

Original Article

Effects of nursing care based on positive suggestions on perioperative negative emotion and postoperative quality of life in orthopedic patients

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Abstract: Objective: To investigate the effects of positive suggestions on perioperative negative emotion and quality of life in orthopedic patients. Methods: A total of 110 patients with long bone fractures of the extremities treated with surgery under local anesthesia were randomly divided into an observation group and control group, with 55 patients in each group. Patients in the control group were given routine nursing care. Patients in the observation group were given nursing care based on positive suggestions. The preoperative and intraoperative blood pressure and heart rate changes, postoperative negative emotion score (Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS)), pain visual analogue scale (VAS) score, quality of life score and nursing overall satisfaction score were observed and compared between the two groups. Results: The blood pressure and heart rate of the two groups increased to varying degrees during operation, but the control group increased more significantly than the observation group ($P < 0.05$). One week after surgery the scores of negative emotion (SAS and SDS) were lower than those before surgery in both groups. However, the observation group decreased more significantly ($P < 0.001$). In addition, the pain VAS score of the control group was higher than that of the observation group, the quality of life score and the overall nursing satisfaction score were lower than the observation group ($P < 0.01$). Conclusion: Nursing care based on positive suggestions can stabilize a patient's circulation to a certain extent, alleviate negative mood, reduce pain experience, improve patient's quality of life, and improve nursing satisfaction. Implementation of nursing care based on positive suggestions in clinical practice is highly recommended.

Keywords: Positive suggestions, orthopedics, perioperative period, negative emotion, quality of life, nursing satisfaction

Introduction

With the continuous development and progress of society, people's diet structure and lifestyle have undergone tremendous changes. For example, the rapid development of the automobile industry has led to an increase in the number of fracture patients year by year [1]. Studies have shown that the number of fracture patients in the world is about 16 million per year, and by the middle of this century, there will be more than 60 million fracture patients every year [2]. With the intensification of China's aging population problem, in 2015 China's population of people over 60 years old accounted for 16.1% of the total population, and the ever-growing elderly population has led to more and more osteoporosis patients, which will eventu-

ally increase the number of fracture patients. Fracture not only affects patients' quality of life, but also increases the social economic and health burden [3, 4].

Pain is one of the main symptoms of fractures, and it is also an important complaint of patients. Pain affects patients' emotions, causing patients to have abnormal emotions such as anxiety. The main treatment of fractures is surgical reduction, and the surgery itself can cause a series of psychological problems. Furthermore, patients usually need to be immobilized after surgery; this further exacerbates the fluctuations in the patient's psychological status [5-7].

Positive suggestions originated in the middle of the 19th century, it's the only way to relieve

pain in patients before anesthesia. Although the current medication can yield satisfactory effect of analgesia, the positive suggestions are still a currently recognized effective psychological intervention, which can enhance the analgesic effect of medications and reduce postoperative pain [8]. In order to adapt to the patient-centered nursing care of the new era, positive suggestions re-enters the researcher's vision. The specific implementation method is to communicate the patient's condition to the patient in a more subtle way, in an effort to increase the patient's confidence about the surgery. To this end, we used positive suggestions in the perioperative period of fracture patients, to explore its impact on patients with adverse negative emotions, and to assess its role in improving the patients' quality of life.

Materials and methods

Patients

A total of 110 patients admitted in the Department of Orthopedics in Shanghai Jiao Tong University Affiliated Sixth People's Hospital from June 2016 to June 2018 were included in this study. All patients underwent surgery under local anesthesia. The patients were randomly divided into observation group and control group using a random number table, with 55 patients in each group. All patients were informed of this study and provided consent forms. The study was approved by the Ethics Committee of Shanghai Jiao Tong University Affiliated Sixth People's Hospital.

Inclusion criteria: Patients received radiologic diagnosis and fracture surgery under local anesthesia; patients were more than 20 years old and less than 75 years old; patients had long bone fractures of the extremities. Patients' underwent orthopedic surgery for the first time; patients were fully conscious to cooperate in the study.

Exclusion criteria: Patients had previous history of fractures; patients were admitted through emergency; patients had multiple fractures; patients had open fractures; patients had fractures with infection; patients had major organ dysfunction such as heart, liver, lung and kidney; patients had malignant tumors; patients had a history of mental illness; patients had injuries to other organs; patients were involved in traffic accidents.

