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ARTICLE

THE RELATIONSHIP BETWEEN SELF-EFFICACY FOR REHABILITATION AND KINESIOPHOBIA IN ELDERLY PATIENTS WITH CORONARY HEART DISEASE INTERVENTION

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ABSTRACT

Objective: To explore the relationship between self-efficacy for rehabilitation and kinesiophobia in elderly patients undergoing Percutaneous Coronary Intervention (PCI) for coronary heart disease. Methods: A convenient sampling method was used to select 254 elderly patients with coronary heart disease PCI from our hospital's cardiology department as research subjects. A general data questionnaire, Cardiac Exercise Phobia Scale, and Coronary Disease Self-Efficacy Scale were used to assess the level of kinesiophobia and self-efficacy. The Spearman correlation test was used to evaluate the correlation between the level of exercise phobia and self-efficacy for rehabilitation. Results: The score of the Cardiac Exercise Phobia Scale for elderly coronary heart disease PCI patients was (38.19±8.07), and the score of the Coronary Disease Self-Efficacy Scale was (35.94±7.75). According to the scores of the Cardiac Exercise Phobia Scale, patients were divided into a high-score group and a low-score group. The high-score group scored (30.69±3.25) on the Coronary Disease Self-Efficacy Scale, while the low-score group scored (38.04±5.67). Using the Spearman correlation test, the results showed a negative correlation between the level of exercise phobia and self-efficacy ($P<0.05$). Conclusion: The lower the level of self-efficacy in elderly patients with coronary heart disease PCI, the higher the level of kinesiophobia. This suggests that nursing staff should guide elderly coronary heart disease PCI patients to adopt healthy behaviors, improve their self-efficacy, reduce the occurrence of kinesiophobia, and promote patient rehabilitation.

KEYWORDS

Coronary heart disease, PCI; self-efficacy, kinesiophobia, elderly patients

1. Introduction

Coronary heart disease, formally known as Coronary Atherosclerotic Heart Disease (CHD), is an ischemic heart disease prevalent among the elderly. It is caused by atherosclerotic changes in the coronary arteries, leading to narrowing or blockage of the vessels, which results in myocardial ischemia, hypoxia, or even necrosis (Xing and Li, 2017; Huang ET AL., 2017). Patients often experience symptoms such as chest pain, chest tightness, and shortness of breath (Liu et al., 2022; Zhang, 2018). Clinically, Percutaneous Coronary Intervention (PCI) is often used to improve myocardial ischemia by opening narrowed or even blocked vessels (Lei et al., 2022; Zhang, 2022). However, PCI does not eliminate the causes of CHD, and the atherosclerotic changes continue to progress, with postoperative complications such as stent dislodgment, coronary artery restenosis, and myocardial infarction occurring (Zhang, 2022; Zhang et al., 2022). Studies have shown that cardiac rehabilitation, centered around exercise, can effectively improve cardiac function in patients after coronary heart disease PCI surgery (Jiao et al., 2020; Wang et al., 2018). kinesiophobia, also known as exercise phobia, occurs in CHD patients due to discomforts such as chest tightness, fatigue, pain, and dyspnea after exercise (Liu et al., 2017; Song et al., 2022). Even after PCI, patients may still experience exercise phobia, severely affecting their quality of life and rehabilitation (Chen et al., 2022; Zheng et al., 2022). Research in various fields considers self-efficacy to be an important factor influencing fear-avoidance behaviors (Qin et al., 2022; Xu et al., 2021), and studies on the relationship between self-efficacy for rehabilitation and kinesiophobia in elderly patients with coronary heart disease PCI are relatively rare. Therefore, this study aims to explore the relationship between self-efficacy for rehabilitation and kinesiophobia in elderly patients with coronary heart disease PCI.

2. Subjects and Methods

2.1 Survey object

A questionnaire survey was conducted among elderly CHD patients who underwent PCI in the Department of Cardiology of our hospital from March 2021 to March 2022 using a convenient sampling method. Inclusion criteria: (1) meeting the diagnostic criteria for coronary heart

disease in the "Guidelines for Primary Prevention of Cardiovascular Disease in China" (Xu); (2) age ≥60 years; (3) knowing their own condition and diagnosis; (4) understanding and voluntarily participating in this study and signing the informed consent form. Exclusion criteria: (1) patients with consciousness disorders or mental illnesses; (2) patients with other major diseases; (3) patients with exercise contraindications according to the expert consensus on the standard for prohibiting exercise.

