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Original Article

High-quality nursing and the rehabilitation of clavicle fracture patients using traditional Mongolian medicine

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Abstract: Objective: To explore the effect of high-quality care on the recovery of joint function and quality of life (QOL) for patients who were treated using Mongolian medicine to treat their clavicle fractures. Methods: A total of 167 patients with clavicle fractures who were treated using Mongolian manual reduction in our hospital were placed into a study group (n = 84, high-quality care) or a control group (n = 83, routine care). The two groups' joint function recoveries, their QOL, and their related indicators were compared. Results: After the nursing intervention, the patients in the study group had complete control over their health education, and their Minnesota Job Satisfaction Questionnaire (MSQ) scores, their shoulder joint function effective recovery rates, and their patient satisfaction scores were significantly higher than they were in the control group ($P < 0.05$). The patients in the study group had a higher demand for the nursing staff' s knowledge and skills and health guidance, rather than service attitude, care and communication and patient feelings ($P < 0.05$). After the nursing intervention, the quality of life improved in the two groups ($P < 0.05$), and the improvement in the study group was greater ($P < 0.05$). The nursing error rate s and the patient complaint rate in the study group were significantly lower than they were in the control group ($P < 0.05$). Conclusion: High-quality care can effectively improve the quality of life and nursing satisfaction of patients with clavicle fractures who are treated using Mongolian medical techniques, and it can significantly promote the recovery of their joint function.

Keywords: High-quality care, Mongolian manual reduction, clavicle fractures

Introduction

The clavicle, a bridge connecting the arm and the chest [1], stabilizes the shoulder, allows the arm to move freely, provides an attachment area for muscles, and also facilitates breathing as a part of the musculoskeletal organ [2]. Moreover, it protects nerves and blood vessels [3] and plays an aesthetic role in personal appearance [4]. Clavicle fractures are a common pathology accounting for approximately 3% of all fractures, with 80% located in the middle third of the clavicle [5]. Among the fractures, 68% occur in men, and the incidence shows a bimodal pattern, with the highest incidence among the youth and the elderly, and with more males in the younger age group and more females in the older age group [6]. Traffic accidents are the leading cause of clavicle fractures (64%). Approximately 81% of patients suffer concurrent injuries, with chest trauma being the most common (47%) [7]. Most clavicle fractures are treated conservatively rather than surgically [8]. Mongolian medicine is an important soft power carrier of "intangible cultural heritage" and "grassland culture" in the Inner Mongolia Autonomous Region [9]. Mongolian manual reduction, developed over the long-term practice of the Mongolian people, has the characteristics of high efficiency, a short course of treatment, less pain, and fewer complications in the treatment of clavicle fractures.

Nowadays, people expect better nursing care as part of the improvement of living standards [10]. Nursing models and theories are important components of the accumulation of nursing knowledge and the guarantee of professional ethics in practice. The models have been diversified recently, and newly created terms

have been adopted in nursing care [11]. Since routine nursing care no longer meets the requirements, it is urgent to find new models to satisfy people's needs. High-quality care is people-oriented and endowed with high-quality services throughout a patient's hospitalization, and it is more detailed and meticulous than routine care [12].

The present study evaluated the recovery of joint function, quality of life (QOL) and the related indicators of patients with clavicle fractures treated using Mongolian manual reduction in order to determine the influence of high-quality care.

Materials and methods

General data

A total of 167 patients with clavicle fractures who were treated using Mongolian manual reduction at the First Affiliated Hospital of Inner Mongolia University for Nationalities were recruited as the study cohort and placed into a study group (n = 84, 44 males and 40 females, average age 36.58±3.62 years, high-quality care) or a control group (n = 83, 42 males and 41 females, average age 36.74±3.57 years, routine care).

Inclusion criteria: Patients who were diagnosed with clavicle fractures using X-rays and accompanied by their families upon admission, and patients who had complete clinical and pathological data. Exclusion criteria: Patients with a history or family history of mental illness, patients with a history of autoimmune system defects, severe organ diseases, or drug dependence, and patients with communication barriers due to aphasia, irritability, or unconsciousness. With the approval of the Ethics Committee of our hospital, the patients and their families signed the informed consent.

