

Effectiveness of Extended Care in Preventing Falls in Disabled Elderly and Its Impact on Quality of Life

Chun Tian^{1*}, Na Li², Yan Yan²

¹The First Hospital of Shanxi Medical University, Taiyuan 030001, Shanxi Province, China

²School of Nursing, Shanxi Medical University, Taiyuan 030001, Shanxi Province, China

*Corresponding author: Chun Tian, 2007tianchun@163.com

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Abstract: *Objective:* To analyze the value of extended care interventions for disabled elderly in preventing falls and optimizing quality of life. *Methods:* A sample of 60 cases of disabled elderly in a tertiary hospital from May 2022 to May 2023 was selected and grouped by the random number table method. The observation group received extended care, while the control group adopted routine care. The differences in complication rate, fall rate, 36-Item Short Form Health Survey (SF-36) score, health knowledge awareness score, and nursing satisfaction were compared. *Results:* The complication rate and fall rate of the disabled elderly in the observation group were lower than those in the control group, $P < 0.05$; the SF-36 score, health knowledge score, and nursing satisfaction of the observation group were higher than those of the control group, $P < 0.05$. *Conclusion:* Extended care for the disabled elderly can reduce the risk of falls and complications related to disability, as well as optimize their cognition and improve their quality of life, which is efficient and feasible.

Keywords: Disabled elderly; Extended care; Falls; Quality of life

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1. Introduction

Disabled elderly refer to the elderly who lack the ability to take care of themselves, and under the influence of aging, increasing incidence of chronic diseases, and changes in living habits, the number of disabled elderly has increased, resulting in a heavier burden on the society in China^[1]. In addition, most of the disabled elderly face problems such as loss of physical function, emotional disorders, etc. They are unable to move independently and rely on their families and nurses to help them in their daily lives, so it is necessary to pay attention to the mental health of the disabled elderly and carry out nursing interventions for them^[2]. The conventional nursing care model, which only focuses on the basic disease control and physical health care of the disabled elderly, has limitations^[3]. Extended care is the continuation of in-hospital care services, providing out-of-hospital care for the disabled elderly from the physical, psychological, and other levels, which can prevent the complications associated with post-disability and reduce their risk of falling^[4,5]. This paper explores the value of extended care with a sample of 60 disabled elderly.

2. General information and methods

2.1. General information

A sample of 60 cases of disabled elderly in a tertiary hospital from May 2022 to May 2023 was selected and grouped by the random number table method. The observation group had 19 males and 11 females, aged 66–82 (72.43 ± 1.86) years; the control group had 20 males and 10 females, aged 67–83 (72.51 ± 1.91) years.

Inclusion criteria: age > 65 years; informed consent; meeting the criteria for disability, the indicators of disability assessment included independent indoor activities, independent toileting, independent control of urination and defecation, independent dressing, independent eating, and independent bathing, etc. The inability to complete 1–2 of the above indicators was regarded as mild disability, the inability to complete 3–4 was regarded as moderate disability, and the inability to complete 5–6 was regarded as severe disability. Exclusion criteria: those with malignant tumors; and those with abnormal mental status. There was no difference between the general information of the disabled elderly in the two groups, $P > 0.05$.

2.2. Methods

Routine nursing was adopted in the control group: Every 2 hours, the back was gently tapped once, and the disabled elderly were assisted in finding a comfortable position. Care was taken to avoid rough handling and prevent injuries while changing positions. The disabled elderly were guided on proper eating and coughing techniques, and routine services were provided.

Extended nursing was provided in the observation group:

- (1) Condition assessment: Before discharging the disabled elderly, the patient's condition was accurately assessed and recorded, and at the same time, a file of the disabled elderly was created, and the patient or his/her family members were asked to leave their telephone numbers and join the disabled elderly WeChat group, so that the specialist nurses could answer the concerns of the patients and their family members about the home nursing care in the group, and rectify negative behaviors of the elderly during the home nursing care of the disabled elderly.
- (2) Implementation of extended care strategies:
 - (a) Guiding the basic care of the disabled elderly through telephone or WeChat follow-up: Regular bathing for the disabled elderly to maintain a clean body surface; adjusting the temperature and humidity of the living room for the disabled elderly, carrying out indoor cleaning and disinfection of the surface of the house, and placing greenery in the room to create a comfortable, clean environment for their recuperation; preparing loose clothing for the disabled elderly to avoid tight collar affecting respiration; urging the family members to regularly assist the disabled elderly to clean their mouths to reduce the risk of lung infections, suggesting that the disabled elderly rinse their mouths immediately after eating; if they have difficulty in swallowing and cannot rinse their mouths on their own, their families can clean their mouths on a regular basis; instructing their families to do a good job in preventing falls in the environmental care of the elderly, such as laying non-slip mats in the living room, installing handrails on the beds, and installing voice-activated lighting, etc., in order to reduce the risk of falls in the disabled elderly; supplementing calcium and vitamin D for the disabled elderly based on their physical state to prevent and control osteoporosis and reduce the risk of falls; family members were instructed to prepare knee pads, non-slip shoes, hip protectors, wheelchairs, and other protective devices for the disabled elderly to avoid falls caused by a certain functional deficiency of the disabled elderly.
 - (b) Guiding the specialized care of the disabled elderly through telephone or WeChat follow-up: If the

