Effects of comfort care on joint function, pain degree and Baird score after minimally invasive ankle fracture

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[Abstract] Objective: To explore the effect of comfort nursing on joint function, pain degree and Baird score after minimally invasive ankle fracture. METHODS: A total of 62 patients with minimally invasive fracture of ankle joint treated in our hospital from July 2019 to July 2020 were selected as the research subjects. According to random number method, all patients were divided into observation group and control group, with 31 cases in each group. Conventional nursing intervention was carried out in the control group and comfort nursing intervention was given in the observation group. After surgery, the recovery of bare joint function was compared between the two groups. Pain scale (VAS) was used to evaluate the degree of pain in the two groups, the Hamilton Anxiety Scale (HAMA) was used to assess patients' anxiety levels, and the comparison was made before, 3 months and 6 months after surgery. The postoperative Baird scores of the two groups were compared. The incidence of postoperative complications between the two groups was statistically analyzed and compared. The nursing satisfaction of the two groups of patients was compared. RESULTS: Compared with the control group, the number of excellent and good cases in observation group was significantly increased (P<0.05), while the number of poor cases was significantly

decreased (P<0.05). There was no significant difference in the degree of pain and anxiety between the two groups before operation (P>0.05). Compared with preoperation, the pain degree, body anxiety degree and mental anxiety degree in 2 groups at 3 and 6 months after operation were significantly decreased (P<0.05); The pain score, somatic anxiety score and mental anxiety score of the observation group were significantly lower than those of the control group at 3 and 6 months after surgery (P<0.05); The pain scores of observation group at 3 months and 6 months after surgery were significantly lower than those of control group (P<0.05). Compared with the control group, the postoperative Baird score in observation group was significantly increased (P<0.05); The incidence of pressure sores, wound infection and complications of lower extremity deep vein thrombosis in the observation group was significantly lower than that in the control group (P<0.05). Compared with the control group, the nursing satisfaction of the observation group was significantly increased (P<0.05). Conclusion: The postoperative nursing of patients with minimally invasive fracture of ankle joint, taking comfortable nursing can effectively improve the joint function and nursing satisfaction of patients, relieve the pain of patients, improve their prognosis, has certain advantages, worthy of further clinical promotion and application.

【 Key words 】 Comfort care; Bare joint fracture; Minimally invasive surgery; Joint function; Degree of pain; Baird score Ankle joint is composed of tibial articular surface, fibular articular surface and talus articular surface, which is relatively fragile and prone to fracture under the action of external forces [1]. Ankle fractures are more likely to occur in young adults due to their larger range of movement [2]. Ankle fracture can cause severe pain to patients, cause negative emotions, limit the mobility of patients, and seriously affect patients' daily life and physical health. Data show that ankle fractures account for about 4% of total body fractures [3], and the incidence has been increasing in recent years. Clinically, minimally invasive surgery is often used for the treatment of ankle fractures. However, the anatomical structure of the ankle joint is relatively special, and minimally invasive surgery will bring some trauma to patients, resulting in many uncertain factors in the process of treatment, which will affect the therapeutic effect [4]. Therefore, it is of great significance to take active and effective nursing measures to relieve the tension and anxiety of patients and to promote their physical rehabilitation. Under the requirements of surgery under modern medical conditions, nursing staff mainly further optimize the nursing plan of surgery, apply advanced nursing concepts and nursing methods to surgical treatment, help the operation, and ensure the early recovery of patients [5]. Comfort care has been applied in a variety of operations and achieved significant effects, but there are few studies on its application in ankle minimally invasive fracture [6]. Therefore, this paper applied comfort nursing in minimally invasive fracture of ankle joint to study its influence on postoperative joint function, pain degree and Baird score, aiming to provide reference for clinical selection of nursing methods. Here is the report.

Tob Regul Sci.™ 2021;7(6): 6597-6608

DOI: doi.org/10.18001/TRS.7.6.133

1. Materials and methods

1.1 General information

A total of 62 patients with minimally invasive fracture of ankle joint treated in our hospital from July 2019 to July 2020 were selected as the research subjects, including 41 males and 21 females. The average age was 33.012.19 years. Fracture causes: 31 cases of car accident injury, 15 cases of falling injury, 12 cases of crushing injury, other 4 cases; Fracture types: 49 cases of closed fracture, 13 cases of open fracture; The time between injury and operation was 3h~6 days, and the average time was 4.260.26d. According to random number method, all patients were divided into observation group and control group, with 31 cases in each group. In the observation group, there were 20 males and 11 females with an average age of 33.152.01 years old. In the control group, there were 21 males and 10 females, with an average age of 33.092.31 years. All patients and their family members were informed of this study and had signed the informed consent.

