Original Article

Effect of the home care model in orthopedic wounds management

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Abstract

Objective: To explore the effect of home care on orthopedic wound management. **Materials and Methods:** Patients with orthopedic wounds admitted from January 2020 to December 2022 were divided into a control group and a nursing group, with 23 cases in each group. After discharge, the control group was given routine health guidance and the nursing group was given home care. The mood score of the two groups of patients was evaluated, the time and cost were compared, and the patients' degree of trust and satisfaction with the medical staff were investigated. **Results:** The patients received home care had higher scores in mood, degree of trust and satisfaction with medical staff, and spent less time ($P < .05$). However, the cost was significantly higher than that of the control group ($P < .05$). **Conclusions:** Home care for patients with orthopedic wounds can significantly reduce the time spent on medical treatment. Moreover, improve patients' moods and trust and satisfaction with medical staff in a certain extent. However, better service often means more economic cost.

Keywords: Home care, infection, management, orthopedic wounds, satisfaction

Introduction

Optimal management of orthopedic wounds plays a critical role in facilitating the healing and recovery process for individuals with musculoskeletal injuries, postsurgical wounds, or chronic conditions impacting the bones and joints.[1] Ensuring effective wound care is essential to minimize the risk of infections and enhance overall healing outcomes.[2] While traditional hospital-based treatment is commonly associated with orthopedic wound management, the provision of personalized and convenient care within the confines of patients' own homes has emerged as a valuable alternative.

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Home care means that nursing workers go to the patients' home to provide professional nursing services to promote health, maintain health, and prevent diseases[3-5] and at the same time provide convenience for patients and save time.[6] Home care in orthopedic wound management refers to the provision of specialized wound care services delivered by healthcare professionals within a patient's home environment. It encompasses a range of activities, including wound assessment, dressing changes, infection control, pain management, patient education, and monitoring of healing progress.[7] This approach recognizes the unique needs and preferences of patients, offering a more patient-centered and holistic approach to orthopedic wound care. When nurses provide on-site service, patients can accept dressing changes and disposal with a relaxed mind. It can also reduce the hospitalization costs of patients so that patients can live in a familiar environment and enjoy the same treatment as the hospital.[8] Finally, patients' satisfaction and wellbeing are improved, hospital stay is shorten,

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and accelerated the transfer of beds, to maximize the use of medical resources.[9]

In recent years, advancements in technology and medical devices have further facilitated the delivery of home-based orthopedic wound care. For instance, the availability of specialized wound dressings, negative pressure wound therapy systems, and telehealth solutions has enhanced the effectiveness and efficiency of home care interventions.[10,11] These innovations enable healthcare providers to closely monitor wound healing, remotely communicate with patients, and promptly address any concerns or complications that may arise.[12] This study explores the application effect of home care in orthopedic wounds management to provide theoretical reference for managers to formulate relevant policies and ensure the safe and orderly implementation of home wound care.

Materials and Methods

This study was approved by the Ethics Committee of the Taizhou hospital of Zhejiang Province. Retrospective patients with orthopedic wounds admitted from January 2020 to December 2022. After discharge, the control group was given routine health guidance and the nursing group was given home care. The mood score of the two groups was evaluated (very optimistic, 4 optimistic, 3 generals, 2 worried, 1 very worried 0), and the degree of trust of the patients in the medical staff was investigated (very trust, 4 trust 3 general 2 distrust 1 same distrust 0), and the degree of satisfaction was investigated (very satisfied 4, satisfied 3, general 2, dissatisfied 1, very dissatisfied 0). The average time and cost of patients were counted.

Selection of objects

Forty six patients with orthopedic wounds in the Department of orthopedics of Taizhou hospital from January 2022 to December 2022 were selected as the research objects. Inclusion criteria: (1) Patients with inconvenience to travel alone and functional disability; (2) The patient was conscious and had no communication disorder; and (3) Voluntary participation in this study. Exclusion criteria: (1) Patients with mental disorders and positive personal or family history and (2) Patients who could not cooperate reasonably during the investigation.

The patients were divided into the nursing and control groups, with 23 cases in each group. Based on routine care, patients in the nursing group received home care after discharge. The control group only received routine health guidance and telephone follow-up. There was no significant difference in age and gender between the two groups ($P > .05$) as shown in Table 1.

Collecting patient information and establishing archives

Before the patients were discharged, the specialist nurses introduced and assisted them in filling in the general information questionnaire, including the patients' basic information and identifying the primary caregivers and their related information. The attending physician evaluated and diagnosed the patient's condition and determined the treatment plan.

