

# *The Impact of Holistic Nursing Model in the Care of Patients with Asymptomatic Myocardial Ischemia in Coronary Artery Disease*

**Xiaoyu Duan**

*Qingdao Municipal Hospital, Qingdao, 266011, China*

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**Abstract:** This study selected a total of 80 patients with painless myocardial ischemia due to coronary heart disease who were admitted to the cardiology department between January 2021 and January 2023. The study implemented a high-quality holistic nursing model, with patients randomly divided into a control group and an observation group. By comparing the nursing outcomes between the two groups, it was found that the application of the holistic nursing model in the care of patients with painless myocardial ischemia due to coronary heart disease was significantly effective. Specifically, the patients' conditions showed notable improvement, the frequency of myocardial ischemia episodes decreased, symptoms were alleviated, and levels of anxiety and depression were reduced. Additionally, nursing satisfaction and quality of life significantly increased. Moreover, patients' compliance with nursing care was markedly enhanced. In conclusion, the application of the holistic nursing model in the care of patients with painless myocardial ischemia due to coronary heart disease has proven to be of significant value and is worthy of promotion in clinical practice.

## **1. Introduction**

Asymptomatic myocardial ischemia refers to the condition where the myocardium is affected by ischemia without clear symptoms[1]. This typically occurs in patients with mild or moderate coronary artery stenosis, and its covert nature is prominent[2]. The occurrence mechanism of asymptomatic myocardial ischemia is related to coronary artery disease, primarily due to the narrowing or blockage of coronary arteries leading to insufficient myocardial blood supply, thus causing myocardial ischemia. This condition has a high prevalence rate, especially among the elderly, with a higher incidence in males than females[3-4]. If not treated timely, it can lead to continuous aggravation of myocardial ischemia and even myocardial infarction, posing a severe threat to the patient's life safety. It can also bring significant economic burden and psychological stress to the patient's family[5-6]. Proper holistic care of patients with asymptomatic myocardial ischemia is crucial. The holistic nursing model, a new type of nursing intervention developed in recent years, essentially serves as a health management intervention[7]. It includes regular monitoring of electrocardiograms, blood pressure, heart rate, controlling risk factors such as hypertension, hyperlipidemia, diabetes, adhering to medication as prescribed, maintaining a healthy lifestyle such as quitting smoking, limiting alcohol

intake, exercising moderately, and maintaining healthy dietary habits[8]. Moreover, patients should regularly undergo cardiac examinations to timely detect and treat heart diseases. This clinical study was conducted to analyze the effects and impact of the holistic nursing model on the care of patients with asymptomatic myocardial ischemia in coronary artery disease, and the results are detailed as follows:

## 2. Materials and Methods

### 2.1. Clinical Data

The study period was set from January 2021 to January 2023. A total of 80 patients admitted to the cardiology department with asymptomatic myocardial ischemia due to coronary artery disease were selected as the study subjects and subjected to comparative nursing management research. Using a random number table method, these patients were equally divided into a control group (n=40) and an observation group (n=40). In the control group, there were 22 males and 18 females, with an age range of (72.35±8.41) years; the observation group consisted of 23 males and 17 females, aged (72.43±8.45) years. There was no significant statistical difference in the clinical data between the two groups of patients with asymptomatic myocardial ischemia (P>0.05), making the study results comparable. Inclusion criteria: (1) Diagnosis of asymptomatic myocardial ischemia in coronary artery disease according to 'The Naming and Diagnostic Standards for Ischemic Heart Disease', confirmed by electrocardiogram, echocardiography, and other examinations; (2) Clinical assessment of the severity of the condition, immediately provided with conventional treatment; (3) All patients were able to actively cooperate with the nursing care and signed an informed consent; (4) The study was approved by the ethics committee of the hospital. Exclusion criteria: (1) Patients with malignant tumors; (2) Patients with immune system diseases or other serious organ dysfunction; (3) Patients with acute heart failure; (4) Patients with extremely poor nursing cooperation or concomitant psychiatric disorders.

### 2.2. Methods

The control group received standard disease management, where nursing staff used straightforward language to explain the causes of the disease, precautions, routine medications, and the specifics of vital signs monitoring and care to the patients and their families. The observation group received high-quality holistic nursing care, detailed as follows:

**Psychological care and health education:** Psychological support is crucial for patients with asymptomatic myocardial ischemia. Nurses interact with patients to understand their feelings and needs, providing emotional support and comfort. Patients are educated about coronary artery disease, including causes, symptoms, treatments, and prevention, which helps reduce anxiety and fear. Patients are encouraged to actively participate in their treatment, such as taking medication on time, controlling their diet, and exercising appropriately to enhance their quality of life.