disabled elderly had a gastric tube, the family was instructed on proper nasogastric feeding. The patient was reminded to maintain a semi-sitting position to facilitate the flow of nutrients, small amounts were administered frequently to prevent tube blockage, food was eaten slowly to enhance comfort, and the temperature of the nasogastric food was adjusted to avoid damaging the patient's gastrointestinal function. If the disabled elderly had a urinary catheter, the family was guided on proper cleaning of the urethral opening and informed of the schedule for changing the catheter and urine bag. If the disabled elderly had diabetes or other chronic diseases, the family was instructed on the correct way to inject insulin, and they were required to regularly monitor and record blood sugar changes, while also adhering to prescribed medication. If the disabled elderly had swallowing difficulties, special cups and spoons were prepared for feeding, and the patient was reminded to take small bites and eat slowly, ensuring that each bite was completely swallowed before taking the next.

- (c) Paying attention to the mental health of the disabled elderly: Due to limited mobility, disabled elderly are highly prone to feelings of depression and loneliness. Therefore, it is important to advise the patient's family to spend more time with them and engage in frequent communication. Playing music or television shows for them can also help them feel cared for and alleviate negative emotions. Additionally, some disabled elderly are in good physical condition and can be taken out in a wheelchair to participate in social activities, such as visiting museums or joining club events, to help them reintegrate into society.
- (d) Advocacy: After the disabled elderly were discharged from hospitals, medical staff paid regular home visits to carry out out-of-hospital guidance at multiple levels, such as diet, life, medication, personal hygiene, and psychological state, and rehabilitation training in conjunction with the patients' physiological state to stabilize the patients' conditions. In addition, patients and their families were instructed to pay attention to the WeChat public account of the hospital, and specialized staff were assigned to forward articles related to the care of the disabled elderly in the public account, so as to facilitate the patients' learning at home.

2.3. Observation indicators

- (1) Complications and falls indicators: The occurrence of complications such as hypostatic pneumonia, hypoglycemia, and joint spasms in the disabled elderly as well as falls were recorded.
- (2) Survival quality indicators: 36-Item Short Form Health Survey (SF-36) scores are positively correlated with the survival quality of the disabled elderly, with scores ranging from 0 to 100.
- (3) Health knowledge score: A self-made scale was used to assess the indicators of healthy eating, swallowing movement before eating, medication compliance, and emotional regulation of the disabled elderly, with a total score of 0–100. The scale's Cronbach's alpha coefficient was 0.725–0.927, and content validity index (CVI) was 0.927.
- (4) Nursing care satisfaction: The self-made nursing care satisfaction scale assessed the degree of satisfaction of the disabled elderly in three dimensions. The Cronbach's alpha coefficient of the scale was 0.812, and the CVI was > 0.75.

2.4. Statistical methods

The data of the disabled elderly were processed by SPSS21.0; χ^2 test and % described the count data, while *t*-test and mean \pm standard deviation (SD) described the measurement data. There were statistical differences if $P < 0.05$.

3. Results

3.1. Complications and fall indicators

The complication rate and fall rate of the disabled elderly in the observation group were lower than those in the control group, $P < 0.05$, as shown in **Table 1**.

Table 1. Analysis of complication rate and fall rate of the disabled elderly [n (%)]

Groups	Hypostatic pneumonia	Hypoglycemia	Joint spasms	Complication rate	Fall rate
Observation group ($n = 30$)	0 (0.00)	0 (0.00)	1 (3.33)	1 (3.33)	0 (0.00)
Control group ($n = 30$)	1 (3.33)	2 (6.67)	3 (10.00)	6 (20.00)	5 (16.67)
χ^2	-	-	-	4.0431	5.4545
P	-	-	-	0.0444	0.0195

3.2. Survival quality indicators

After the nursing care, the SF-36 scores of the disabled elderly in the observation group were higher than those in the control group, $P < 0.05$, as shown in **Table 2**.