General treatment

As the patient was admitted, symptomatic treatment such as routine analgesia and external fixation was given. After the patient's condition was stable, the fracture site was treated with open reduction and internal fixation. In order to minimize the interference of medications in this study, during operation, all patients received ropivacaine for nerve block anesthesia, routine oxygen inhalation, ECG monitoring, etc.; after surgery, patients were treated with routine immobilization, food supplements for bone nutrition, and the same doses of non-steroidal anti-inflammatory drugs for pain relief.

Nursing care based on positive suggestions

Patients in the control group were given routine nursing care, including preoperative preparation and preoperative precautions. The observation group received positive suggestions plus routine nursing care. The details of positive suggestions were as follows: before the patient was escorted to the operating room, the patient was given verbal comforting, such as "your operation will end pretty soon". In the meantime, nurses would give the patients physical contact such as shaking hands to help relieve the patients' nervousness. After entering the operating room, the nurses would be communicating with the patients, such as "how did you get hurt?", "how was your health?", "do you have high blood pressure?" to eliminate the anxiety of the patient. The patrolling nurse would give physical cues by patting patients' shoulder to encourage patients. The anesthesiologists and nurses would cue the patients that the surgeon is at the top of our unit; and the dialogue between the nurse and the surgeon during the operation would suggest that the operation is successful. In addition, positive suggestions were given throughout the hospital stay.

Observational indicators

Main observational indicators: The psychological status of the two groups was assessed using the Self-rating Anxiety Scale (SAS) and the Self-rating Depression Scale (SDS) two days before surgery and one day before discharge [9, 10]. The SAS criteria are as follows: <50: no anxiety; 50-59: mild anxiety; 60-69: moderate anxiety; >70: severe anxiety. The SDS criteria are as follows: <53: no depression;

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Table 1. Comparison of general information

Items	Observation group (n=55)	Control group (n=55)	t/ χ^2	P
Age (year)	63.5±11.2	64.2±10.7	0.335	0.738
Gender (Male/Female)	28/27	31/24	0.328	0.567
Fracture to hospital admission (day)	4.1±0.2	4.0±0.4	1.658	0.100
Hospital stay (day)	6.9±1.1	7.2±1.2	1.367	0.517
Fracture site			0.037	0.849
Upper limb (n)	25	27		
Lower limb (n)	30	28		

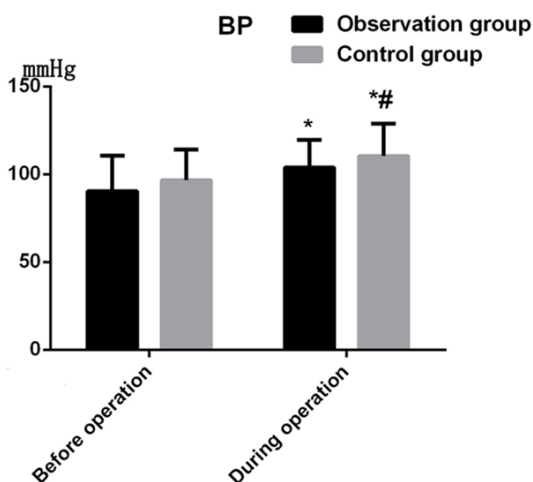


Figure 1. Comparison of preoperative and intraoperative blood pressure (mean arterial pressure). *P<0.05, compared with before surgery; #P<0.05, compared with observation group during surgery; BP: blood pressure.

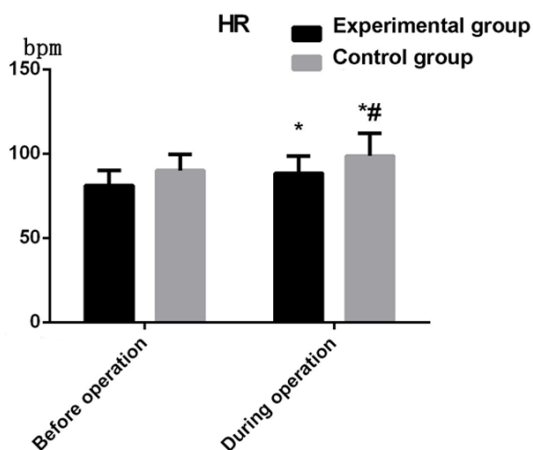


Figure 2. Comparison of preoperative and intraoperative heart rate. *P<0.05, compared with before surgery; #P<0.05, compared with observation group during surgery; HR: heart rate.