**Vital signs monitoring:** Patients often have hypertension, and fluctuations in blood pressure can affect the heart's workload, thus requiring regular monitoring and medication adjustments. Both tachycardia and bradycardia can affect the heart's blood supply and workload, necessitating regular heart rate monitoring and medication adjustments. Electrocardiograms, reflecting the heart's electrical activity, are essential for timely identification of myocardial ischemia and arrhythmias. Oxygen saturation monitoring is also crucial for detecting hypoxia. Symptoms like chest pain and shortness of breath should be recorded timely in terms of occurrence, duration, and intensity to adjust treatment methods accordingly.

**Medication nursing:** Scientific and rational medication is essential for curing asymptomatic

myocardial ischemia. Medical staff should administer drugs as prescribed by doctors, such as antiplatelet agents, beta-blockers, and calcium channel blockers. Clinical attention is needed for choosing the right medication, dosage accuracy, monitoring drug reactions, and managing side effects to ensure effectiveness and safety.

**Dietary nursing:** Based on the patient’s health status and weight, total calorie intake should be controlled to avoid overeating and obesity. Intake of saturated and trans fats should be reduced, and unsaturated fats like olive oil and peanut oil should be increased. Salt intake should be limited to reduce the risk of hypertension. A diet rich in vegetables, fruits, and whole grains should be encouraged to help manage lipid and glucose levels. Excessive alcohol consumption should be avoided to protect heart health.

**Rehabilitation training:** In stable conditions, appropriate rehabilitation training can improve the cardiopulmonary function and alleviate disease symptoms. This includes aerobic exercises like walking, jogging, swimming, and cycling; strength training to enhance muscle strength and endurance; and stretching exercises to increase joint flexibility and reduce muscle fatigue.

**Discharge guidance:** Systematic discharge instructions should be provided before patients leave the hospital, informing them of the need for regular follow-ups, electrocardiograms, blood pressure and lipid tests, and medication efficacy evaluations. Lifestyle improvements and preventive measures such as smoking cessation, alcohol limitation, and weight control should be emphasized.

### 2.3. Observation Indicators

The study evaluated differences in myocardial ischemia episodes, improvement in negative emotions, nursing satisfaction, cardiac function indicators, compliance with nursing care, and quality of life scores between the groups.

### 2.4. Statistical Methods

Continuous variables are expressed as ( $\bar{x} \pm s$ ) and analyzed using the t-test for normally distributed data; qualitative data are expressed as (n, %) and analyzed using the  $\chi^2$  test. Data analysis was performed using SPSS 25.0 statistical software. A result of  $P < 0.05$  was considered statistically significant.

## 3. Research Results

### 3.1. Comparison of Myocardial Ischemia Episodes

The number of myocardial ischemia episodes in the observation group was fewer and the duration shorter compared to the control group, with significant differences observed ( $P < 0.05$ ). See Table 1.

Table 1: Comparison of Myocardial Ischemia Episodes ( $\bar{x} \pm s$ )

Group	Number of Cases	Number of Episodes		Duration (min/episode)	
		Before Care	After Care	Before Care	After Care
Control Group	40	12.21 $\pm$ 3.08	5.28 $\pm$ 2.86	16.12 $\pm$ 2.02	10.13 $\pm$ 2.03
Observation Group	40	12.16 $\pm$ 3.37	3.62 $\pm$ 3.02	16.24 $\pm$ 2.03	5.58 $\pm$ 2.04
t	-	0.069	2.524	0.265	9.999
p	-	0.945	0.014	0.792	<0.001

### 3.2. Comparison of Improvement in Negative Emotional States

The scores for anxiety and depression were reduced in the observation group compared to the control group, showing a significant difference ( $P < 0.05$ ). See Table 2.

Table 2: Comparison of Improvement in Negative Emotional States ( $\bar{x} \pm s$ )

Group	Number of Cases	Anxiety SAS Scale Score		Depression SDS Scale Score	
		Before Care	After Care	Before Care	After Care
Control Group	40	54.21 $\pm$ 3.08	45.28 $\pm$ 2.86	54.06 $\pm$ 5.13	45.77 $\pm$ 4.38
Observation Group	40	54.16 $\pm$ 3.37	37.62 $\pm$ 3.02	53.84 $\pm$ 5.34	36.91 $\pm$ 4.82
t	-	0.063	10.579	0.171	7.815
p	-	0.950	<0.001	0.865	<0.001

### 3.3. Comparison of Patient Satisfaction with Nursing Care

The nursing satisfaction rate in the observation group was 92.5%, higher than the 75% in the control group, with a significant difference ( $P < 0.05$ ). See Table 3.