Methods

Routine care for the control group: The patients were given routine health education after admission to inform them of the precautions and to advise them quit smoking and drinking, so as to ensure a clean and tidy environment. High-quality care for the study group: the patients were given knowledge lectures after admission to deepen their understanding of the precautions and the adverse events resulting from fractures. Patients often suffer from anxiety, panic, and other negative emotions due to the long-term recovery period and inconvenience in life, weakening the treatment effect. Therefore, the nurses were required to explain the treatment to the patients with their professional knowledge, and to ease their negative emotions with music or other forms of guidance. Strengthening the patient-doctor-family communication was essential in enhancing the patients' confidence and coordination. The patients maintained a regular schedule to ensure their sleep quality. Under the guidance of nutritionists and doctors, a dietary intervention was carried out, that is, with foods rich in calcium, vitamins, and protein, and smaller portions of foods rich in sugars and fats, so as to ensure a nutritional balance in the patients. According to the patient's pain and the doctor's advice, analgesics were administered. And nurses assisted the patients to move their limbs after the treatment to prevent joint stiffness and muscle atrophy caused by prolonged bed rest. Splints were kept at an appropriate tightness to avoid slowing down the functional recovery caused by poor blood circulation and to avoid fracture displacement. The nurses changed the bedding regularly and ventilated the rooms to ensure a quiet and comfortable environment.

Outcome measures

A health education quality assessment scale was employed to evaluate the patients' mastery of health knowledge after the intervention. A score of 90-100 indicated complete mastery, with complete mastery rate = number of cases with complete mastery/the total number of cases × 100%. The Minnesota Satisfaction Questionnaire (MSQ) was used to evaluate the nurses' job satisfaction. A questionnaire was developed to estimate the patients' perceptions of the high-quality care services in the study group. It consisted of five dimensions: knowledge and skills (five items), service attitude (five items), care and communication (three items), the patients' feelings (four items), and health guidance (three items). The five options of "very important", "important", "general", "unimportant", and "very unimportant" were scored as 5, 4, 3, 2 and 1, respectively. With a total score of 100, a higher score indicated higher patient cognition and requirements. According to the shoulder joint range of

Table 1. Comparison of the general data ($\bar{x}$ ± sd)/[n (%)]

	Study group (n = 84)	Control group (n = 83)	t/X^2	P
Age (years)	36.58±3.62	36.74±3.57	0.29	0.77
Body mass index (kg/m^2)	22.63±3.61	22.59±3.48	0.94	0.07
Sex			0.05	0.82
Male	44 (52.38)	42 (50.60)		
Female	40 (47.62)	41 (49.40)		
History of smoking			0.14	0.70
Yes	49 (58.33)	46 (55.42)		
No	35 (41.67)	37 (44.58)		
History of alcohol drinking			0.05	0.82
Yes	39 (46.43)	40 (48.19)		
No	45 (53.57)	43 (51.81)		
Cause of fracture			0.15	0.70
Traffic accident	57 (67.86)	54 (65.06)		
Other	27 (32.14)	29 (34.94)		
Fracture location			0.05	0.82
Left clavicle	41 (48.81)	42 (50.60)		
Right clavicle	43 (51.19)	41 (49.40)		

Table 2. Comparison of the quality of health education [n (%)]

	Number of patients with complete mastery	Complete mastery rate
Study group (n = 84)	67 (79.76)	79.76%
Control group (n = 83)	51 (61.45)	61.45%
t	-	6.76
P	-	0.01

motion (ROM), the functional recovery was compared between the two groups: a functional recovery > 80% = markedly effective, > 60% = effective, and < 60% = ineffective. The QOL was evaluated based on five dimensions: role functioning (RF), physical functioning (PF), cognitive functioning (CF), emotional functioning (EF) and social functioning (SF). The higher the score, the better the QOL. The incidences of nursing errors and complaints, as well as the patient satisfaction, were recorded.

Statistical methods

The statistical analysis was carried out using SPSS 20.0 (IBM Corp, Armonk, NY, USA), and all the graphs were made using GraphPad Prism 7 (GraphPad Software Co., Ltd., San Diego, USA). The count data were summarized by [n (%)] and analyzed using chi-square tests. The measurement data were expressed as ($\bar{x}$ ± sd), and the between-group comparisons were performed with t-tests. A probability (*P*) value of less than 0.05 was considered statistically significant.

Results

Comparison of the general data

There were no significant differences in terms of age, body mass index, or the other general data between the two groups (P > 0.05) (**Table 1**).