53-62: mild depression, 63-72: moderate depression; >72: severe depression.

Secondary observational indicator: The quality of life was assessed one day before discharge from the hospital using the SF-36 Quality of Life Scale [11]. This scale consists of the following eight dimensions: General health, physical role, social functioning, emotional role, bodily pain, physical functioning, mental health, and vitality. Higher scores indicate better quality of life.

Other observational indicators: Visual analog scale (VAS) was used to assess pain changes at 24 and 48 hours after surgery in both groups [12]; patients were monitored at 9 am on the day before surgery and intraoperatively (half an hour after surgery) for blood pressure, heart rate changes. Overall nursing satisfaction score was assessed using the reports developed by the Consumer Assessment of Health Care Providers and Systems [13], the reports mainly included the attitude of nursing staff, comprehensiveness of nursing, and nursing operating skills. There are 25 items in total with each item measured by 1-4 points; the higher the score, the higher the satisfaction level.

Statistical analysis

The data were analyzed by SPSS 20.0 statistical software. Quantitative values were expressed as mean ± sd. The paired t test was used for comparison within the group. The independent t test was used for comparison between groups. The χ^2 test was used to compare enumeration data, P<0.05 was considered statistically significant.

Results

Comparison of general information

There were no significant differences in the general information of age, gender, duration of disease, and fracture site between the two groups (all P>0.05). The two groups were comparable. See **Table 1**.

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Table 2. Comparison of preoperative and postoperative SAS and SDS scores

Group	SAS score	SDS score
Observation group		
Before surgery	52.25±8.97	60.32±6.54
At 1 week after surgery	36.53±9.45***	42.54±8.38***
Control group		
Before surgery	53.45±9.76	58.56±7.43
At 1 week after surgery	49.14±8.09***,###	49.87±7.39***,###

Note: ***P<0.001, compared with before surgery; ###P<0.001, compared with the observation group at 1 week after surgery.

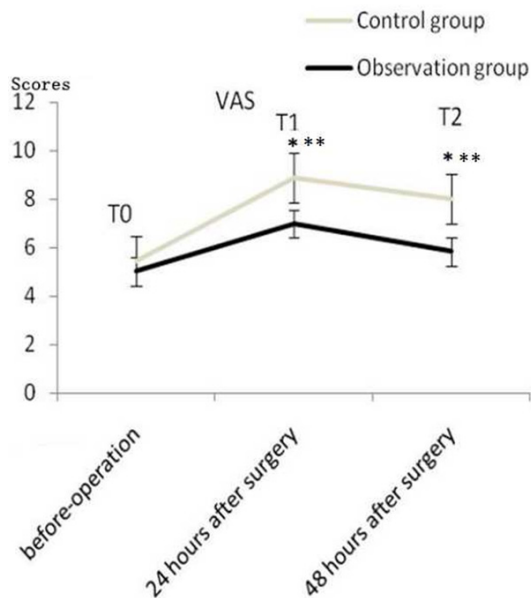


Figure 3. Comparison of preoperative and postoperative pain VAS scores. ***P<0.001, compared with observation group; VAS, Visual analog scale.

Comparison of preoperative and intraoperative blood pressure (mean arterial pressure) and heart rate

The results showed that the intraoperative blood pressure and heart rate of the two groups had a certain fluctuations compared with the preoperative values, but the observation group had less fluctuation than the control group. In addition, the intraoperative blood pressure and heart rate of the observation group were also significantly lower than the control group (all P<0.05), indicating that positive suggestions can alleviate the intraoperative nervousness and reduce the surgical stress to some extent. See **Figures 1 and 2.**

Comparison of preoperative and postoperative SAS and SDS scores

The results showed that there were no statistical differences in preoperative anxiety and depression levels between the two groups. When evaluated again on the day before discharge, the above two scores of the observation group were lower than the control group (all P<0.001). It can be concluded that positive suggestions in nursing care can reduce the negative emotional score of the patient, and can alleviate the psychological disorder of the patient to some extent. See **Table 2.**

Comparison of preoperative and postoperative (at 24 hours and 48 hours) pain VAS scores

There was no significant difference in preoperative pain score between the two groups (P=0.251). However, at 24 hours (P<0.001) and 48 hours (P<0.001) after surgery, the pain VAS scores of the observation group were lower than those of the control group, indicating that the positive suggestions have a certain effect on relieving postoperative pain in patients. See **Figure 3.**

