

A retrospective study evaluating a Donabedian framework-based nursing model for cardiac rehabilitation after minimally invasive coronary artery bypass grafting

Submission date 14/07/2026	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 14/08/2026	Overall study status Completed	☐ Statistical analysis plan ☐ Results
Last Edited 03/08/2026	Condition category Circulatory System	☐ Individual participant data ☒ Record updated in last year

Plain English summary of protocol

Background and study aims

Coronary artery disease can reduce blood flow to the heart and may require surgery to improve circulation. People who have minimally invasive coronary artery bypass grafting (MICABG) often need support during their recovery. This study looked at whether a nursing approach based on the Donabedian framework could improve recovery after surgery compared with standard nursing care. The researchers compared heart function, physical activity, quality of life, self-management skills, hospital stay, costs, and adverse events between the two groups of patients.

Who can participate?

The study included adults aged 18 to 80 years with coronary artery disease who had undergone minimally invasive coronary artery bypass grafting. Participants had received either standard nursing care or Donabedian framework-based nursing care and had complete clinical and follow-up records available for analysis. A total of 124 patients were included in the study.

What does the study involve?

This was a retrospective study, which means the researchers used information that had already been collected as part of routine patient care. No new treatments or procedures were given for the purposes of the study. The research team reviewed hospital records from 124 patients who underwent surgery between November 2021 and June 2025. They compared outcomes in patients who received Donabedian framework-based nursing care with those who received conventional nursing care. Recovery was assessed at hospital discharge and again 3 months later using measures such as heart function, walking ability, quality of life, self-management ability, hospital stay, costs, and adverse events.

What are the possible benefits and risks of participating?

Because this study used existing medical records, there were no additional treatments,

procedures, or risks for participants. The information gained from the study may help healthcare professionals understand whether this nursing approach improves recovery after minimally invasive heart surgery and may contribute to improving future patient care.

Where is the study run from?

The study is run from Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China.

When is the study starting and how long is it expected to run for?

The first patients included in the study underwent surgery on 1 November 2021. Patient enrolment continued until 30 June 2025, and the study was completed on 30 September 2025.

Who is funding the study?

The study is funded by the Ruijin Hospital Nursing Research Fund, affiliated with Ruijin Hospital, Shanghai Jiao Tong University School of Medicine.

Who is the main contact?

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Contact information

Type(s)

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Additional identifiers

Study information

Scientific Title

A retrospective cohort study comparing the effects of Donabedian framework-based nursing versus conventional nursing on postoperative cardiac rehabilitation outcomes in patients undergoing minimally invasive coronary artery bypass grafting

Study objectives

Primary objective:

To evaluate whether a Donabedian framework-based nursing model improves postoperative cardiac rehabilitation compared with conventional nursing in patients undergoing minimally invasive coronary artery bypass grafting

Secondary objectives:

1. To compare cardiac function recovery
2. To compare exercise tolerance
3. To compare quality of life
4. To compare self-management ability
5. To compare hospital stay, hospitalization cost and adverse events
6. To evaluate medium-term rehabilitation outcomes at 3 months

Ethics approval required

Ethics approval required

Ethics approval(s)

Approved 07/08/2025, Ruijin Hospital Ethics Committee, Shanghai Jiao Tong University School of Medicine (No.197 Ruijin Er Road, Shanghai, 200025, China; +86-021-64370045; ruijincrc@126.com), ref: (2025) Ethics Review No. (470)

Primary study design

Observational

Secondary study design

Cohort study

Study type(s)**Health condition(s) or problem(s) studied**

Coronary artery disease undergoing minimally invasive coronary artery bypass grafting (MICABG)

Interventions

This retrospective cohort study included 124 consecutive patients with coronary artery disease who underwent minimally invasive coronary artery bypass grafting between November 2021 and June 2025. Patients received either Donabedian framework-based nursing intervention (n=65) or conventional postoperative nursing (n=59). Clinical data were collected from hospital medical records. Outcomes including cardiac function, exercise tolerance, quality of life, self-management ability, hospitalization indicators, adverse events and patient satisfaction were evaluated at discharge and at 3-month follow-up.

Intervention Type

Other

Primary outcome(s)

1. Left ventricular ejection fraction (LVEF) measured using echocardiography at discharge and 3 months after discharge

Key secondary outcome(s)

1. 6-minute walk distance measured using 6-minute walk test at discharge and 3 months

2. Quality of life measured using SF-36 at discharge and 3 months
3. Self-management ability measured using CSMS questionnaire at discharge and 3 months
4. Hospital length of stay measured using medical records at discharge
5. Hospitalization costs measured using hospital records at discharge
6. Adverse events measured using medical records at discharge and follow-up

Completion date

30/09/2025

Eligibility

Key inclusion criteria

1. Diagnosed with coronary artery disease
2. Underwent minimally invasive coronary artery bypass grafting (MICABG)
3. Age ≥ 18 years
4. Received either conventional nursing care or Donabedian framework-based nursing
5. Complete clinical records and follow-up data available

Healthy volunteers allowed

No

Age group

Mixed

Lower age limit

18 Years

Upper age limit

80 Years

Sex

All

Total final enrolment

124

Key exclusion criteria

1. Severe preoperative comorbidities (e.g. end-stage renal disease or malignant tumors)
2. Serious postoperative complications preventing follow-up
3. Incomplete intervention
4. Missing follow-up data

Date of first enrolment

01/11/2021

Date of final enrolment

30/06/2025

Locations

Countries of recruitment

China

Sponsor information

Organisation

Ruijin Hospital, Shanghai Jiao Tong University School of Medicine

Funder(s)

Funder type

Funder Name

Ruijin Hospital, Shanghai Jiao Tong University School of Medicine Affiliated Nursing Research Fund

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available