2.2 Research methods

2.2.1 Survey Tools

2.2.1.1 General Information Questionnaire

The self-designed scale was used to collect the general demographic data of patients, including age, gender, marital status, education level, residence, living conditions, hypertension history, diabetes history, whether there is heart failure, angina attack, stent number, time after PCI, exercise habits.

2.2.1.2 Fear of movement scale for patients with heart disease

The Tampa Scale for Kinesiophobia Heart (TSK-SV Heart) is used to assess the degree of kinesiophobia in patients with heart disease. The scale was adapted by Swedish scholars Bäck et al. (2012) in 2012 from the Tampa Scale for Kinesiophobia (TSK) (Millerr et al., 1991), and was translated into Chinese by Lei Mengjie et al. (2019) in 2019. The scale has 17 items and is divided into 4 dimensions: "perception of danger", "kinesiophobia", "avoidance of exercise", and "functional disorder". Items 4, 8, 12, and 16 are reverse-scored items using a Likert 4-point scale, ranging from "strongly disagree" to "strongly agree", with a total score of 1-4 points. A total score of >37 points indicates the presence of kinesiophobia. The Cronbach's α coefficient of this scale is 0.859, indicating good reliability and validity.

2.2.1.3 Coronary Heart Disease Self-Efficacy Scale

The self-efficacy scale for coronary heart disease was used to assess the self-efficacy of CHD patients in terms of physiology, role, and function. The scale was developed by Sullivan et al. in 1998 and translated into Chinese by Xie Boqin et al. in 2011. The scale has 16 items and is divided into two dimensions: "function maintenance" and "symptom maintenance". It uses a Likert 5-point rating scale, ranging from "completely lacking confidence" to "very confident", with a total score of 0-64 points. The higher the score, the stronger the patient's self-efficacy. The score indicator was used for analysis, with the score indicator = (actual score of the scale/possible maximum score of the scale) × 100%. The score indicator was divided into three levels: score indicator <60% for low self-efficacy level, score indicator between 60% and 80% for medium self-efficacy level, and score indicator >80% for high self-efficacy level. The Cronbach's α coefficient of this scale is 0.82, indicating good reliability and validity.

2.2.2 Data collection methods

(1) Before the survey, researchers need to receive systematic training. After mastering the use of various assessment tools and communication skills with patients, researchers enter the hospital to conduct research activities and collect data. (2) During the research process, researchers need to first assess the physical condition of patients and choose to collect data when the patient's condition and mood are stable. If there are changes in the patient's condition during the collection process, the data collection should be suspended as appropriate. (3) Before patients fill out the questionnaire, researchers explain some relevant matters about the survey to patients, including the purpose, significance, and content of the questionnaire. If patients have any questions about the survey, researchers need to answer them in a timely manner. After patients agree to participate in the survey and sign the informed consent form, the questionnaire is distributed. (4) An anonymous questionnaire is distributed to patients. If patients cannot complete the questionnaire alone due to physical reasons, researchers or patient family members can read the content of the questionnaire and answer verbally. The researchers will fill in the questionnaire on behalf of the patient. (5) It takes about 10-20 minutes to complete the entire questionnaire. After completing the questionnaire, it is collected on the spot. The researchers check the answers and confirm them with the patient again if there are any irregularities in the questionnaire filling, logical loopholes, and other issues to improve the accuracy of the survey results. (6) When organizing data, two researchers are responsible for checking, verifying, and entering data. A third researcher conducts a review and error correction, and classifies questionnaires with irregular filling, missing data, and logical loopholes as invalid questionnaires. In this study, 261 questionnaires were actually distributed, and after excluding invalid questionnaires, 254 valid questionnaires were collected, with a valid recovery rate of 97.32%.

2.2.3 Statistical methods

All data were statistically analyzed using SPSS 25.0. The mean and standard deviation were used to describe the scores of the survey subjects' fear of movement and self-efficacy. Spearman correlation analysis was used for correlation analysis, and $P<0.05$ indicated a statistically significant difference.

3. Results

3.1 General information of participants

This study included a total of 254 elderly CHD patients, with an average age of 71.29 ± 3.06 years. Additional demographic details are presented in Table 1.