Comparison of the quality of the health education

The comparison of the quality of the health education showed that the patients' complete mastery rate of the health education in the study group (79.76%) was significantly higher than it was in the control group (61.45%) (P < 0.05) (**Table 2**).

Comparison of the MSQ scores

The MSQ scores in the study group were remarkably higher than they were in the control group after the intervention (P < 0.05) (**Figure 1**).

The patients' perceptions of high-quality care services

According to the investigation of the patients' perceptions of high-quality care services, the patients in the study group had higher requirements for knowledge, skills, and health guidance from the caregivers, but relatively lower requirements in terms of service attitude, care, communication, and the patients' feelings (**Figure 2**).

Comparison of the recovery of shoulder joint function

Our comparison of the recovery of shoulder joint function revealed that the effective recovery rate in the study group (86.90%) was remarkably higher than it was in the control group (72.29%) (P < 0.05) (**Figure 3**).

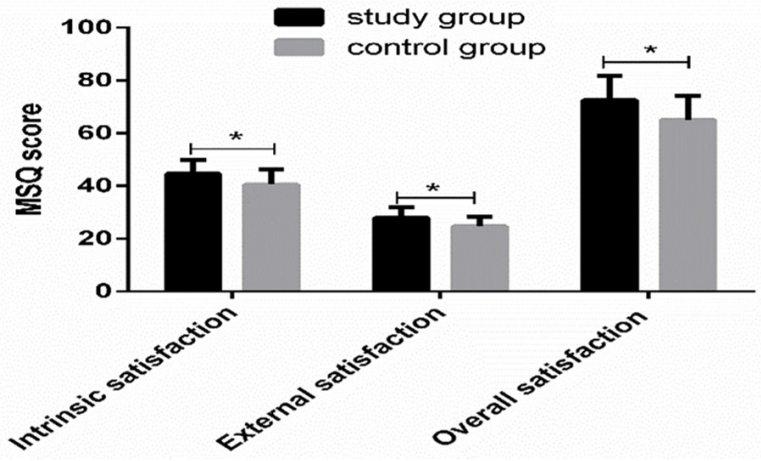

Figure 1. Comparison of the MSQ scores. The intrinsic satisfaction in the study group was remarkably higher than it was in the control group. The extrinsic satisfaction in the study group was remarkably higher than it was in the control group. The overall satisfaction in the study group was remarkably higher than it was in the control group. Note: *P < 0.05 *vs.* the study group.

Comparison of the QOL

There was no significant difference in the QOL between the two groups before the intervention (P > 0.05), but an evident enhancement in the five dimensions was achieved after the intervention (P < 0.05), especially in the study group (P < 0.05) (**Figure 4**).

Comparisons of the nursing error and complaint rates

The study group showed remarkably lower rates of nursing errors and patient complaints than the control group (0.00% vs. 8.43%, and 2.38% vs. 10.84%) (both P < 0.05) (**Figure 5**).

Comparison of the patient satisfaction

It was found by investigating the patient satisfaction that 62 patients in study group were highly satisfied with the nursing care, 19 were satisfied, and 3 were dissatisfied, while in the control group, the corresponding numbers were 58, 14, and 11, respectively. Therefore, the patient satisfaction in the study group was significantly higher than it was in the control group (X^2 = 5.10, P < 0.05) (**Figure 6**).

Discussion

Guided by traditional medicine theory, Mongolian medicine has made great contributions to the survival and development of the Inner Mongolian people [13]. It believes that traditional osteopathic manipulation is feasible for reducing and externally fixing clavicle fractures with insignificant displacement or no neurological symptoms. Mongolian osteopathy has a long history in treating clavicle fractures, a treatment that can maximize the protection of the periosteum, ligaments, blood vessels, and nervous system with simple equipment and at a low cost, and, moreover, it is not limited by time, place, or environment. Clavicle fractures develop in 17.4 out of every 100,000 people in China every year. Traffic accidents and falls are the primary causes, accounting for 91.0% of all injuries, and more than 85% occur on the road and at home [14]. Therefore, better health care interventions are necessary. Nurse mentoring is able to strengthen the nursing workforce professionally in a sustainable way [15], leading to the emergence of high-quality care.

