Original Article

Angina Self-Management Plan and Quality of Life, Anxiety and Depression in Post Coronary Angioplasty Patients

Zhang Mei [1], Kan Lei [2]*

Abstract

Background:
Patients suffering from coronary artery diseases have some depression and anxiety, as these are the frequent causes of mortality. The self-management programmes showed noteworthy effects on the chronic illnesses.
Aim: The current study was carried out to evaluate the impacts of the angina plan on depression, anxiety, and QoL in individuals after angioplasty.
Methods: This study was done in various specific hospitals and divided the patients into groups such as experimental and control. Height, weight, and blood pressure were also measured. The history of vascular coronary involvement, hypertension, hypercholesterolemia, diabetes, and smoking were also obtained. Then a twelve-week intervention plan for angina was also performed.
Results: The results regarding depression and anxiety were also analysed by t-test independently using SPSS. The difference between the two groups was not statistically significant, indicating that the angina self-management plan was effective in reducing anxiety and improving QoL 's perception.
Conclusion: According to study findings and the favourable features of the angina approach to decreasing anxiety as an essential component in the prognosis of coronary artery disease (CAD), it is envisaged that the use of these programmes will play a key role in monitoring the CAD process and preventing coronary events. [*Ethiop. J. Health Dev.* 2023; 37(1) 000-000]
Keywords: Patient Education, Cardiovascular Disease, Self-care.

Introduction

Cardiovascular diseases are non-communicable, progressive, and chronic diseases that are also life-threatening, and they are a common cause of hospitalisation for adults (1). The rise in chronic illnesses is exceedingly expensive to cure and is a huge challenge for the global economy (2-3). Several treatment therapy like transluminal angioplasty and bypass graft of the coronary artery are utilized for the treatment of CAD. Such therapies can alleviate symptoms and extend life, but as they are intrusive, there is a danger of initial surgical mortality and morbidity, as well as the requirement for a lengthy recovery time, and surgical centres require specialised staff and infrastructure (4). Hence, all the treatment modalities failed to control the chest pain. Even without significant findings of angina. Therefore, some patients complains on angina after revascularization (5).

On the other hand, recurrent angina can be related to various structural causes like progression of atherosclerosis, incomplete revascularization, in-stent thrombosis, in-stent restenosis, stretch pain, and many other functional causes that also include epicardial spasms and coronary vascular dysfunction (6). After angioplasty, the reason for recurrent angina may be the persistence and continuation of the atherosclerosis process (7-10). It is a recurrent condition encountered by many cardiologists in clinical practice. In addition, the discomfort also causes restrictions on human life expectancy. Importantly, these patients experience depression and anxiety. On the other hand, coronary heart diseases have increased, especially among patients with nervousness disorders (10-12).

The occurrence of this health issues in disheartened patients has also been linked to comorbid nervousness (13). So it is a serious cause and an important risk factor for coronary artery disease. As depression and anxiety are known as risk factors for angina, negative emotions also play a very important role in maintaining and producing depression and anxiety (14). Therefore, negative emotions must be corrected in patient care. These emotions are due to the misconceptions and misbeliefs about the causes of illness that affect its prognosis significantly. An individual's behaviours are affected by their beliefs and attitudes. For instance, some CAD patients also believe that this problem is hereditary and genetic, so they can hold a misleading attitude or harmful behaviours like poor diet and smoking (15).

Controlling the cause of a disease is not just necessary and important for cognition to change behavior, but for mood. In addition, correcting the misconceptions of the patients also leads to a reduction in the level of depression, anxiety, and treatment costs (16). Correction of misconceptions about patients must be considered in the programme of cardiac rehabilitation (17). Home sessions, which use the attentive approach of patients like angina plan and heart manual strategy, have also progressed to give community-based help and nurse-led packages for individuals who can't participate in the programmes of hospitals (18, 19). The plan for angina is a self-management cognitive behavioural programme for individuals with stable angina (20).

The attainment of this programme needs adequate knowledge of angina and dealing, capability for implementing management actions, or request of needed skills for the protection of psychological functions (21, 22). These rehabilitation sessions are designed to help CAD patients in various ways. These programmes are provided through various educational

[1] Department of Nursing and Midwifery,Jiangsu College of Nursing; Huaian Jiangsu, 223300, China
[2] Ruijin Hospital Affiliated to Shanghai Jiaotong University; Shanghai, 200025
Corresponding author Email: kangleilei1818@yeah.net

sessions and teach the patients about different risk factors like obesity, smoking, hypertension, hypercholesterolemia, and diabetes mellitus. In general, individuals also learn to alter their inactive lifestyles (23). Besides this, the importance of sessions and instructive rehabilitation platforms can't be disregarded. It is necessary to highlight the patient's role in the management of disease (24).

Patient empowerment through self-management programmes and training is important for individuals with CAD and can lead to much better outcomes (25). Therefore, evidence also exists that supports the empowerment program's transcendence to various traditional educational programs. In general, based on the literature review of some studies that have been performed already, the importance of this training and programmes has been proven for many other diseases like renal failure and diabetes mellitus (26). This self-management training for coronary angioplasty patients, however, is uncommon. In this regard, the study's attempted to evaluate the influence of the self-management angina strategy programme on sadness, anxiety, and QoL in patients undergoing coronary angioplasty.