1.2 Inclusion criteria and exclusion criteria

Inclusion criteria :(1) Complete clinical data; (2) The clinical symptoms of the patient were pain and swelling in the bare part; (3) Patients with clinically confirmed ankle joint fracture; (4) Patients who underwent minimally invasive surgery and were able to tolerate the surgery; (5) The first occurrence of ankle fracture. Exclusion criteria :(1) Severe deficiency of vital organs such as liver and kidney; (2) People with mental disorders; (3) patients with cognitive dysfunction; (4) Recent operation; (5) Complicated with malignant tumor; (6) patients with severe autoimmune diseases.

1.3 Nursing Methods

Routine nursing mode was carried out for patients in the control group, which mainly included the detection of patients' vital signs, the cooperation with doctors to complete surgical operations, the routine examination of patients after surgery and the replacement of auxiliary materials package, etc.

Comfort nursing intervention was performed on the observation group. The main contents are as follows: (1) Basic nursing: local ice compress was performed after the patient was admitted to the hospital, dehydration and swelling were reduced, and tissue pressure and swelling were reduced; Elevation of the affected limb increases venous return, reduces calcaneal traction in patients with swelling or even blisters, and facilitates reduction and immobilization. Turn over the patient in time to prevent pressure ulcers. Keep the patient's skin clean and dry, clean the patient's sheets and clothes in time. Patients are advised to drink more water to prevent the occurrence of infection or stones, and patients are guided to have a reasonable diet and eat more light food to ensure adequate nutrition [7]. (2) psychological care: due to the more serious pain of patients, they are prone to anxiety and depression, in the process of treatment may appear psychological resistance, affecting the treatment effect. Therefore, nursing staff should communicate with patients patiently, timely answer the problems existing in patients, inform patients of successful and positive cases of the cure of the disease, establish a friendly relationship with patients, and guide

patients to establish a good mentality. In addition, nursing staff should also introduce the knowledge related to the disease with patients, as well as the matters needing attention in the treatment process, so that patients can be prepared psychologically and prevent the occurrence of unexpected events. (3) pain care: nursing staff can use brake treatment to relieve the pain of patients. The pain of different patients was evaluated and analgesic measures were formulated based on the evaluation results. Nursing staff can take to play music, TV series, etc., to divert the patient's attention; Ice compress or massage to reduce pain; If the pain of the patient is more serious, some analgesic drugs can be taken, but before the use of analgesic drugs to check the patient's vital signs, to prevent the occurrence of side effects. (4) Functional exercise: nursing staff can develop personalized functional exercise meter for patients according to their personal conditions. On the first postoperative day, patients were induced to perform normal functional exercise. Guide the patient to conduct activities outside the limbs. If the patient has a cast, quadriceps contractions and toe movements should be performed, as well as knee exercises and leg lifts. Encourage the patient to exercise the unfixed areas as soon as possible, such as dorsal extension of the toe joint, lower hook, etc. Two months after the removal of the external fixation, active and passive exercises were carried out, and walking exercises were carried out with the assistance of the two crutches [8]. (5) Nursing of complications: timely cleaning of the lesion site to prevent the breeding of bacteria. Keep a close watch on the incision and inform the doctor if the patient has a rise in body temperature. Massage the patient's lower extremities during the recuperation period, and guide the patient to get out of bed after the condition improves.

1.4 Observation Indicators

(1) Joint function: the recovery of ankle function after nursing was compared between the two groups of patients. The recovery of ankle function was divided into excellent, good and poor. Excellent: the patient's clinical symptoms disappeared completely, and the ankle function basically completely returned to normal; Good: The function of ankle joint and all clinical symptoms improved; Poor: no improvement or aggravation of ankle joint function and clinical symptoms.

(2) Pain degree: Pain scale method (VAS) [9] was used to evaluate and compare the pain degree of patients in the two groups before surgery, 3 months after surgery and 6 months after surgery. The higher the score, the more intense the pain feeling of patients.

(3) Anxiety level: Hamilton Anxiety Scale (HAMA) was used to evaluate patients' anxiety level, including somatic anxiety and psychosocial anxiety. The lower the score, the lower the anxiety.