Formulating and implementing an effective comprehensive nursing system is effective in improving the quality of care services [16]. There is evidence that health education is an positive way to increase patients' satisfaction with the nurses' care [17]. Moreover, it is very important in patient-centered nursing models and is positively related to nursing quality. Therefore, improving the health education for patients achieves an improvement in the nursing quality, patient self-management, collaboration with family members, as well as the multidimensionality of educational knowledge [18]. Combined with our finding that the complete mastery of health education in the study group was significantly higher than it was in the control group after the intervention, we conclude that high-quality care helps patients have a deeper understanding of clavicle fracture. MSQ was used to measure the nurses' job satisfaction [19]. In the present study, the MSQ scores in study group were higher than the MSQ scores in the control group, that is, the

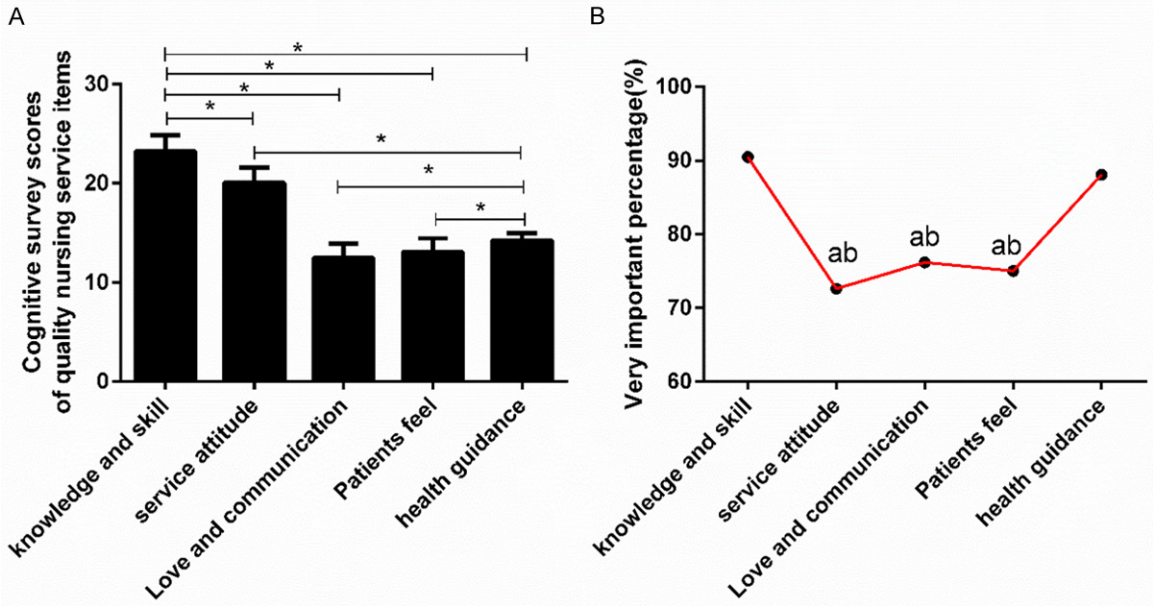

Figure 2. The patients' perceptions of the high-quality care services. A. The high-quality care services' ratings; B. The patients in the study group have higher requirements for knowledge and skills and health guidance from the nurses, but relatively lower requirements for service attitude, care and communication, and the patients' feelings. Note: $^{*}P < 0.05$, between-group comparisons; $^{a}P < 0.05$ *vs.* the percentage of patients who think knowledge and skills are very important; $^{b}P < 0.05$ *vs.* the percentage of patients who think health guidance is very important.

