

Impact of Advanced Emergency Nursing Education on the Care of Acute Myocardial Infarction Patients: A Case-Control Study

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Abstract: *Objective:* To explore the impact of advanced emergency nursing education on the care of patients with acute myocardial infarction (AMI). *Methods:* A total of 66 AMI patients admitted to the hospital from June 2024 to June 2025 were selected and randomly divided into the control group and the observation group using a random number table, with 33 cases in each group. The control group received conventional health education, while the observation group received advanced emergency nursing education. The intervention duration was 3 months. The coronary heart disease self-management behavior scale was used to evaluate cognitive behavior; the 6-minute walk test and Activities of Daily Living (ADL) scale were used to assess rehabilitation effects; and health education satisfaction was evaluated. *Results:* After health education, the scores of disease cognition, symptom monitoring, bad habits, daily life, compliance, first-aid management, and emotional cognition in the coronary heart disease self-management behavior scale of the observation group were all higher than those of the control group ($P < 0.05$); the 6-minute walk test distance and ADL score of the observation group were higher than those of the control group ($P < 0.05$); the nursing satisfaction of the observation group was better than that of the control group ($P < 0.05$). *Conclusion:* Advanced emergency nursing education can effectively improve the cognitive and behavioral abilities of AMI patients, promote rehabilitation effects, and achieve high satisfaction.

Keywords: Advanced emergency nursing education; Acute myocardial infarction; Cognitive behavior; Rehabilitation

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1. Introduction

Acute myocardial infarction (AMI) is a life-threatening cardiovascular disease with a high incidence in the emergency department. The quality of treatment and the professionalism of nursing intervention are directly related to patients' prognosis and quality of life. Clinical data show that even after standardized treatment, AMI patients often have increased recurrence risk and impaired daily living ability due to insufficient disease

cognition, poor self-management ability, and inadequate rehabilitation nursing ^[1]. As a key link in the AMI treatment system, conventional health education traditionally focuses on delivering basic nursing knowledge, which has limitations in advanced nursing dimensions, such as in-depth disease cognition, symptom monitoring skills, and first-aid management capabilities. In recent years, advanced emergency nursing education has gradually become a core direction to improve nursing quality. By systematically strengthening the professional competence of emergency nursing staff and optimizing nursing intervention strategies, it provides precise and personalized nursing services for patients ^[2]. In view of this, this case-control study was conducted to explore the impact of advanced emergency nursing education on cognitive behavior, rehabilitation effects, and nursing satisfaction of AMI patients, aiming to provide empirical evidence for improving the AMI nursing intervention system.

2. Materials and methods

2.1. General information

A total of 66 AMI patients admitted to the hospital from June 2024 to June 2025 were selected and randomly divided into the control group and the observation group using a random number table, with 33 cases in each group. In the control group: 19 males and 14 females; aged 48–76 years, with an average of 62.3 ± 5.8 years; disease duration 1–12 h, with an average of 4.5 ± 1.2 h; 21 cases of ST-segment elevation myocardial infarction and 12 cases of non-ST-segment elevation myocardial infarction. In the observation group: 20 males and 13 females; aged 47–75 years, with an average of 61.8 ± 6.1 years; disease duration 1–11 h, with an average of 4.3 ± 1.3 h; 22 cases of ST-segment elevation myocardial infarction and 11 cases of non-ST-segment elevation myocardial infarction. There were no statistically significant differences in general data such as gender, age, disease duration, and infarction type between the two groups $P > 0.05$, indicating comparability. This study was approved by the Medical Ethics Committee of the hospital, and all patients and their families were informed and signed the written informed consent form.

2.2. Inclusion and exclusion criteria

Inclusion Criteria: Meets the diagnostic criteria for AMI, confirmed by coronary angiography or myocardial enzymology examination ^[3]; Admitted within 48 h of onset, with relatively stable vital signs; Clear consciousness, with basic communication and understanding abilities; Voluntarily participates in the study and signs the informed consent form; Predicted survival period ≥ 6 months, and able to cooperate with 3-month follow-up.