Comparison of postoperative quality of life (SF-36 quality of life scale)

The quality of life score of the observation group was better than that of the control group after surgery (P<0.001), suggesting that the positive suggestions have certain effects in improving the quality of life of patients. See **Table 3.**

Comparison of nursing overall satisfaction score

The results showed that the all dimensions of overall nursing satisfaction score of the observation group were better than those of the control group (all P<0.01), which means positive suggestions can improve the quality of nursing care and promote the development of nurse-patient relationship. See **Table 4.**

Discussion

With the rapid development of our society, the current clinical nursing pattern has gradually evolved from passive nursing to patient-

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Table 3. Comparison of postoperative quality of life (SF-36 Quality of Life Scale)

Group	General health	Physical role	Social functioning	Emotional role	Bodily pain	Physical functioning	Mental health	Vitality
Control group	65.32±3.11	63.22±6.32	76.37±4.50	64.57±5.09	69.12±3.56	71.02±4.79	70.90±8.07	68.52±7.02
Observation group	76.20±2.32	80.64±5.13	82.65±4.68	72.43±4.17	81.77±4.23	79.57±5.42	79.14±6.03	81.60±7.05
t	20.976	15.871	7.173	8.859	16.969	8.766	6.066	9.750
P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 4. Comparison of overall nursing satisfaction score

Group	Attitude of nursing staff	Comprehensiveness of nursing	Nursing operation skills
Observation group	94.49±5.34	93.28±4.89	94.70±3.57
Control group	91.72±5.59	90.46±5.06	91.20±4.13
t	2.657	2.972	4.755
P	0.009	0.004	<0.001

Pain is the most common complication of orthopedic surgery, and postoperative pain can aggravate the patient's irritability, anxiety and other negative emotions. It has been well established that postoperative pain care is an important embodiment of people-oriented nursing

tered active nursing, and the mental health and the postoperative quality of life of the patients have become core projects [14, 15]. At present, most injuries in orthopedic patients are caused by traffic accidents. Sudden accidents will cause varying degrees of psychological barriers in patients. In addition, the pain of the limbs and the fear and anxiety of the surgery will aggravate the psychological disorder [16].

Positive suggestions reduce preoperative stress, postoperative stress, and improve the patient's mental status through language communication skills [17]. Our results also showed that through positive suggestions, the stress indicators such as blood pressure and heart rate of the observation group were lower than the control group preoperatively and intraoperatively, confirming the role of positive suggestions in relieving the surgical stress of patients, which is consistent with the previous research [18].

SAS and SDS are two important observational indicators for assessing patients' psychological disorders, which can directly reflect the psychological status of patients. The results of this study showed that the negative emotion scores of the observation group were significantly lower than those of the control group, providing further support that the positive suggestions can relieve patient's bad mood and improve the patient's psychological status. The results are in agreement with previous studies [19].

practice. Through active and effective communication (intraoperative dialogue), positive suggestions can ensure the patient's expectation of prognosis so as to improve the patient's pain threshold. Our results also demonstrated that the pain VAS scores of the observation group were lower than those of the control group, confirming the effect of positive suggestions on the postoperative pain relief, which has also been reported in the previous studies [20].

Postoperative quality of life score is the most direct indicator to evaluate the prognosis of patients. Through positive suggestions, the patient's psychological negative mood has been corrected to a certain extent, and the surgical treatment has achieved expected results, thus improving the patient's quality of life score. Therefore, our study showed that patients in the observation group had higher quality of life scores than those in the control group, confirming that positive suggestions can significantly improve patients' quality of life. The results are consistent with previous studies [21].

Overall nursing satisfaction is an important indicator for assessing nursing care. Positive suggestions are mainly used to strengthen communication with patients to achieve beneficial effects of nursing. Positive and effective communication can enhance the nurse-patient relationship, reduce barriers and promote harmony between nurses and patients. Our study also suggested that the nursing satisfaction of the observation group was significantly higher than that of the control group, and similar results have been reported abroad [22].

In conclusion, we found that positive suggestions can significantly alleviate the psychological negative emotions of orthopedic patients and improve postoperative quality of life and nursing satisfaction. However, our study is a single centered study of limited sample size. A prospective, randomized, multi-centered study of a larger sample size is needed to further confirm the efficacy of positive suggestions in nursing care.

Disclosure of conflict of interest

None.

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