **Table 3**.

Table 3. Comparison of HHS scores ($\bar{x} \pm s$)

Group	1 week of nursing	2 weeks of nursing	3 weeks of nursing
Group A (n=41)	83.11 ± 1.25	91.44 ± 1.81	97.43 ± 2.12
Group B (n=41)	80.13 ± 1.31	86.21 ± 1.62	88.36 ± 1.96
t	10.5381	13.7863	20.1150
P	0.0000	0.0000	0.0000

3.3. Quality of life

After 3 weeks of nursing, the SF-36 score of Group A was higher than that of Group B, with $P < 0.05$, as shown in **Table 4**.

Table 4. SF-36 scores ($\bar{x}$ ±s)

Group	Physical health (score)		Mental health (score)		Social functioning (score)		Physiological functioning (score)	
	Before nursing	3 weeks of nursing	Before nursing	3 weeks of nursing	Before nursing	3 weeks of nursing	Before nursing	3 weeks of nursing
Group A (*n*=41)	68.19 ± 2.11	87.43 ± 3.85	67.44 ± 2.06	87.48 ± 3.82	66.44 ± 2.08	86.43 ± 3.79	65.42 ± 2.11	86.69 ± 3.82
Group B (*n*=41)	68.21 ± 2.08	76.11 ± 3.16	67.41 ± 2.09	76.21 ± 3.11	66.42 ± 2.06	75.16 ± 3.06	65.39 ± 2.14	76.11 ± 3.14
t	0.0432	14.5526	0.0655	14.6497	0.0437	14.8145	0.0639	13.7000
P	0.9656	0.0000	0.9480	0.0000	0.9652	0.0000	0.9492	0.0000

3.4. Adverse reactions

The adverse reaction rate in Group A was lower than that in Group B, with $P < 0.05$, as shown in **Table 5**.

Table 5. Adverse reactions (n,%)

Group	Edema	Infection	Incidence rate
Group A (*n*=41)	0(0.00)	1(2.44)	1(2.44)
Group B (*n*=41)	3(7.32)	3(7.32)	6(14.63)
X^2	-	-	-
P	-	-	-

4. Discussion

OA is a highly prevalent disease among middle-aged and elderly populations, particularly affecting joints with high weight-bearing and activity levels. Long-term joint overloading or excessive use can lead to joint degeneration, inducing symptoms such as joint swelling, stiffness, and pain, which may even restrict joint movement [3, 4]. OA is associated with the degeneration of systemic organs. If the patella is affected, patients may experience increased pain when squatting, climbing mountains, or stairs. In severe cases, joint popping and bent stretching difficulties may occur. If the tibial or femoral bones are affected, patients may experience pain during daily walking or rest [5]. Additionally, as OA progresses, the continuous thinning of the cartilage layer and damage to the meniscus in the affected limb can lead to local bone spur formation, inducing joint deformity and swelling. The continuous reduction of joint cartilage results in an uneven joint surface, producing a bone rubbing sound. In late-stage patients, limited joint movement and intensified pain can lead to difficulties in straightening the joints or leg weakness during daily walking, significantly impacting their daily lives. There are numerous treatment options for OA, requiring the control of joint inflammation accompanied by nursing intervention. Conventional OA nursing, which is passive and non-targeted, cannot rapidly improve knee joint function and is not conducive to patients' later rehabilitation exercises. Systematic nursing, centered on the rehabilitation of OA patients and considering their psychological and physiological needs, provides services from multiple aspects and can correct patients' joint dysfunction [6].

Based on the data analysis in this study, the SAS, SDS, and VAS scores of Group A were lower than those

of Group B, while the HHS scores were higher, with $P < 0.05$. The reason for this is that systematic nursing emphasizes psychological intervention and education intervention, patiently guiding OA patients to alleviate their negative emotions, improve their comfort level, optimize their mental health, and reduce psychological stress. Additionally, utilizing diversified methods for education assists OA patients in understanding their disease knowledge and nursing process knowledge, strengthening their confidence in rehabilitation. Furthermore, nurses assess the level of pain in OA patients and provide pain relief through various forms such as analgesics, cold compresses, and muscle relaxants, which can alleviate joint pain, facilitate patients' subsequent functional exercises, and stabilize OA conditions [7].

Another set of data indicates that the HHS scores of Group A were higher than those of Group B, with $P < 0.05$. This is because systematic nursing can alleviate patients' joint pain, improve their prognosis, and encourage them to actively participate in rehabilitation exercises, thereby optimizing knee joint physiology and improving their quality of life. During actual systematic nursing, passive joint exercises are performed to assist OA patients in flexing and extending their joints, enhancing joint movement range. Muscle strength exercises are conducted to improve lower limb muscle strength, laying the foundation for patients to restore walking ability. Balance exercises and life skill training are introduced to help patients relearn life skills, reduce the pressure on the affected limb, and ultimately resolve joint limitations [8].