Exclusion Criteria: Complicated with end-stage diseases such as severe liver and kidney failure and malignant tumors; With cognitive impairment, mental illness, or communication disorders; Previous history of myocardial infarction or severe heart failure; Complications such as cardiogenic shock and severe arrhythmia within 24 h after admission; Transfer to another hospital, withdrawal from the study, or loss to follow-up.

2.3. Educational methods

2.3.1. Control group

Conventional health education was adopted, including distributing AMI health manuals on admission, verbal explanation of basic disease knowledge, medication precautions, and dietary taboos by responsible nurses, 1

session of rehabilitation guidance before discharge, and 2 sessions of routine follow-up and Q&A via telephone during the intervention period.

2.3.2. Observation group

Advanced emergency nursing education was implemented by an emergency nursing team with specialized training, with an intervention cycle of 3 months. The details were as follows: (1) Individualized assessment and plan formulation: Within 24 h of admission, the patient's disease cognitive level, self-management ability, and psychological status were assessed through interviews combined with scales. "One-person-one-plan" education plans were formulated targeting weak links, with clear phased goals (e.g., mastering symptom monitoring methods within 1 month). (2) Hierarchical knowledge teaching: A "theory + case" model was adopted, with 1 special lecture per week covering advanced knowledge such as AMI pathogenesis, risk factor management, and identification of drug efficacy and adverse reactions. Clinical typical cases were used to analyze first-aid procedures, such as self-first-aid steps during chest pain attacks and the correct use of nitroglycerin. (3) Practical skill training: 2 practical training sessions per month were conducted. Nurses demonstrated simple electrocardiograph interpretation, home monitoring skills of blood pressure and heart rate, and basic cardiopulmonary resuscitation operations. Patients and their families practiced on-site, and nurses provided one-on-one correction and guidance until full mastery. (4) Multi-dimensional rehabilitation guidance: Individualized exercise plans were formulated according to the patient's cardiac function classification, gradually transitioning from bedside activities to 6-minute walk training. Simultaneously, guidance on dietary matching (e.g., low-salt and low-fat diet ratio), sleep management, and emotional regulation methods was provided, and rehabilitation videos and health reminders were sent via WeChat weekly. (5) Whole-process follow-up management: Patient health records were established, with 1 telephone follow-up per week to assess implementation, 1 outpatient re-examination every 2 weeks to adjust education plans in a timely manner, and a 24-hour nursing consultation hotline was opened to answer emergency questions and strengthen patient compliance.

2.4. Observation indicators

(1) Cognitive and behavioral ability: After 3 months of intervention, the coronary heart disease self-management behavior scale was used for evaluation, covering 7 dimensions (disease cognition, symptom monitoring, bad habits, daily life, compliance, first-aid management, emotional cognition) with 27 items. The scoring standard was 1–5 points, and higher scores indicated stronger self-management ability. (2) Rehabilitation effect: After 3 months of intervention, the 6-minute walk test was performed to record the walking distance; the ADL scale was used for evaluation, with a total score of 100 points. A score ≥ 60 indicated basic self-care ability, and higher scores indicated better rehabilitation effects. (3) Nursing satisfaction: After the intervention, a hospital-developed satisfaction scale was used for evaluation, covering 5 dimensions (education content, guidance method, nursing attitude, etc.), with a total score of 100 points. Scores ≥ 90 were rated as "very satisfied", 70–89 as "satisfied", and < 70 as "dissatisfied." Satisfaction rate = (number of very satisfied cases + number of satisfied cases)/total number of cases $\times 100\%$.