(4) Baird scores: postoperative Baird scores of the two groups of patients were compared [10].

(5) Complications: the incidence of pressure sores, incision infection and deep venous thrombosis of lower limbs were statistically analyzed and compared after surgery.

(6) Nursing satisfaction: the satisfaction of the two groups of patients on nursing was compared. They were divided into very satisfied, satisfied and dissatisfied, with

satisfaction = (very satisfied + satisfied)/total number of cases.

2.Results

2.1 Comparison of general data between the two groups

There were no significant differences in gender, mean age, mean course of disease, body mass index (BMI), cause of fracture and fracture type in the observation group, which were not statistically significant (P>0.05), as shown in Table 1.

Table 1 Comparison of general data between the two groups

Group		Observation Group （n=31）	Control Group （n=31）	Statistic	*P*
Gender	Male	20	21	5.267	0.492
	Female	11	10		
Average age (years)		33.15±2.01	33.09±2.31	4.269	1.003
Average duration （d）		4.28±0.31	4.26±0.18	6.238	0.068
BMI（kg/m^2）		21.06±2.35	21.08±2.39	4.198	0.129
Reason	Traffic accident	15	16	-	-
	Falling injury	8	7	-	-
	Pressure parts	6	6	-	-
	Other	2	2	5.264	0.059
fracture types	Open fracture	6	7	-	-
-	Closed fracture	25	24	5.117	2.004

2.2 Comparison of postoperative recovery of ankle joint function between the two groups

The number of excellent and good cases of postoperative ankle recovery in the observation group was significantly higher than that in the control group, while the

Control group

Observation

number of poor cases was significantly lower than that in the control group, and the differences were statistically significant (P<0.05), as shown in Figure 1.

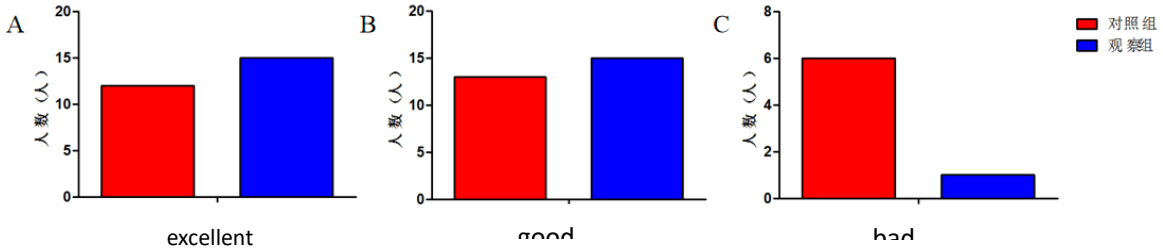
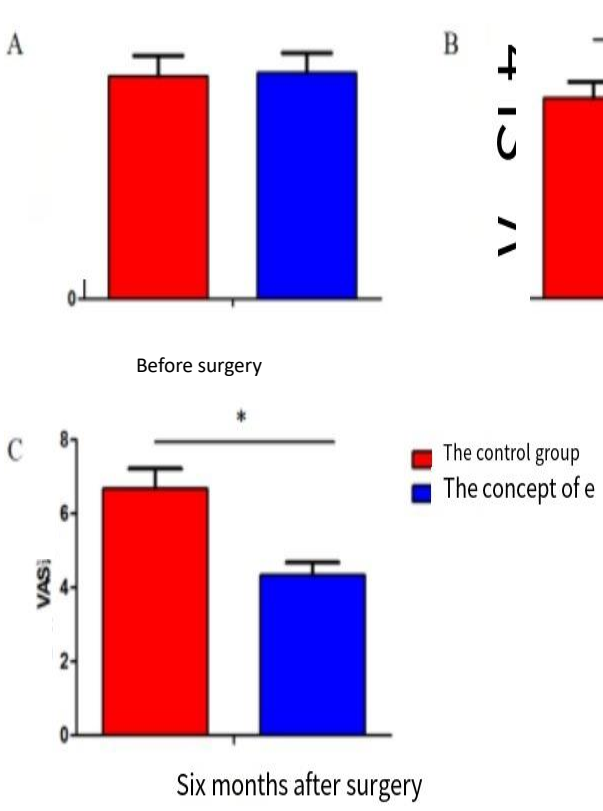


Figure 1 Comparison of postoperative ankle recovery between the two groups

2.3 Comparison of postoperative pain between the two groups

There was no significant difference in preoperative pain degree between the two groups (P>0.05). Compared with preoperation, the pain degree at 3 and 6 months after operation was significantly decreased in 2 groups, and the difference was statistically significant (P<0.05). The pain scores of the observation group were significantly lower than those of the control group 3 months and 6 months after surgery, and the difference was statistically significant (P<0.05), as shown in Figure 2.