Evaluate patients' initial physical and mental state before receiving nursing care

Before discharge, specialist nurses assessed patients' anxiety and self-care ability after getting familiar with patients and mastering patients' care needs in mutual communication. If the patient and family members accept discharge and have a solid willingness for home care but they are worried about the inconvenience of walking home and cannot take care of themselves, etc., contact some community or home service institutions cooperating with our hospital or our department to provide corresponding assistive devices (such as wheelchairs, oxygenerator, etc.) to ensure that the patient can be discharged satisfied and at ease.

The medical team jointly assisted the patients and caregivers in formulating the rehabilitation treatment plan for the patients after discharge

Before the guidance, the specialist nurses made the health education content into a questionnaire to investigate the knowledge status and needs of patients and primary caregivers of the disease. According to the questionnaire results, the patients and their primary caregivers were given corresponding

Table 1: Comparison between the two groups of data

Group	Sexual	Age (Mean±SD)	Original mood grade (very optimistic 4; optimistic 3; general 2; anxious 1; very anxious 0)	Final mood grade (very optimistic 4; optimistic 3; general 2; anxious 1; very anxious 0)	Degree of trust)trust very much 4; trust 3; general 2; distrust1; very distrust 0)	Satisfaction (very Satisfied 4; Satisfied 3; general 2; dissatisfied 1; very dissatisfied 0)	Time (min)	Cost (yuan)
Control group	Male (*n*=13)	50.77±17.57	2.85±0.55	3.23±0.44	3.15±0.38	3.15±0.38	41.15±18.61	35.38±8.77
	Female (*n*=10)	55.80±16.36	2.20±0.63	2.80±0.42	2.90±0.32	3.20±0.42	39.5±22.17	31.00±11.97
	Total	52.00±10.97	2.57±0.66	3.04±0.47	3.04±0.37	3.17±0.39	40.43±19.77*	33.48±10.27
Nursing care group	Male (*n*=10)	47.10±15.98	2.85±0.38	3.46±0.52	3.85±0.58	3.77±0.58	10.38±3.80	257.85±47.08
	Female (*n*=13)	52.85±12.05	2.20±0.63	2.90±0.63	3.80±0.42	3.90±0.32	9.50±1.58	248.40±71.42
	Total (*n*=23)	50.35±13.86	2.57±0.59	3.22±0.52	3.83±0.48*	3.83±0.39*	10.00±3.02	253.74±57.61*

*Means statistically significant

health guidance. If there are different opinions, we can discuss solutions with patients and their families according to the situation.

Implementation of relevant care measures

According to the established rehabilitation treatment plan, the patients in the nursing group were treated with dressing changes by doctors at home and specialist nurses guided the wound care. Ensure that patients and primary caregivers are fully equipped with rehabilitation skills. In addition, team members need to provide targeted psychological counselling for patients with negative emotions. Patients in the control group went to the hospital for dressing change by themselves. Nurses were followed up by telephone and given routine health guidance.

Return visit and follow-up consultation

One day before the end of home care, the patient's anxiety and self-care ability were re-evaluated. Moreover, provide the relevant consultation telephone.

Statistical methods

SPSS 22.0 software was used to analyze the data. Mean ± standard deviation described the measurement data. An independent *t*-test was used to compare patients' mood scores in the two groups a day before discharge and 2 months after discharge and the degree of trust and satisfaction with medical staff. The number of cases or percentage described in the enumeration data. The time and cost of the two groups were compared by *t*-test, and $P < .05$ was considered statistically significant.

Results

Comparison of mood scores between the two groups

The independent *t*-test showed that the initial mood scores of the control group and the nursing group were 2.57 ± 0.66 and 2.57 ± 0.59, respectively, with no significant difference (F = 0.386, $P > .05$). After 2 months of home care intervention, the mood scores of the nursing and control groups were 3.04 ± 0.47 and 3.22 ± 0.52, respectively. The mood score of patients receiving home care was higher than that of patients in the control group, indicating that home care after discharge can improve the anxiety state of patients with orthopedic wounds and enhance their confidence in their rehabilitation, to some extent. However, the difference was not statistically significant [F = 2.277, $P = .242$, Figure 1a].

Comparison of patients' trust in medical staff between the two groups

The results of independent *t*-test analysis showed that after discharge, the trust scores of patients in the control group and the home care group were different, respectively, 3.09 ± 0.29 and 3.83 ± 0.39, indicating that home care after discharge can improve the trust of patients with orthopedic wounds to medical staff, increase patient compliance, and improve the relationship between doctors, nurses, and patients. The difference was statistically significant [F = 3.153, $P < .01$, Figure 1b].