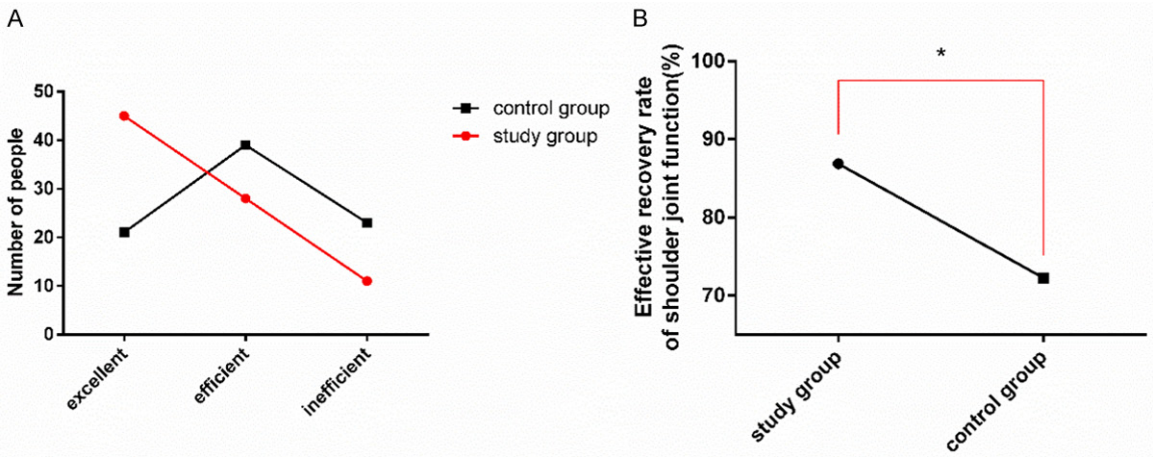

Figure 3. A comparison of the recovery of shoulder joint function. A. The recovery of shoulder joint function in the two groups after the intervention. B. The effective rate of the recovery of shoulder joint function in the study group was remarkably higher than it was in the control group. Note: $^{*}P < 0.05$ *vs.* study group.

nurses who implement high-quality care were more satisfied with their work. A possible reason may be that the continuous improvement in nursing models, the patients' health knowledge, and the nurse-patient relationship enhances the nurses' sense of responsibility, job accomplishment, and identity, so it helps improve the nursing quality and patient satisfaction. There are cognitive differences between the patients and the nurses in terms of the overall levels and specific dimensions of the nursing needs [20], so adjusting the care services according to the patients' perceptions and their participation in the care decisions contributes to improving the quality of the care [21]. The patients in study group showed higher requirements for knowledge, skills and the nurses' health guidance, but relatively lower

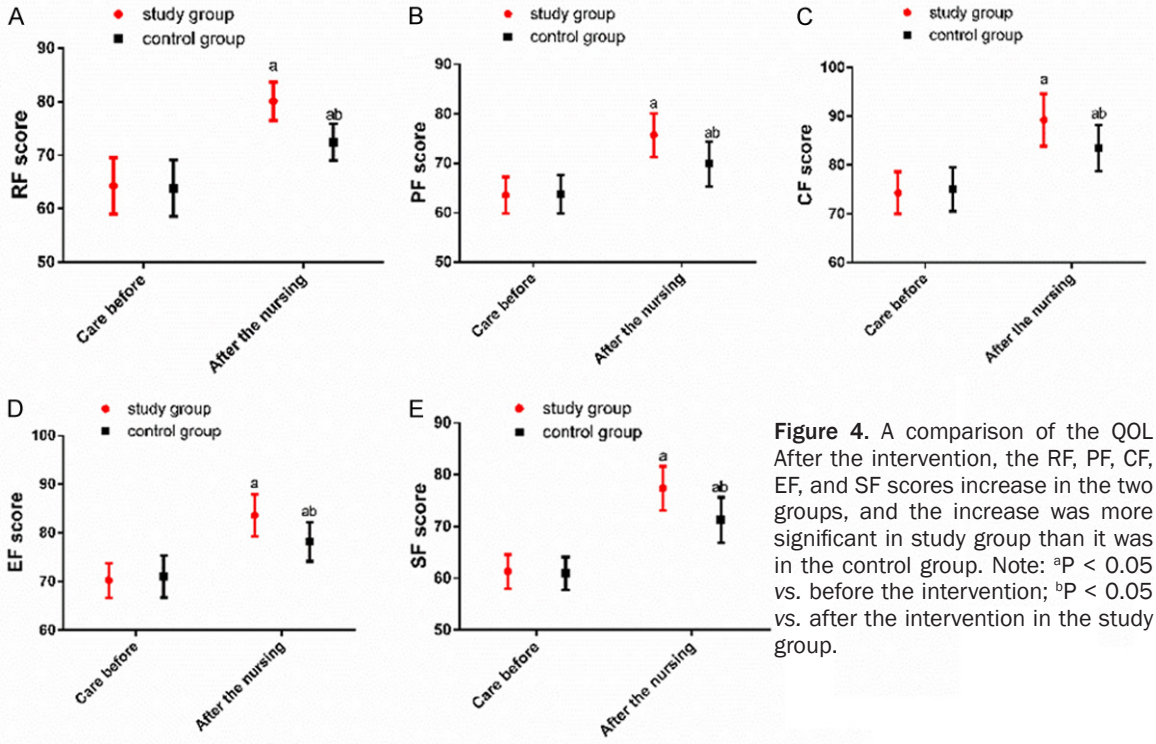

Figure 4. A comparison of the QOL After the intervention, the RF, PF, CF, EF, and SF scores increase in the two groups, and the increase was more significant in study group than it was in the control group. Note: [a]P < 0.05 *vs.* before the intervention; [b]P < 0.05 *vs.* after the intervention in the study group.