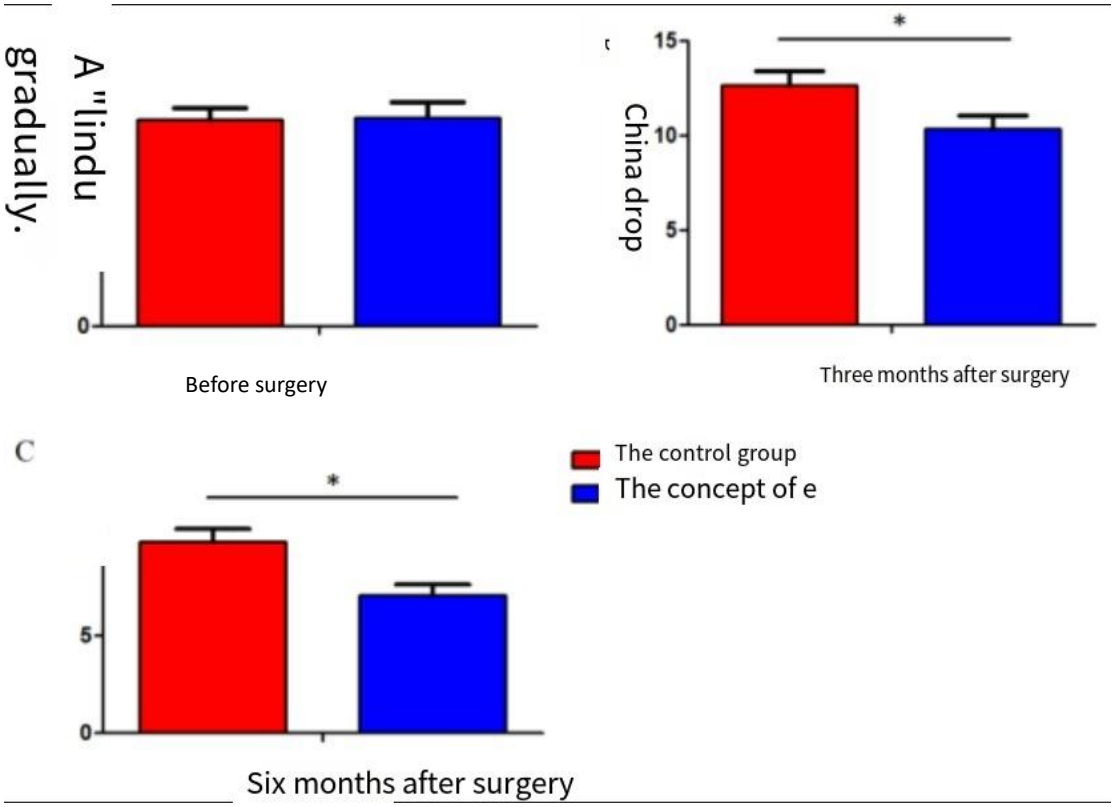
Note: *P means P < 0.05 compared with the control group

Figure 2 Comparison of pain degree between the two groups

2.4 Comparison of anxiety levels between the two groups

There was no significant difference in preoperative physical anxiety between the two groups (P>0.05). Compared with preoperation, the degree of body anxiety in 2 groups at 3 months and 6 months after operation was significantly decreased, and the difference was statistically significant (P<0.05). The somatic anxiety scores of the

observation group were significantly lower than those of the control group 3 and 6 months after surgery, and the difference was statistically significant (P<0.05), as shown in Figure 3.