Additionally, this article introduces the intervention of traditional Chinese medicine damp heat compress during systematic nursing. Applying damp heat compresses with medication at specific locations in the patient's area can increase local blood drug concentration and achieve systemic therapeutic effects. Traditional Chinese medicine damp heat compress is a characteristic technique that is efficient and safe. It can exert effects such as relaxing muscles, promoting blood circulation, removing dampness, and dispelling cold. Through transdermal absorption of medicinal components, it can block inflammation progression, optimize the body's microcirculation, and reduce local inflammatory exudation, resulting in excellent improvement of knee joint function. Another set of data shows that the SF-36 score of Group A was higher than that of Group B, with $P < 0.05$. This is because systematic nursing emphasizes rehabilitation exercises and psychological intervention, which can change patients' perceptions of OA disease, encourage them to actively cooperate with nursing interventions, thereby enhancing the effectiveness of rehabilitation exercises, alleviating joint pain in the affected limb, and improving the quality of life for OA patients [9].

The final set of data indicates that the adverse reaction rate in Group A was lower than that in Group B, with $P < 0.05$. This is due to the dynamic assessment of OA patients' conditions during systematic nursing services, the improvement of efficient and feasible nursing strategies, the transition from local exercises to mastering self-care skills, and the adjustment of nursing plans and rehabilitation exercise difficulty based on OA patients' adaptability, which can meet patient needs and reduce adverse reactions in OA [10].

5. Conclusion

In summary, systematic nursing for OA patients optimizes their quality of life, provides emotional comfort, reduces pain, and decreases adverse reactions, making it worthy of promotion.

Disclosure statement

The author declares no conflict of interest.

References

[1] Chen J, Zhang K, Lu M, et al., 2023, The Impact of Refined Nursing Under the Guidance of Accelerated Rehabilitation Theory on Patients Undergoing Unicompartmental Knee Replacement for Osteoarthritis. Qilu Nursing Journal, 29(6): 121–124.

[2] Orthopedic Professional Committee of China Association for the Promotion of Chinese Medicine Research, Joint Working Committee of Orthopedics and Traumatology Professional Committee of China Association of Integrative Medicine, 2015, Expert Consensus on TCM Diagnosis and Treatment of Knee Osteoarthritis (2015 Edition). Chinese Journal of Orthopedics and Traumatology, 27(7): 4–5.

[3] Mou J, Jiang K, 2022, Application Effect of Nursing Intervention Based on Evidence in the Treatment of Knee Osteoarthritis with Sodium Hyaluronate Injection into Knee Joint Cavity. Guide of China Medicine, 20(25): 148–151.

[4] Zhou Y, 2024, Application Effect of BiosocialPsychological Integrated Nursing in Patients with Knee Osteoarthritis Treated by Acupotomy. Chinese Journal of Rehabilitation Medicine, 36(18): 177–180.

[5] Cui J, 2024, Study on the Application of Perioperative Holistic Nursing and Standardized Pain Intervention in Patients Undergoing Total Knee Replacement. Heilongjiang Medical Journal, 48(8): 996–998.

[6] Zhang F, Huang M, Zhang M, 2024, Effect of Full Psychological Care Combined with Continuous Passive Motion Intervention on Knee Function in Postoperative Knee Patients. Guide of China Medicine, 22(13): 180–182.

[7] Zhao X, Li A, Wang S, Shang W, 2023, Analysis of the Application Effect of Systematic Nursing Intervention in Patients with Knee Osteoarthritis. Medical Research and War Trauma Treatment, 36(7): 768–770.

[8] Li J, 2023, Influence of Accelerated Rehabilitation Surgical Nursing on Joint Function and Mental State of Patients with Knee Osteoarthritis. Chinese Journal of Disabled Medicine, 31(8): 81–84.

[9] Wen H, Gao Q, Wang A, 2023, Effects of Accelerated Rehabilitation Surgical Nursing on Joint Function, Mental State, and Treatment Compliance of Patients with Cervical Spondylosis. Guizhou Medical Journal, 47(11): 1838–1839.

[10] Hui J, Huang T, Cai L, 2021, Effects of Accelerated Rehabilitation Surgical Nursing on Joint Function, Mental State, and Treatment Compliance of Patients with Knee Osteoarthritis. Chinese Journal of Modern Nursing, 27(14): 1914–1917.