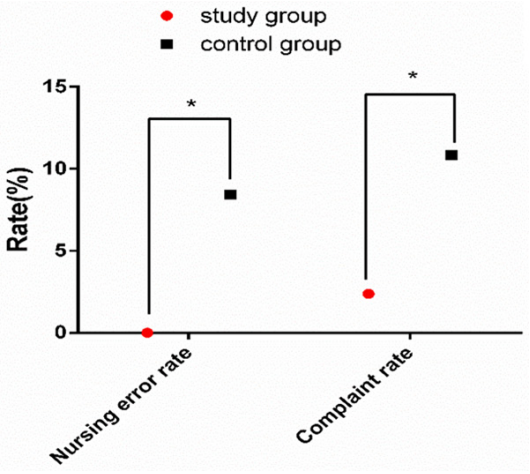

Figure 5. A comparison of the rates of nursing errors and the patient complaints Both the nursing error rate and complaint rate in study group were remarkably lower than they were in the control group. Note: *P < 0.05 *vs.* the study group.

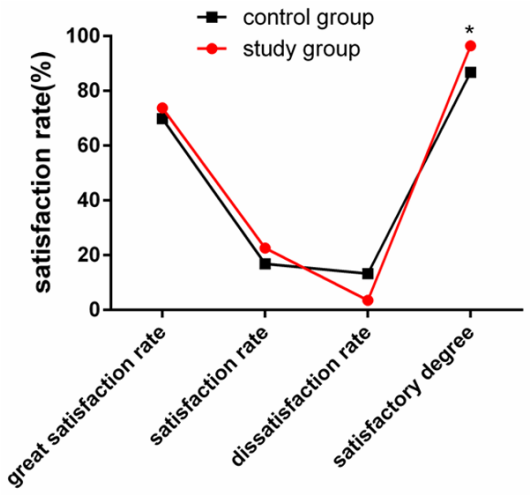

Figure 6. A comparison of the patient satisfaction. The patient satisfaction in the study group was remarkably higher than it was in the control group (96.43% *vs.* 86.75%). Note: *P < 0.05 *vs.* the study group.

requirements for service attitude, care, communication, and the patients' feelings. Nurses should pay attention to improving services and adjust service supply based on the patients' reasonable needs, so as to effectively increase the patients' satisfaction [20]. Nursing care has significant effectiveness for shoulder instability surgery [22] and total hip replacement [23], indicating its favorable role in the recovery of joint function. The higher effective rate of the recovery of shoulder joint function in the study group also indicates that high-quality care can promote the recovery of shoulder joint function

in patients with clavicle fractures more effectively than routine care. A previous study reported that nursing intervention enhances patients' QOL [24], which is consistent with our conclusion that the QOL scores were increased in both groups after the intervention, especially in the study group. This suggests that high-quality care plays a pivotal role in enhancing the QOL of patients with clavicle fractures. The lower rates of nursing errors and patient complaints after the high-quality care indicated that it contributes to better nurse-patient relationships and lower risks of disputes and complaints. Meanwhile, the patients in study group were more satisfied with the nursing care, so high-quality care provides patients with better medical experience and higher effectiveness, thereby effectively improving their satisfaction.

By evaluating the recovery of joint function, QOL, and the related indicators, we analyzed the influence of high-quality care in patients with clavicle fractures treated using Mongolian manual reduction. However, there are still several limitations to this study. Due to the complexity of the factors affecting the recovery of clavicle fracture, it is still necessary to analyze the impact of the different settings, so as to provide a basis for the better nursing care of clavicle fractures.

To sum up, compared with routine care, high-quality care not only improves the QOL and satisfaction of patients with clavicle fractures treated using Mongolian manual reduction, but it also effectively promotes the recovery of joint function, so it is worth of clinical promotion.

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Disclosure of conflict of interest

None.

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