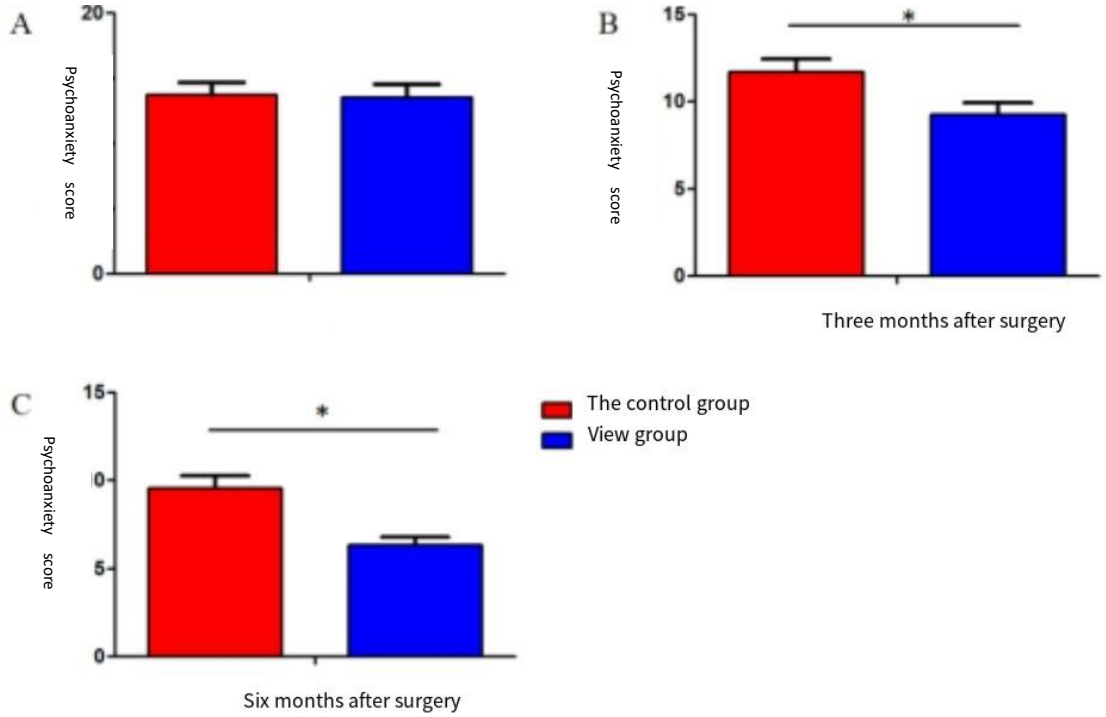


Note: *P means P < 0.05 compared with the control group

Figure 3 Comparison of somatic anxiety between the two groups

There was no significant difference in preoperative mental anxiety between the two groups (P>0.05). Compared with preoperation, the degree of mental anxiety in 2 groups at 3 months and 6 months after operation was significantly decreased, and the difference was statistically significant (P<0.05). The mental anxiety scores of the observation group were significantly lower than those of the control group at 3 and 6 months after surgery, and the difference was statistically significant (P<0.05), as shown in Figure 4.

Psychoanxiety score



Note: *P means P < 0.05 compared with the control group

Fig. 4 Comparison of mental anxiety between the two groups

2.5 Comparison of postoperative Baird scores between the two groups

Postoperative Baird score in the observation group was significantly higher than that in the control group, and the difference was statistically significant (P<0.05), as shown in Figure 3.

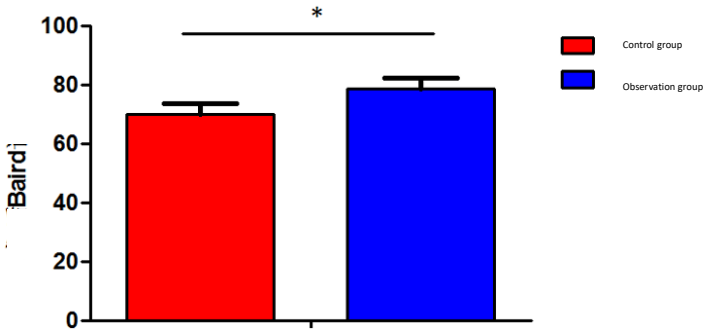


Figure 5 Comparison of postoperative Baird scores between the two groups

Note: *P means P < 0.05 compared with the control group

2.6 Comparison of complications between the two groups

The incidence of pressure sores, incision infection and complications of lower extremity deep vein thrombosis in the observation group was significantly lower than that in the control group, and the difference was statistically significant (P<0.05), as shown in Table 2.