3.2 Scores of fear of movement and self-efficacy in elderly patients with coronary heart disease undergoing PCI

The total score of TSK-SV Heart for 254 elderly patients with coronary heart disease after PCI was 46-30 (38.19±8.07) points, and the score of the self-efficacy scale for coronary heart disease was 43-27 (35.94±7.75) points. The scores of each dimension are shown in Table 2.

3.3 Comparison of TSK-SV Heart scores between high and low scoring groups in coronary heart disease self-efficacy scale

Based on the TSK-SV Heart scores from Table 2, patients were categorized into two groups: those with scores ≥38 points were placed in the high scoring group, consisting of 138 cases, while those with scores <38 points were placed in the low scoring group, consisting of 116 cases. The scores from the coronary heart disease self-efficacy scale, including its two dimensions and the total scores, were compared between these groups. Results indicated that the scores in the low scoring group were higher than those in the high scoring group, with the differences being statistically significant ($P<0.05$). For specific details, please refer to Table 3.

3.4 Analysis of the correlation between TSK-SV heart scores and coronary heart disease self-efficacy scale scores in elderly coronary heart disease PCI patients

The TSK-SV Heart scores in elderly coronary heart disease PCI patients exhibit a negative correlation with the function maintenance dimension, symptom maintenance dimension, and overall coronary heart disease self-efficacy scale scores ($P < 0.05$). Refer to Table 4 for detailed information.

4. Discussion

4.1 The presence of kinesiophobia in elderly patients with coronary heart disease undergoing PCI

Kinesiophobia, or the fear of movement, refers to the apprehension patients feel about experiencing pain during functional rehabilitation exercises and daily activities, which can result in reduced physical activity and delayed recovery (Liu et al., 2020; Liu et al., 2022). The term "Kinesiophobia" was first introduced by Kori et al., (1990), characterizing an individual's irrational and excessive fear of pain or reinjury associated with physical activity. In 2012, Hu Wen translated "Kinesiophobia" into Chinese as "Kong dong Zheng" and applied it in research on patients with degenerative back and leg pain (Hu, 2012). Since then, the term has been widely used in studies on various diseases, including lung cancer, breast cancer, and coronary heart disease (CHD)

Table 1: Additional demographic details are presented		
Category	Number (n)	Percentage (
Age		
Less than 70 years	178	70.08
Greater than 70 years	76	29.92
Gender		
Male	129	50.79
Female	125	49.21
Marital Status		
Widowed	68	26.77
Married	171	67.32
Single	15	5.91
Educational Level		
Middle school or lower	150	59.06
High school (vocational)	77	30.31
University (college) or above	27	10.63
Place of Residence		
Urban	123	48.43
Rural	131	51.57
Living Situation		
Living alone	31	12.20
With spouse	162	63.78
With children	61	24.02
Hypertension		
Yes	106	41.73
No	148	58.27
Diabetes		
Yes	159	62.60
No	95	37.40
Heart Failure		
Yes	101	39.76
No	153	60.24
Angina Attacks		
No attacks	32	12.60
≥1times/day	46	18.11
≥1times/week	81	31.89
<1times/month	95	37.40
Number of Stents		
0	29	11.42
1	72	28.35
2	85	33.46
3	42	16.54
4	26	10.24
Time After PCI		
≤2weeks	113	44.49
2 weeks to 6 months	91	35.83
7 months to 1 year	50	19.69
Exercise Habits		
Never	67	26.38
1–3days/week	89	35.04
3–5days/week	63	24.80
More than 5 days/week	35	13.78

Table 2: Scores of fear of movement and self-efficacy in elderly patients with coronary heart disease undergoing PCI (n=254)

Project	score (x±s, points)
TSK-SV Heart	38.19±8.07
Perception of danger	5.75±1.18
Fear of movement	11.64±2.08
Motion avoidance	7.93±1.41
Dysfunction	12.87±1.26
Self-efficacy scale of coronary heart disease	35.94±7.75
Function maintenance	16.80±7.40
Symptom maintenance	19.14±4.67

Table 3: Comparison of TSK-SV Heart scores between high and low scoring groups in coronary heart disease self-efficacy scale(x±s)