Comparison of patients' satisfaction with medical staff between the two groups

The results of independent *t*-test analysis showed that after discharge, the satisfaction scores of patients in the control group and the home care group were different, respectively, 3.14 ± 0.34 and 3.91 ± 0.29, indicating that home care after discharge can improve patients' satisfaction with medical staff and improve patients' medical experience; the difference was statistically significant [F = 0.877, $P < .01$, Figure 1c].

Comparison of the time spent on revisiting and changing dressing after discharge between the two groups

The results of independent *t*-test analysis showed that after discharge, the average time spent on return visits of patients in the control group was different from that in the home care group, respectively, 40.43 ± 19.77 and 10.00 ± 3.02. The difference was

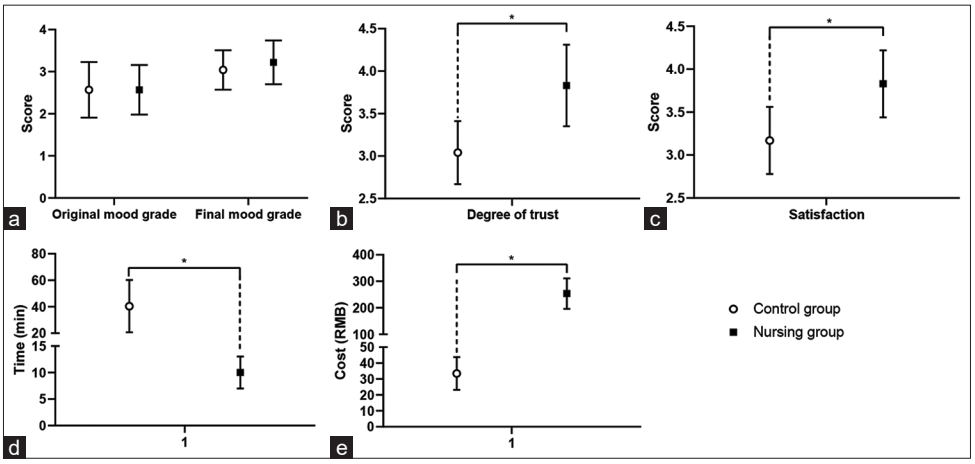

Figure 1: The comparison of mood scores (a), patients' trust in medical staff (b), satisfaction (c), time spent (d), and cost (e) between two groups

statistically significant [F = 24.336, $P < .01$], indicating that home care services after discharge can significantly shorten the time spent on the return visit of patients and improve the medical experience of patients. For details refer to Figure 1d.

Comparison of the cost of dressing change and nursing care after discharge between the two groups

The results of independent *t*-test analysis showed that after discharge, the cost of return visit was different between the control group and the home care group, respectively, 33.48 ± 10.27 and 253.74 ± 57.61; the difference was statistically significant [F = 18.692, $P < .01$], indicating that home care services after discharge need to pay more economical costs; details are shown in Figure 1e.

Discussion

Orthopedic wounds require careful management to promote healing and prevent complications.[13] While medical professionals play a vital role in treating these wounds, home care also plays a crucial part in the overall recovery process.[14] Home care can help facilitate healing, minimize the risk of infection, and improve the patient's quality of life. Preventing infection is crucial in orthopedic wound management.[15] Patients and their caregivers should be educated on proper hand hygiene, wound cleansing techniques, and signs of infection to watch for, such as increased redness, swelling, warmth, or drainage. Any signs of infection should be promptly reported to the healthcare provider.

Home care can effectively improve the mood score of patients with wounds. The reasons may be as follows: on the one hand, the home care plan formulated by the medical team fully considers the care needs of patients and their family members and relieves psychological anxiety of patients and their family members; On the other hand, after patients are discharged from the hospital, doctors and nurses carry out the regular on-site intervention and communicate with patients invisible in the process of implementing home care, which enhances the confidence of patients to overcome the disease.[16,17] Meanwhile, the language, expression, positive attitude, and behaviour of nurses will alleviate patients' negative emotions and meet their physical and mental needs. While the patients in the control group were only given routine telephone follow-ups after discharge, without home care intervention, and the support they felt was not as high as those in the nursing group. The state of anxiety and worry may change slightly with the improvement of the condition but the psychological disorder of individual patients was still not optimistic.