Table 2 Comparison of complications between the two groups [n (%)]

Group	Observation Group	Control Group （n=31）	X^2	P

	（n=31）			
Pressure sores	1（3.22）	2（6.44）	-	-
Infection of incision	0（0.00）	1（3.22）	-	-
Deep vein thrombosis in lower limbs	1（3.22）	2（6.44）	-	-
Always	2（6.44）	5（16.12）	5.124	0.008

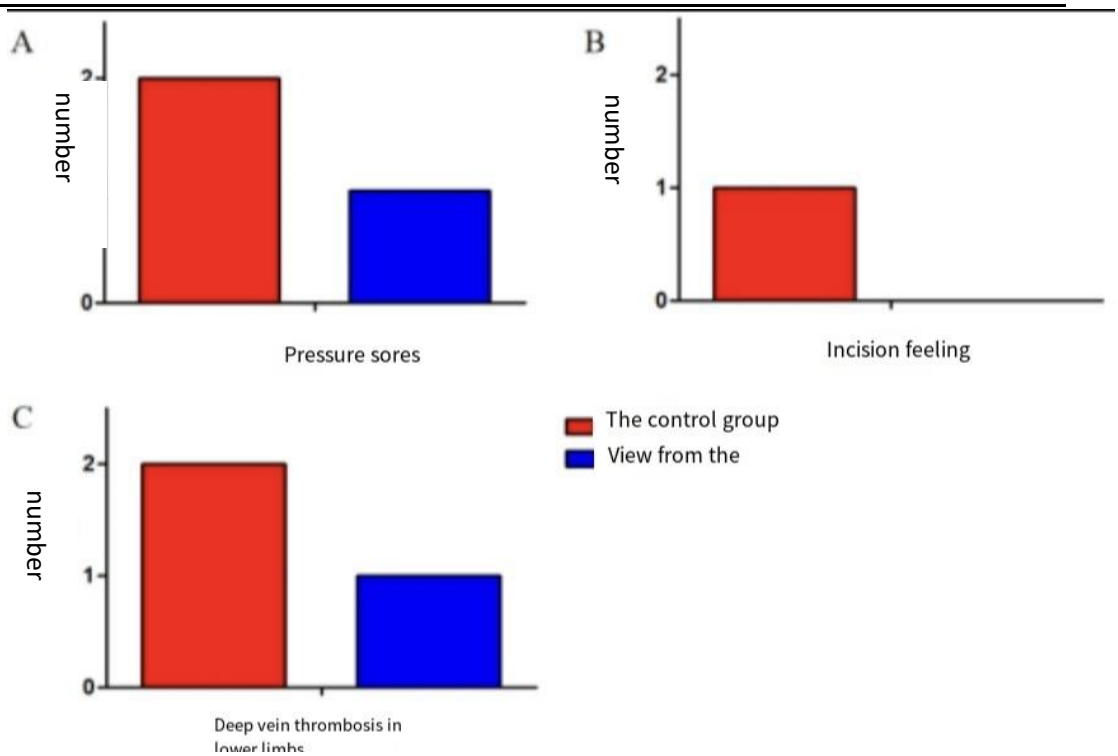


Fig. 6 Comparison of complications between the two groups

2.7 Comparison of nursing satisfaction between the two groups

The satisfaction of patients in the observation group was significantly higher than that in the control group, and the differences were statistically significant ($P<0.05$), as shown in Figure 7.

