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Current Status and Influencing Factors of Kinesiophobia in Patients with Coronary Heart Disease

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Abstract: Objective: This study aims to explore the influencing factors and associations related to kinesiophobia in patients with coronary heart disease (CHD), providing a theoretical basis for clinical interventions. **Methods:** A cross-sectional study design was employed, selecting CHD patients treated at Shaanxi Provincial People's Hospital as the study subjects. Data on patients' general information, kinesiophobia scores, rehabilitation exercise knowledge, attitudes, and practices (KAP), and social support were collected via questionnaires. **Results:** Factors such as level of rehabilitation exercise KAP and social support were found to have a significant effect on kinesiophobia. **Conclusion:** Levels of rehabilitation exercise KAP and social support are important factors influencing kinesiophobia. Future clinical efforts should involve multidisciplinary collaboration to provide personalized rehabilitation care plans to alleviate kinesiophobia and promote patient recovery.

Keywords: Coronary heart disease; kinesiophobia; rehabilitation knowledge; social support

Coronary heart disease (CHD) is one of the most common cardiovascular diseases worldwide, posing a serious threat to patients' health^[1]. With advances in medical technology, an increasing number of CHD patients achieve long-term survival through active treatment. However, exercise management during the rehabilitation period is critical for CHD patients; appropriate exercise not only improves cardiac function but also reduces the risk of recurrence and mortality^[2]. In clinical practice, many CHD patients exhibit fear of exercise, believing it may trigger cardiac events. This fear leads to reduced or avoided exercise, which is counterproductive to recovery and may even worsen their condition.

Kinesiophobia refers to an excessive concern over pain or worsening conditions triggered by physical activity, which has been shown to be common among patients with various chronic diseases^[3]. For CHD patients, kinesiophobia not only limits their daily activities but also negatively impacts their physical and mental health and quality of life^[4]. In recent years, more research has focused on the impact of kinesiophobia on the rehabilitation of CHD patients. However, specific influencing factors of kinesiophobia, especially the combined effects of psychological, social, and physiological factors, remain unclear.

This study uses a cross-sectional survey to examine the main influencing factors of kinesiophobia and



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their associations in CHD patients, aiming to provide a theoretical basis for clinical care and rehabilitation management. Targeted interventions are expected to help patients overcome kinesiophobia, improve exercise compliance, and thereby enhance rehabilitation outcomes and quality of life.

1 Subjects and Methods

1.1 Subjects

A convenience sampling method was used to select CHD patients undergoing outpatient and inpatient treatment in the cardiovascular unit from January 2025 to March 2025 as research subjects.

Inclusion criteria: (1) Meeting the diagnostic criteria for CHD as outlined in the *Chinese Guidelines for the Primary Prevention of Cardiovascular Disease*; (2) Age ≥ 18 years; (3) Cardiac function classification of Class I to III; (4) Willing to voluntarily participate in the study.

Exclusion criteria: (1) Patients with severe organic diseases, such as liver or kidney disease; (2) Patients with uncontrolled acute cardiovascular conditions; (3) Patients with mental disorders that prevent normal communication.

1.2 Research Methods

The study received approval from the hospital's ethics committee. With patients' informed consent, researchers and uniformly trained investigators explained the survey's purpose and instructions to the participants.

1.3 Research Instruments

1.3.1 General Information Questionnaire

Developed by the research team after discussion, this form collects demographic and clinical data, including gender, age, education level, occupation, marital status, living arrangements, payment method, and cardiac function classification.

1.3.2 Kinesiophobia Scale for Cardiac Patients

This scale was adapted by Swedish scholar Bäck^[5] and first applied to cardiac patients. In 2019, it was translated into Chinese by Chinese scholar Lei Mengjie^[6], achieving a Cronbach's α coefficient of 0.743 to 0.859 across dimensions, demonstrating good reliability and validity. The scale, widely used to assess kinesiophobia in cardiac patients, includes 17 items spanning four dimensions: kinesiophobia, risk perception, exercise avoidance, and functional disorder.

Items 4, 8, 12, and 16 are reverse scored, while the others are positively scored. The scale uses a Likert 4-point scale method, with the total score indicating the severity of kinesiophobia. A score above 37 indicates a high level of kinesiophobia.

1.3.3 Rehabilitation Exercise Questionnaire

Developed by Zhao Mengli^[7] in 2019 to assess CHD patients' knowledge, attitudes, and practices (KAP) regarding rehabilitation exercise, this questionnaire has a Cronbach's α coefficient of 0.833. It consists of 23 items across three dimensions: rehabilitation exercise knowledge (12 items), exercise attitude (5 items), and exercise behavior (6 items). The exercise knowledge dimension is multiple-choice, with a score range of 0–2 points per item and a total possible score of 24. The attitude and behavior dimensions use a Likert 5-point scale, with maximum scores of 25 and 30, respectively. The total score, ranging from 11 to 79, reflects the overall level of rehabilitation exercise KAP, with higher scores indicating better KAP.