The results of this study showed that the trust and satisfaction of patients in the nursing group after discharge were significantly higher than those in the control group, indicating that home care after discharge can improve the trust and satisfaction of patients with orthopedic wounds to medical staff; increase patient compliance; improve the relationship between doctors, nurses, and patients; and improve the medical experience of patients. The reasons for this may be as follows: nursing staff provide on-site service. On the one hand, patients can easily accept dressing changes and treatment. On the other hand, it can also reduce the hospitalization cost of patients, let patients stay in a familiar environment, enjoy the same treatment as the hospital, improve the satisfaction and happiness of patients, improve the compliance of patients, and project this good feeling to the medical staff and produce a more substantial degree of trust and satisfaction.

In addition, relative to the control group, patients in the nursing group received door-to-door service after discharge, which significantly shortened the time of patients' travel for medical treatment and waiting. They could receive professional nursing services without leaving home to prevent diseases and promote health. However, patients who received home care services paid more economic costs than those in the control group.

It is necessary to pay more preparation to carry out home care services. One-to-one health education should be carried out according to the actual situation of patients, including providing disease-related knowledge. Patients' files were established to record their compliance with discharge guidance. Home dressing nursing and home rehabilitation training were carried out. A health education manual was issued to improve family self-care skills and other practical measures to improve their self-care ability. According to the results of this study, we believe that home care intervention by specialist nurses and community nurses can make the patients continue the hospital rehabilitation plan after discharge, improve the health knowledge level of patients, develop good compliance behaviour, and finally improve the quality of life of patients and their caregivers. It has good social and economic benefits for medical institutions to shorten the length of stay, speed up the transfer of beds, and maximize the use of medical resources. However, the sample size of this study was small and the observation time was short. Therefore, in the future, the sample size will be further expanded and the observation time will be extended to clarify the influence of discharge preparation services and home care on the long-term rehabilitation of stroke patients.

Besides, the home care model in orthopedic wounds management is highly relevant to the practice of primary care physicians. Orthopedic wounds, such as fractures, surgical incisions, or deep cuts, require specialized care to promote healing and prevent complications.[18] The home care model allows primary care physicians to extend their role beyond the clinic or hospital setting and actively participate in the ongoing management and monitoring of orthopedic wounds in patients' homes. Here are some key points highlighting the relevance of the home care model to primary care physicians: (1) Continuity of care: By providing home-based care, primary care physicians can ensure continuity of care for patients with orthopedic wounds. They can directly oversee wound healing progress, assess any potential complications,

and make timely interventions. This approach helps maintain a strong patient-physician relationship and improves patient outcomes. (2) Efficient resource utilization: Home care models can optimize healthcare resources by reducing the burden on hospitals or specialized wound care centers. Instead of having patients visit these facilities for every follow-up, primary care physicians can manage routine wound care in the home setting. This enables more efficient allocation of healthcare resources and reduces unnecessary healthcare costs. (3) Personalized care: The home care model allows primary care physicians to tailor wound management to individual patient needs. They can assess the patient's living conditions, lifestyle, and support systems and develop a care plan that aligns with these factors. This personalized approach can enhance patient satisfaction, compliance, and overall healing outcomes. (4) Preventive care and education: Primary care physicians can use the home care model to educate patients and their families about wound management, including proper dressing techniques, signs of infection, and activities to avoid during the healing process. By providing this information in the patient's home environment, physicians can address specific concerns, answer questions, and actively engage patients in their own care. This proactive approach can help prevent complications and promote faster recovery. (5) Early detection of complications: With regular home visits, primary care physicians can identify potential complications associated with orthopedic wounds at an early stage. This may include signs of infection, delayed wound healing, or other issues that require further intervention. By detecting and addressing these complications promptly, primary care physicians can prevent the need for more extensive treatments or hospital readmissions. (6) Multidisciplinary collaboration: The home care model encourages collaboration between primary care physicians, orthopedic specialists, wound care nurses, physical therapists, and other healthcare professionals involved in the patient's care. This multidisciplinary approach ensures comprehensive management of orthopedic wounds, incorporating expertise from different disciplines to optimize outcomes. In summary, the home care model in orthopedic wounds management offers primary care physicians an opportunity to play a crucial role in the ongoing care of their patients outside of traditional healthcare settings. It enables personalized care, continuity, and timely interventions ultimately leading to improved patient outcomes and efficient resource utilization.

Conclusion

Home care gives systematic, planned, and professional guidance to patients, which can not only promote the rehabilitation of patients but also improve the mood state of patients, which is worthy of promotion. There are still some problems and limitation in the implementation of home care and allocation of nursing staff and the need for more relevant laws, regulations, and price systems. Therefore, it is time to promote discharge preparation services and home care comprehensively.

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Conflicts of interest

There are no conflicts of interest.

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