Table 2. Analysis of quality of survival scores of the disabled elderly (mean \pm SD)

Groups	Physical health (points)		Mental health (points)		Physiological function (points)		Social function (points)	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Observation group ($n = 30$)	66.16 \pm 2.41	85.16 \pm 3.42	66.42 \pm 2.43	86.11 \pm 3.57	65.43 \pm 2.36	87.16 \pm 3.74	64.25 \pm 2.85	86.42 \pm 3.81
Control group ($n = 30$)	66.21 \pm 2.43	76.17 \pm 3.08	66.39 \pm 2.39	75.43 \pm 3.16	65.39 \pm 2.39	74.33 \pm 3.61	64.31 \pm 2.81	72.43 \pm 3.07
t	0.0800	10.6986	0.0482	12.2695	0.0652	13.5191	0.0821	15.6606
P	0.9365	0.0000	0.9617	0.0000	0.9482	0.0000	0.9348	0.0000

3.3. Indicators of health knowledge score

After nursing, the health knowledge score of the disabled elderly in the observation group was higher than that of the control group, $P < 0.05$, as shown in **Table 3**.

Table 3. Analysis of health knowledge scores of the disabled elderly (mean \pm SD)

Groups	Healthy eating (points)		Swallowing exercise before eating (points)		Compliance with medication (points)		Emotional regulation (points)	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Observation group ($n = 30$)	60.25 \pm 1.87	89.44 \pm 2.84	61.33 \pm 1.96	90.36 \pm 2.79	60.42 \pm 1.66	88.36 \pm 2.82	61.74 \pm 1.64	87.36 \pm 2.79
Control group ($n = 30$)	60.31 \pm 1.89	80.31 \pm 2.09	61.43 \pm 2.01	81.46 \pm 2.16	60.38 \pm 1.71	80.34 \pm 2.24	61.71 \pm 1.68	79.51 \pm 2.11
t	0.1236	14.1818	0.1951	13.8156	0.0919	12.1973	0.0700	12.2916
P	0.9021	0.0000	0.8460	0.0000	0.9271	0.0000	0.9444	0.0000

3.4. Indicators of nursing care satisfaction of the disabled elderly

The nursing care satisfaction of the disabled elderly in the observation group was higher than that of the control group, $P < 0.05$, as shown in **Table 4**.

Table 4. Analysis of nursing care satisfaction of the disabled elderly [n (%)]

Groups	Satisfied	Generally satisfied	Dissatisfied	Satisfaction rate
Observation group ($n = 30$)	24 (80.00)	5 (16.67)	1 (3.33)	29 (96.67)
Control group ($n = 30$)	18 (60.00)	6 (20.00)	6 (20.00)	24 (80.00)
χ^2	-	-	-	4.0431
P	-	-	-	0.0444

4. Discussion

Disability has a greater impact on the daily life of the elderly population, and the elderly with disability can increase the economic pressure on the family and social burden, so it is important to pay attention to the nursing intervention for elderly with disability^[6,7]. Conventional care only focuses on physiological health care and is limited to in-hospital care, with limited nursing value. Extended care is a modern nursing strategy that provides continuity of service for discharged disabled elderly, pays attention to patients' mental health and physical health, and can prevent disability-related accidents^[8,9]. During extended care, files are created for disabled elderly patients about to be discharged, with their medical conditions and contact information recorded. Patients are required to update their phone numbers and join a WeChat group for disabled elderly, laying the foundation for continued care. Through phone calls and WeChat, families are encouraged to assist disabled elderly patients with personal hygiene and regulate the temperature and humidity of their living spaces, enhancing their comfort. The living arrangements are optimized, and supplements with calcium and vitamins, as well as protective equipment, are prepared to help prevent falls. Specialized care guidance for patients with nasogastric tubes, urinary catheters, diabetes, or swallowing disorders is provided via phone and WeChat, including information on potential risks and precautions. Patients' and families' concerns are addressed to improve their understanding and reduce the risk of home care incidents. Regular home visits for education and guidance on rehabilitation exercises for those in good physiological condition are conducted to help maintain the stability of their health. Patients and families are also encouraged to follow the hospital's WeChat public account and read articles on caring for disabled elderly individuals, further improving the quality of home care^[10-12].

Based on the data analysis in this paper, the complication rate, fall rate, SF-36 score, health knowledge score, nursing satisfaction, and other indicators of the observation group were better than the control group, $P < 0.05$. To analyze the reasons, the extended care provides comprehensive and individualized nursing, which can satisfy the needs of the disabled elderly in terms of psychological and physiological care, and can also provide targeted guidance according to the specific problems of different disabled elderly to make them feel cared for and taken care of, thus improving their cognition, optimizing their quality of life, and reducing the risk of falls and complications^[13,14].

5. Conclusion

In conclusion, extended care for disabled elderly can enhance their compliance, improve their quality of life, prevent disability-related complications, reduce fall events, and enhance patient satisfaction, which can be pro-

moted and applied.

Disclosure statement

The authors declare no conflict of interest.

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