1.3.4 Social Support Rating Scale

The Social Support Rating Scale was developed by Xiao Shuiyuan^[8] and colleagues in 1987, based on foreign scales and adapted to the Chinese social context. It was revised in 1990 and has since been widely applied across different population groups in China, demonstrating good reliability and validity. This scale includes 10 items across three dimensions: subjective social support (4 items), objective social support (3 items), and social support utilization (3 items). The total score is calculated by summing the scores of each item, with a maximum score of 66; higher scores indicate greater social support. Cronbach's α coefficient is 0.760, reflecting high reliability and validity.

1.4 Statistical Analysis

Data were statistically described and analyzed using IBM SPSS 25.0. Measurement data with normal distribution were expressed as means and standard deviations, while categorical data were expressed as frequencies and percentages. The independent samples t-test was used for measurement data with normal distribution, and the chi-square test was applied for categorical data, with a significance level of $\alpha = 0.05$.

2 Results

2.1 Kinesiophobia Score of Coronary Heart Disease Patients

In this study, the total score of Kinesiophobia in

patients with coronary artery disease was (36.03 ± 5.04) , showing a certain degree of tendency to exercise fear. The details of the scores of each dimension are shown in **Table 1**.

Table 1. Total kinesiophobia scale score and scores of each dimension in patients with coronary artery disease ($\bar{x} \pm s$)

Dimension	Number of Items	Dimensional Mean Score
Kinesiophobia	4	8.98 ± 2.26
Danger Perception	4	9.25 ± 3.15
Motor Avoidance	5	11.78 ± 2.47
Functional Disorders	4	6.46 ± 2.16
Total Score	17	36.03 ± 5.04

2.2 Score of KPA of Rehabilitation Exercise in Coronary Heart Disease Patients

The total score of patients' rehabilitation exercise KPA is (55 ± 7.8) , which indicates that the patient's

knowledge, attitude, and practice towards rehabilitation exercise have a certain degree of positivity. The details of the scores of each dimension are shown in **Table 2**.

Table 2. Total scores and scores of each dimension of the rehabilitation exercise KPA scoring scale in patients with coronary heart disease ($\bar{x} \pm s$)

Dimension	Number of Items	Dimensional Mean Score
Rehabilitation Sports Knowledge	12	18 ± 3.5
Exercise Attitude	5	22 ± 4.1
Exercise Behavior	6	15 ± 3.0
Total Score	23	55 ± 7.8

2.3 Social Support Score of Patients with Coronary Heart Disease

The total score of patients' social support was

(45 ± 6.3) , reflecting the level of social support received by the patients. Details of the scores for each dimension are shown in **Table 3**.

Table 3. Total score and scores of each dimension of the social support rating scale for patients with coronary heart disease ($\bar{x} \pm s$)

Dimension	Number of Items	Dimensional Mean Score
Subjective Social Support	4	20 ± 4.5
Objective Social Support	3	15 ± 3.2
Social Support Utilization	3	10 ± 2.1
Total Score	10	45 ± 6.3

3 Discussion

This study conducted a cross-sectional analysis to explore the influencing factors and associations of kinesiophobia in patients with coronary heart disease. The results showed that the level of rehabilitation exercise knowledge, attitude, practice, and social support are significant factors affecting kinesiophobia. This suggests that the psychological state and external support systems of patients with coronary heart disease have a significant impact on their fear of physical activity.

Existing literature generally identifies anxiety and depression as major drivers of kinesiophobia among CHD patients^[9]. This study further found a significant impact of the level of rehabilitation exercise knowledge, attitude, and practice on kinesiophobia. Unlike previous studies that focused solely on psychological factors, this research integrated patients' knowledge, attitude, and practice regarding rehabilitation exercise, demonstrating that patients' cognition and actual engagement in rehabilitation

exercise play a role in alleviating their exercise fear. Additionally, the study found a negative correlation between increased social support and kinesiophobia scores, which is consistent with some studies that highlight the importance of family and social support during the rehabilitation process^[10].

The development of kinesiophobia likely results from the interplay of multiple factors. According to the Health Belief Model, patients' risk perception, benefit cognition, and behavioral intentions regarding rehabilitation exercise are critical factors influencing kinesiophobia^[11]. CHD patients' kinesiophobia may stem from concerns over disease recurrence and diminished physical self-efficacy^[12]. High levels of rehabilitation exercise KAP can enhance patients' positive cognition toward exercise, boosting their confidence in physical activities and reducing fear. Moreover, social support can alleviate psychological burdens by providing emotional and informational support, thus strengthening patients' courage and confidence in engaging in rehabilitation exercise.

The results of this study have significant implications for clinical care. First, identifying patients with kinesiophobia and reducing their fear through rehabilitation education and family support is crucial. Secondly, rehabilitation care teams should focus on enhancing patients' exercise self-efficacy. This can be achieved by developing personalized exercise plans and providing evidence-based rehabilitation guidance, helping patients gradually rebuild confidence in exercise, thereby promoting their motivation and effectiveness in exercise rehabilitation.

In conclusion, this study, through cross-sectional analysis, revealed key factors influencing kinesiophobia in CHD patients, emphasizing the importance of psychological factors, rehabilitation knowledge, and social support. This provides a theoretical basis for clinical interventions. Future research should employ longitudinal and intervention studies to explore effective methods for alleviating kinesiophobia in CHD patients, ultimately enhancing their health behaviors and quality of life.

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