Group	Total CHD Self-efficacy Scale Score(x±s)	Function Maintenance Dimension Score(x±s)	Symptom Maintenance Dimension Score(x±s)
High Score Group(n=138)	30.69±3.25	13.71±2.06	16.98±1.94
Low Score Group(n=116)	38.04±5.67	17.35±3.21	20.69±3.18
t-value	12.9146	10.9148	11.4120
P-value	$p<0.001$	$p<0.001$	$p<0.001$

Table 4: Analysis of the Correlation between TSK-SV Heart Scores and Coronary Heart Disease Self-efficacy Scale Scores in Elderly Coronary Heart Disease PCI Patients

Item	CHD Self-efficacy Scale Score	Function Maintenance Dimension Score	Symptom Maintenance Dimension Score
Correlation Coefficient ®	-0.637	-0.574	-0.610
P-value	$p<0.001$	$p<0.001$	$p<0.001$

(Guo et al., 2021; Ren et al., 2022; Zhang et al., 2020). The prevalence of kinesiophobia is particularly high among CHD patients, with over 70% in Poland and more than 40% in China diagnosed with the condition (Dąbek et al., 2020; Song et al., 220). Research indicates that the likelihood of developing kinesiophobia among CHD patients increases with age (Cui and Lei, 2019; GOŁBA et al., 2018), making elderly CHD patients especially vulnerable.

Our survey revealed that elderly CHD patients undergoing percutaneous coronary intervention (PCI) scored high on the TSK-SV Heart scale, with over 50% exhibiting kinesiophobia. This rate is higher than those reported in previous studies by Liu et al., (2020) and Sun (2019). Three potential reasons for these findings are: (1) Many elderly patients have a low level of education and lack sufficient understanding of their disease and treatment options. Influenced by traditional beliefs, they often assume that having coronary heart disease necessitates avoiding exercise, and they are unfamiliar with rehabilitation methods and appropriate training intensity, leading to avoidance of physical activity. (2) After undergoing PCI, some elderly patients fear that the stent might dislodge, causing anxiety and reluctance to engage in exercise or even daily activities. (3) As they age, the physical strength of elderly patients gradually declines, along with their enthusiasm for exercise, even if they are aware of the benefits of rehabilitation. Consequently, the occurrence of kinesiophobia is relatively high among the elderly CHD patients in this study.

4.2 Current state of Self-efficacy among elderly patients with coronary heart disease undergoing PCI

Self-efficacy, defined as an individual's belief in their capability to execute a specific task, was first introduced by American psychologist Albert Bandura in the 1970s. Since then, it has been extensively developed and applied across numerous fields (Chen et al., 2017; Hu et al., 2018; Han et al., 2022; Zeng et al., 2017). Research indicates that self-efficacy is a crucial factor influencing health outcomes. In the current study, the self-efficacy scores for elderly patients with coronary heart disease (CHD) who underwent percutaneous coronary intervention (PCI) were recorded at 35.94 ± 7.75, which is notably lower than those reported in other studies (Liu et al., 2019). This discrepancy may be attributed to the elderly perceiving their advanced age and the severity of their heart condition as significant obstacles, thus considering the surgical risks to be high and potentially leading to complications that hinder full recovery. As a result, these patients often experience anxiety and depression following their diagnosis, adopt a pessimistic outlook on their recovery, and display low confidence levels. Therefore, it is evident that the self-efficacy of elderly CHD patients undergoing PCI is generally low.

4.3 Negative correlation between TSK-SV heart scores and coronary heart disease self-efficacy scale scores in elderly patients with coronary heart disease undergoing PCI

This study's findings indicate that there is a significant negative correlation between TSK-SV Heart scores and coronary heart disease self-efficacy scale scores among elderly CHD patients undergoing PCI. The lower the self-efficacy scores, the higher the TSK-SV Heart scores. These results align with previous findings (Ren et al., 2022), suggesting that the longer recovery time post-PCI, recurrent nature of the condition, and loss of confidence in cardiac rehabilitation due to anxiety and fear exacerbated by pain contribute to reduced self-efficacy and increased fear of movement. These findings underscore the need for healthcare providers to closely monitor patients, manage any adverse physical reactions promptly, provide emotional support when negative feelings arise, and boost patient confidence.

5. Conclusion

In conclusion, the lower the self-efficacy levels among elderly patients with CHD undergoing PCI, the higher the levels of kinesiophobia. Nursing staff should focus on encouraging these patients to shift their health perceptions, adopt healthier behaviors, enhance their self-efficacy, engage actively in cardiac rehabilitation exercises, and reduce the occurrence of kinesiophobia to promote recovery.