2.5. Statistical methods

SPSS 26.0 statistical software was used for data analysis. Measurement data (e.g., scale scores, walking distance) were expressed as (Mean \pm SD), and inter-group comparison was performed using

an independent samples *t*-test. Count data (e.g., satisfaction rate) were expressed as [n(%)], and inter-group comparison was performed using χ^2 test. A *P*-value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of coronary heart disease self-management behavior scale scores between the two groups after intervention

After intervention, the scores of disease cognition, symptom monitoring, bad habits, daily life, compliance, first-aid management, and emotional cognition in the observation group were all higher than those in the control group (*P* < 0.05) (Table 1).

Table 1. Comparison of coronary heart disease self-management behavior scale scores between the two groups after intervention (points, Mean ± SD)

Item	Control Group (<i>n</i> =33)	Observation Group (<i>n</i> =33)	<i>t</i> -value	<i>P</i> -value
Disease Cognition	14.96±2.10	18.25±3.24	4.895	< 0.001
Symptom Monitoring	10.97±1.66	14.10±2.13	6.658	< 0.001
Bad Habits	14.15±2.11	17.11±2.04	5.794	< 0.001
Daily Life	13.65±2.01	16.25±2.23	4.975	< 0.001
Compliance	6.58±1.22	7.42±1.30	2.707	0.009
First-aid Management	8.15±1.02	9.61±1.53	4.561	< 0.001
Emotional Cognition	12.20±1.95	14.16±2.30	3.734	< 0.001

3.2. Comparison of rehabilitation effects between the two groups after intervention

After intervention, the 6-minute walk test distance and ADL score of the observation group were higher than those of the control group (*P* < 0.05) (Table 2).

Table 2. Comparison of rehabilitation effects between the two groups after intervention (Mean ± SD)

Group	6-Minute Walk Test (m)	ADL (points)
Control Group (<i>n</i> =33)	426.25±45.31	69.68±5.17
Observation Group (<i>n</i> =33)	460.18±50.37	77.65±8.12
<i>t</i> -value	2.877	6.292
<i>P</i> -value	0.005	< 0.001

3.3. Comparison of nursing satisfaction between the two groups

The nursing satisfaction rate of the observation group was higher than that of the control group ($P < 0.05$) (Table 3).

Table 3. Comparison of nursing satisfaction between the two groups [n(%)]

Group	Very Satisfied	Satisfied	Dissatisfied	Total Satisfaction Rate (%)
Control Group ($n=33$)	15 (45.45)	11 (33.33)	7 (21.21)	78.79
Observation Group ($n=33$)	24 (72.73)	8 (24.24)	1 (3.03)	96.97
χ^2 -value				5.121
P -value				0.024

4. Discussion

As a cardiovascular emergency with high disability and recurrence rates, the prognosis of acute myocardial infarction (AMI) depends not only on timely reperfusion therapy but also on long-term standardized nursing intervention. Clinical practice shows that after discharge, AMI patients often experience problems such as poor medication compliance and repeated unhealthy living habits due to insufficient disease cognition and inadequate self-management ability, which significantly increases the risk of reinfarction and medical burden^[4]. As a key measure to improve patient prognosis, conventional health education mainly relies on one-way knowledge indoctrination, lacking targeting and systematicness, and thus fails to meet patients' in-depth needs for disease management^[5]. Therefore, exploring an efficient health education model has become a critical issue in the field of emergency nursing. Centered on individualized and multi-dimensional intervention, advanced emergency nursing education integrates theoretical teaching, practical training, and full-course follow-up to achieve precise upgrading of nursing services, providing new insights for improving AMI nursing quality.

The results of this study showed that the scores of all dimensions in the coronary heart disease self-management behavior scale of the observation group were significantly larger than those of the control group. The reason lies in the fact that conventional health education focuses on delivering basic knowledge, whereas advanced emergency nursing education accurately identifies patients' cognitive weaknesses through individualized assessment in the early admission stage—for example, strengthening psychological regulation guidance for patients with insufficient emotional cognition and increasing the frequency of practical training for those lacking first-aid knowledge. This “needs-oriented education” model breaks the homogeneous limitation of traditional education, enabling patients to shift from passive knowledge acceptance to active participation in disease management. Consequently, their abilities in key dimensions such as disease cognition, symptom monitoring, and medication compliance are improved, laying a foundation for long-term disease control^[6].