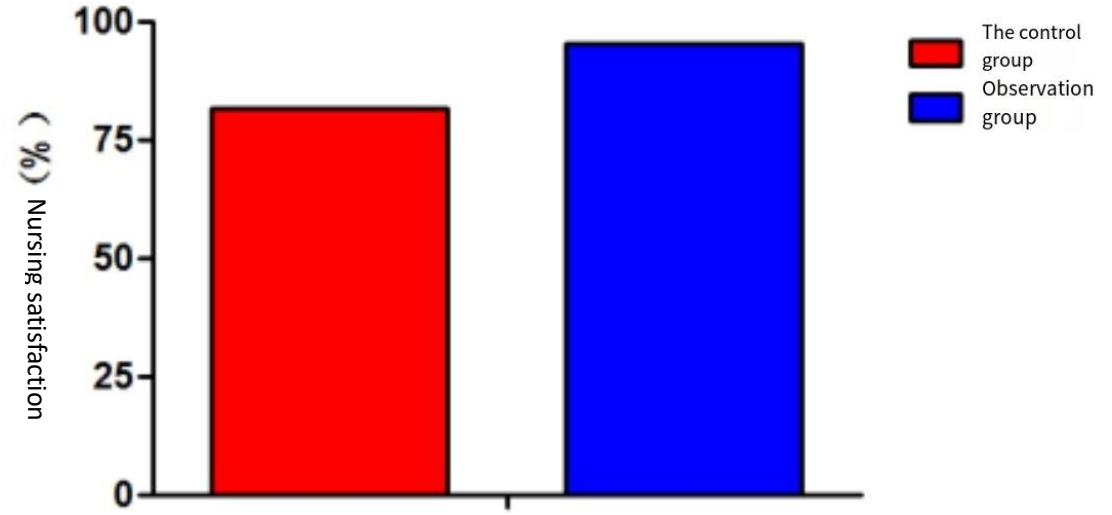


Fig. 7 Comparison of nursing satisfaction between the two groups

3. Discuss

Ankle joint fracture is a common disease in orthopedic department. Ankle joint is one of the more flexible joints used by human body, so it is easy to cause injury. Through surgery may help patients recover joint connection mode, which is the most widely clinical treatment for ankle surgery way for minimally invasive surgery, minimally invasive surgery is significantly lower in patients with trauma, has small trauma, good reduction, easy to operate, and the advantages of fixation, but it cannot avoid to bring some pain to the patient. Therefore, the use of analgesic drugs and nursing intervention is of great value in the surgical process of patients with ankle fracture, which can relieve the patients' bad mood, divert their attention, reduce the degree of pain and promote the patients' early recovery [11-12]. Comfort nursing is a new nursing mode, which focuses on improving the optimization of nursing measures in the nursing process to improve the quality of nursing and improve the comfort of patients [13]. Ankle fracture occurs in young and middle-aged people, who are the core members of a family. If an accident occurs, it will have a great impact on family life and economy, and patients are prone to anxiety and tension. Therefore, psychological care is particularly important for patients at this time [14].

Xu Bing et al. [15] showed in the study of comfort nursing that comfort nursing can significantly improve the joint function of patients with ankle fracture. In the above study, it was found that the recovery of postoperative ankle function in the observation group was significantly better than that in the control group, suggesting that comfortable nursing can significantly improve the ankle function of ankle fracture after minimally invasive surgery. This may be due to the postoperative functional exercise for patients in comfort care to help patients heal their bones and promote their recovery. This is consistent with the research results of the above-mentioned scholars. In the above study, the pain degree of patients in the observation group was significantly lower than that in the control group at 3 months and 6 months after surgery, and the physical anxiety score and mental anxiety score were significantly lower than that in the control group, indicating that comfort nursing

significantly improved the postoperative comfort of patients with ankle fracture. This may be related to a series of measures such as taking analgesic treatment for pain in nursing. This is consistent with the results of Ozdel D et al. [16] in the study on comfort care. Baird score is a clinical index often used to evaluate ankle function. The above study results showed that the postoperative Baird score of the observation group was significantly higher than that of the control group, indicating that comfort nursing can effectively promote the postoperative ankle recovery of patients with ankle fracture. The reasons are related to functional exercise and psychological counseling to promote patients' compliance with treatment. The research results of Sun H et al. [17] also found the existence of this phenomenon. Jiang Yuhua et al. [18] found in the study on the application of comfort care in fracture that it can significantly reduce the incidence of various postoperative complications and improve the prognosis of patients. In the above studies, the incidence of postoperative complications was significantly lower in the observation group than in the control group. It is suggested that comfortable nursing can improve the prognosis of ankle fracture after minimally invasive surgery and promote the early recovery of patients. This may be because in the comfort care always keep the patient's lesion site clean, always pay attention to the patient's wound situation, to avoid the occurrence of infection; Massage lower limbs for patients to prevent the occurrence of lower extremity deep vein thrombosis. This is consistent with the research results of many scholars mentioned above. In the above process of patient care, nursing staff communicate with patients patiently, timely solve the difficulties existing in patients, which can enhance patients' satisfaction with the caregivers. The above studies show that the satisfaction of patients in the observation group is significantly higher than that in the control group, which indicates that comfort nursing has an important value in improving the doctor-patient relationship. This is consistent with the research results of Zhang Shanshan et al. [19].

To sum up, comfortable nursing can effectively improve the joint function after minimally invasive fracture of ankle joint, relieve the pain of patients, improve their prognosis, and has high clinical application value.

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