Conflict of Interest Statement

All members declare no conflicts of interest.

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References

Bäck, M., Jansson, B., Cider, A., et al. 2012. Validation of a questionnaire to detect kinesiophobia (fear of movement) in patients with coronary artery disease. Journal of Rehabilitation Medicine, 44(4), Pp. 363-369.

Chen, S., Chen, W., Zhang, Y., et al.2022. Current status of kinesiophobia and its influencing factors in middle-aged and young patients with coronary heart disease during the long-term rehabilitation period after percutaneous coronary intervention. Guangxi Medical Journal, 44(4), Pp. 454-457.

Chen, Z., Han, X., Ju, M. 2017. Survey on self-efficacy and quality of life of cancer patients with cancer pain. Journal of Practical Medicine, 33(4), Pp. 636-638.

Chinese Society of Cardiology, Chinese Association of Rehabilitation Medicine Cardiac Prevention and Rehabilitation Professional Committee, Chinese Society of Geriatrics Cardiology Professional Committee, et al. 2020. Guidelines for primary prevention of cardiovascular diseases in China. Chinese Journal of Cardiovascular Diseases, 48(12), Pp. 1000-1038.

Cui, G., Lei, M. 2019. Study on the factors influencing kinesiophobia in patients with coronary heart disease. Tianjin Nursing, 27(3), Pp. 293-298.

Dąbek, J., et al. 2020. Fear of movement (kinesiophobia) - an underestimated problem in Polish patients at various stages of coronary artery disease. Annals of Agricultural and Environmental Medicine, 27(1), Pp. 56-60.

GOŁBA, A., SORAL, T., MŁYNARSKA, A., et al. 2018. Kinesiophobia in patients with cardiovascular disease. Wiad Lek, 71(9), Pp. 1653-1660.

Guo, W., Zhao, S., Zhao, L. 2021. Research progress on kinesiophobia in patients with coronary heart disease. General Nursing, 19(31), Pp. 4378-4380.

Han, J., Amina, Q., Ayiguli, M., et al. 2022. The effect of PDCA cycle nursing management on secondary infections and self-efficacy in elderly patients with advanced lung cancer undergoing chemotherapy. Chinese Medicine.

Han, Y. 2017. New advances in interventional treatment of coronary heart disease. Journal of Clinical Military Medicine, 45(6), Pp. 551-557.

Hu, M., Han, Y. 2018. The effect of evidence-based nursing on medication adherence, self-efficacy, and angina pectoris attacks in patients with coronary heart disease angina. China Medicine Guide, 15(7), Pp. 177-180.

Hu, W. 2012. Cultural adaptation of the simplified Chinese versions of the TSK and FABQ scales and their application in patients with degenerative lumbar-leg pain. Second Military Medical University, Shanghai.

Huang, Z., Nie, X., Chen, Y., et al. 2017. Overview of medical understanding and related drug treatment for coronary heart disease. Shaanxi Traditional Chinese Medicine, 38(1), Pp. 135-136.

Jiao, H., He, Y., Lin, W. 2020. Application of continuing self-management

Kori, S. 1990. Kinesiophobia: a new view of chronic pain behavior. Pain Management, 3(1), Pp. 35-43.

Lei, M., Liu, T., Xiong, S., et al. 2019. Chinese translation and validation of the cardiac disease version of the fear of movement scale. China Nursing Management, 19(11), Pp. 1637-1642.

Lei, Q., He, P., Peng, T., et al. 2022. Current status and influencing factors of health empowerment in patients after emergency PCI for coronary heart disease. Central South Medical Science Journal, 50(2), Pp. 279-282.

Liu, C., Zhong, C., Luo, C., et al. 2020. Analysis of factors related to kinesiophobia in patients with chronic obstructive pulmonary disease. Journal of Xinjiang Medical University, 43(10), Pp. 1328-1331.

Liu, J., Liu, M., Qi, Y. 2022. Analysis of risk factors for fear of disease progression in patients with coronary heart disease based on symptom management theory. Nursing Research, 36(10), Pp. 1771-1778.

Liu, Q., Huang, X. 2022. The effect of graded exposure therapy on kinesiophobia and psychological resilience in patients with coronary heart disease. Chinese Journal of Practical Nursing, 38(11), Pp. 836-842.