In terms of rehabilitation effects, the advantages of the observation group in 6-minute walk distance and ADL score further confirm the practical value of advanced emergency nursing education. Analyzing its mechanism, advanced emergency nursing education integrates rehabilitation guidance into the whole intervention process: it dynamically adjusts exercise plans according to the recovery of patients' cardiac function, and combines refined guidance on diet and sleep management, thereby effectively avoiding risks

caused by blind rehabilitation ^[7]. Meanwhile, the enhancement of home monitoring skills in practical training enables patients to timely detect changes in their condition and adjust the pace of rehabilitation. This dual guarantee of “precision rehabilitation + risk prevention and control” significantly improves exercise tolerance and self-care ability, achieving efficient recovery of physiological functions.

The difference in nursing satisfaction reflects the gap in service quality between the two education models. Through measures such as a 24-hour consultation hotline and regular follow-up, advanced emergency nursing education constructs a continuous nursing system covering “hospitalization-discharge-home”, fully meeting patients’ needs for personalized services and emotional support. In contrast, conventional health education is difficult to establish good nurse-patient trust due to insufficient interactivity and delayed response. In addition, the professional competence advantage of the nursing team makes the intervention measures more professional and credible, further enhancing patients’ recognition of the services, which is highly consistent with the “patient-centered” core concept of this model.

5. Conclusion

In conclusion, advanced emergency nursing education, through the organic integration of individualized assessment, hierarchical teaching, practical training, and full-course follow-up, can effectively improve the cognitive and behavioral abilities of AMI patients, promote the rehabilitation process, and gain high patient acceptance. However, this study has limitations such as a small sample size. In the future, the research scope can be expanded to further explore the application effects of this model in patients of different ages and disease severities, so as to provide more sufficient evidence for its clinical promotion.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Akhtar KH, Khan MS, Baron SJ, et al., 2024, The Spectrum of Post-myocardial Infarction Care: From Acute Ischemia to Heart Failure. *Progress in Cardiovascular Diseases*, 2024(82): 15–25.
- [2] Li L, Fan S, Xing Y, et al., 2025, Application of Mixed Reality in Prehospital Emergency Nursing Education: A Scoping Review. *Nurse Education in Practice*, 2025(86): 104415.
- [3] Hartikainen T, Westermann D, 2023, Advances in Rapid Diagnostic Tests for Myocardial Infarction Patients. *Expert Review of Molecular Diagnostics*, 23(5): 391–403.
- [4] Wolf L, Russell A, 2024, The Relationship between Accurate Triage and Core Measures Compliance for Acute Myocardial Infarction and Heart Failure in Older Adults Presenting to the Emergency Department. *Journal of Nursing Care Quality*, 39(2): 183–187.
- [5] Metprommarat A, Banharak S, Panpanit L, et al., 2025, The Effects of a Concerning Older Adult Abilities Health Education program to Promote Appropriate Decision among Acute Myocardial Infarction Patients. *Scientific Reports*, 15(1): 31600.
- [6] Molazem Z, Taheri E, Najafi Kalyani M, 2024, Effectiveness of Family-oriented Education on Self-care Behaviors of Patients with Acute Myocardial Infarction: A Randomized Clinical Trial. *International Journal of Community Based*

Nursing & Midwifery, 12(1): 13–22.

- [7] Banharak S, Threeranut A, Metprommarat A, 2024, Effects of Health Education Applying Role Play on Decision Making in Acute Myocardial Infarction Situation among Older Adults in Community. Scientific Reports, 14(1): 19627.

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