Table 3: Comparison of Patient Satisfaction with Nursing Care ( $\bar{x} \pm s$ )

Group	Number of Cases	Very Satisfied	Satisfied	Not Very Satisfied	Satisfaction Rate (%)
Control Group	40	18	12	10	75%
Observation Group	40	22	15	3	92.5%
X <sup>2</sup>	-	-	-	-	4.501
p	-	-	-	-	0.034

### 3.4. Comparison of Cardiac Function Indicators

The cardiac function indicators improved in the observation group post-nursing care and were superior to those in the control group, showing a significant difference ( $P < 0.05$ ). See Table 4.

Table 4: Comparison of Cardiac Function Indicators ( $\bar{x} \pm s$ )

Group	LVEF (%)		LVEDD (mm)		LVESD (mm)	
	Before Care	After Care	Before Care	After Care	Before Care	After Care
Control Group	32.14 $\pm$ 2.11	42.28 $\pm$ 1.25	38.24 $\pm$ 2.91	43.15 $\pm$ 3.17	35.25 $\pm$ 2.31	41.35 $\pm$ 3.22
Observation Group	32.17 $\pm$ 2.12	49.34 $\pm$ 1.24	38.21 $\pm$ 2.93	48.23 $\pm$ 3.16	35.21 $\pm$ 2.19	46.18 $\pm$ 3.24
t	0.063	25.360	0.046	7.178	0.079	6.687
P	0.950	<0.001	0.964	<0.001	0.937	<0.001

### 3.5. Comparison of Compliance with Nursing Care and Quality of Life Scores

The scores for compliance with nursing care and quality of life were both higher in the observation

group compared to the control group, with significant differences ( $P < 0.05$ ). See Table 5.

Table 5: Comparison of Compliance with Nursing Care and Quality of Life Scores ( $\bar{x} \pm s$ )

Group	Number of Cases	Compliance with Nursing Care (points)	Quality of Life Score (points)
Control Group	40	73.74 $\pm$ 3.15	65.42 $\pm$ 3.64
Observation Group	40	86.07 $\pm$ 3.18	87.08 $\pm$ 3.23
t	-	17.422	28.150
p	-	<0.001	<0.001

#### 4. Discussion

The incidence and mortality rates of asymptomatic myocardial ischemia in coronary artery disease are high, with complex influencing factors including age, gender, obesity, smoking, lack of exercise, and stress. Key prevention strategies for asymptomatic myocardial ischemia involve controlling risk factors such as maintaining a healthy lifestyle, managing blood pressure, lipid levels, and glucose levels. Early detection and treatment of asymptomatic myocardial ischemia are also crucial for preventing heart attacks and sudden death. Generally, the onset of asymptomatic myocardial ischemia is covert and difficult to detect because patients do not experience clear pain or discomfort, making it easy to overlook or misdiagnose. If left untreated, the condition can progress and lead to severe outcomes such as myocardial infarction and heart failure, both associated with high mortality. Therefore, effective diagnosis, treatment, and nursing care are essential. The holistic nursing model is a patient-centered and team-based approach. It emphasizes comprehensive, systematic, and coordinated care, including physical, psychological, social, and environmental aspects. Compared to traditional nursing, the holistic model accentuates the patient's autonomy, respects their wishes and needs, and improves patient satisfaction and treatment outcomes. It highlights teamwork, leveraging the strengths of various professionals to enhance the quality and efficiency of care. It also stresses comprehensive care, focusing on physical, psychological, social, and environmental aspects to improve overall health. Furthermore, it emphasizes prevention and health education, helping patients acquire self-management skills to prevent disease onset and recurrence. In the care of patients with asymptomatic myocardial ischemia, the holistic nursing model helps nurses better understand the patients' physical, psychological, and social conditions, develop personalized care plans, and improve treatment outcomes and quality of life. Additionally, the holistic model promotes patient self-management, preventing disease onset and recurrence, and reducing medical costs and social burden. The research findings indicate that the observation group had fewer myocardial ischemia episodes, shorter durations, reduced anxiety and depression scores, improved post-nursing cardiac function indicators, and higher nursing satisfaction, compliance with care, and quality of life scores compared to the control group, with significant differences ( $P < 0.05$ ).

#### 5. Conclusion

The application of the holistic nursing model in the care of patients with asymptomatic myocardial ischemia in coronary artery disease significantly outperforms the traditional nursing model. It improves patient conditions, alleviates symptoms, and enhances patient cooperation and satisfaction, demonstrating high clinical value and worth further promotion in primary healthcare settings.

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