Liu, T., Deng, G., Lai, J. 2020. Survey and analysis of factors influencing kinesiophobia in patients after coronary stent implantation. Qilu Nursing Journal, 26(8), Pp. 109-112.

Liu, W., Wang, J., Luo, Y., et al. 2019. Analysis of factors affecting the quality of life of patients with coronary heart disease based on structural equation modeling. Journal of Nursing, 34(12), Pp. 20-23.

Liu, Y., Cai, L., Xu, Q., et al. 2017. Research progress on kinesiophobia in patients with chronic pain. Chinese Journal of Nursing, 52(2), Pp. 234-239.

Millerr P, Kori S, Todd D. 1991, The Tampa scale: a measure of kinesiophobia. Clinical Journal of Pain, 7(1), Pp. 51-2.

Qin, J., Xiong, J., Pan, X., et al. 2022. Analysis of the current status and influencing factors of kinesiophobia in elderly patients with chronic heart failure. Chinese Journal of Nursing, 57(4), Pp. 408-414.

Ren, P., Zhang, Y., Ding, L., et al. 2022. The mediating effect of kinesiophobia on self-efficacy and exercise compliance in patients after percutaneous coronary intervention for acute myocardial infarction. PLA Nursing Journal, 39(1), Pp. 21-24.

Ren, Z., Chen, X., Liu, Z., et al. 2022. Cognitive behavioral intervention for postoperative kinesiophobia in lung cancer patients. Journal of Nursing Management, 22(4), Pp. 235-239+289.

Song, X., Ma, S., An, L., et al. 2022. Analysis of risk factors for kinesiophobia in patients with coronary heart disease angina. China Nursing Management, 22(5), Pp. 675-680.

Song, X., Ma, S., Peng, Y., et al. 2022. Analysis of factors influencing kinesiophobia in patients with coronary heart disease based on structural equation modeling. Journal of Nursing, 37(12), Pp. 64-67+78.

Sullivan, M., Lacroix, A., Russo, J., et al. 1998. Self-efficacy and self-reported functional status in coronary heart disease: a six-month prospective study. Psychosomatic Medicine, 60(4), Pp. 473-478.

Sun, M. 2019. Study on the correlation between kinesiophobia, self-perceived burden, and quality of life in middle-aged and young patients with coronary heart disease. Yan'an University.

Xie, B., Xu, L. 2011. Current status of self-management behaviors and their predictive factors in patients with coronary heart disease. 解放军护理杂志 (PLA Nursing Journal), 28(06), Pp. 3-7.

Xing, K., Li, W. 2017. Progress in diagnosis and treatment of coronary heart disease. Journal of Cardiovascular Rehabilitation Medicine, 26(3): 346-349.

Xu, F., Zhang, Q., Chen, X., et al. 2021, Bibliometric and visual analysis of lumbar pain rehabilitation research. Chinese Journal of Rehabilitation Theory and Practice, 27(3), Pp. 349-360.

Zeng, X., Liu, H., Wang, Y., et al. 2017. Analysis of the level of self-efficacy and its influencing factors in tuberculosis patients. Chinese Journal of Infection Control, 16(6), Pp. 511-515+531.

Zhang, Q. 2022. The value of plasma Lp(a) combined with EuroSCORE II in predicting adverse cardiovascular events after elderly coronary heart disease PCI surgery. Journal of North Sichuan Medical College, 37(7), Pp. 932-934+946.

Zhang, S., Wang, J., Zhao, J., et al. 2020, Current status and influencing factors of postoperative kinesiophobia in breast cancer patients. Journal of Nursing, 35(19), Pp. 24-27.

Zhang, Y. 2018. New thoughts on the typing of coronary heart disease. Chinese Journal of Cardiovascular Diseases, 46(11), Pp. 831-832.

Zheng, X., Jin, M., He, T., et al. 2022. Predictive value of serum sCD163/sTWEAK ratio for in-stent restenosis after PCI in AMI patients. Journal of Cardiovascular Rehabilitation Medicine, 31(5), Pp. 581-585.

Zheng, Y., Zhao, H., Wang, X., et al. 2022. Current status and influencing factors of kinesiophobia in patients with coronary heart disease after percutaneous coronary intervention. Shanxi Medical Journal, 51(6), Pp. 611-614.