Materials and Methods

Clinical trial Procedure

This was a clinical trial controlled by a parallel group that consigned various qualified individuals who had also been experiencing an angioplasty programme to obtain routine care and angina strategy. A very simple technique of randomization was used in this regard. We enrolled eighty (80) patients, with 40 individuals in each. To detect the difference of 0.63 (SD: 0.94) between these groups as a QoL dimension with 0.05 types 1 error rate, 10% dropout rate, and 80% power. On the other hand, we advanced the possible individuals over the four-month period at various clinics that are referral and general clinics with more than 500 beds. All the facilities were provided.

Out of more than 200 patients with angioplasty in hospitals who were evaluated, 20 declined, and more than 100 were excluded due to lack of inclusion criteria. In this regard, 80 individuals met these inclusion criteria or agreed to participate. Thus, all 80 individuals delivered the informed agreement for contribution. All the individuals in the experimental and control sets also go in for a post-test.

Inclusion criteria

The inclusion criteria have the following items: ability to perform intervention plan, accessibility by telephone, willingness to participate in research, ability to understand Persian, ability to understand instructions for intervention that is based on the judgement of the researcher, educational level must be at least sixth grade, age between 38 and 68, and angioplasty treatment according to the medical report of the patients.

Exclusion criteria

On the other hand, exclusion criteria also included history of at least three or four coronary vascular involvement depending on the report of angiography, previous participation in any informal or formal programme for coronary disease, taking 11 or higher scores in depression and anxiety on the hospital scale of depression and anxiety, life-threatening or severe diseases, psychological and mental confusion that is diagnosed by the physician of patients, and dementia. We disqualified any individual lacking a contract and a complete agreement form.

Post-angiography

Individuals involved were admitted for post-angiography after treatment. After the stabilisation of the patient's condition, the forms of personal characteristics, SAQ, also calledthe Seattle Angina Questionnaire, and HADS, were also completed for the face-to-face interview. We recorded the demographic data of each patient that also included educational level, marital status, sex, age, weight, and height for the calculation of body mass index. The height was taken without hair ornaments and with bare feet to the nearest 0.5 cm, and the weight of the body was measured to the nearest 0.1 kg. Blood pressure was also measured using the standardised sphygmomanometer. Therefore, all these quantities were done under similar conditions by using similar devices or by similar researchers.

To regulate the superfluous elements, we also noted hypertension, hypercholesterolemia, diabetes, and smoking history in the individualised data of patients during their interviews. As a result, we obtained information about the strictness of vascular participation, such as double and single vessels, as well as disease grade, from patients' medical records. Severity and disease grade were also determined by the treating consultant according to the report of angiography. HADS and SAQ questionnaires were also completed by both control groups and experimental immediately and at baseline under the supervision of researchers after intervention. On the other hand, SAQ is the leading QoL measure related to health for patients with CAD. In general, this instrument just measures five QoL dimensions for patients with CAD, like QoL perception, treatment satisfaction, angina frequency, angina stability, and physical limitation.

The initial portion of the survey contains physical boundaries that include double sub-contracts those degree limitations on the regular actions of signs of angina. In its second part, there was a scale of angina constancy that also measures the alteration in angina occurrence during strenuous activity of patients. Therefore, in the third portion, the symptom's angina frequency identifies how often each individual experiences symptoms. In the fourth portion, there was a satisfaction scale for treatment that assessed the physician's explanations, satisfaction with the treatment, and overall satisfaction. Finally, in the fifth portion, which pertains to the QoL's perception, the impact of angina on the QoL is measured. On the other hand, it was translated into other languages like Farsi using the standard method of translation by two translators.

Factor analysis

In general, factor analysis also determined dimension numbers that were also reliable with inventive questionnaires. Therefore, the scopes also included

corporal limitations regarding QoL perception, treatment satisfaction, symptom frequency, angina stability, and physical limitations regarding heavy activities and light activities. All elements of that questionnaire used descriptive scales of 5 to 6 points. On the other hand, this is recorded by just conveying every response value, starting with one, for the deepest functioning level. So, the elements are summed up into six or five subscales. So, these scores were also transformed into the range from zero to a hundred just by subtracting the lowest scale, multiplying by a hundred, and dividing by the range of scale. Because every scale monitors the unique CAD-related dimension of QoL, no score or summary is generated. Another instrument was developed and confirmed reliability and validity. The coefficient was 0.78 on anxiety items and 0.86 on depression items.

It should be noted that it is only suitable for screening, and a professional must make a definite diagnosis of depression and anxiety. HADS has been recycled to study the rates of depression and anxiety in individuals with chronic diseases and renal failure. The questionnaire also includes 14 elements with the other two subscales, like depression and anxiety. Every element is scored from zero to three. The total score of both depression and anxiety ranges from zero to twenty-one and is divided into three basic levels for domains of depression and anxiety like "definite" and "score is more than or equal to 11", "doubtful" and "score range is eight to ten", and "normal" which has a score ranges from zero to seven.

Self-management strategy for angina

The intervention that was used in the investigational portion was the self-management strategy for angina. In general, that involvement was also applied depending upon the guide. Some researchers completed a course based on distance learning successfully to develop the best organiser for the Angina strategy and got a working diploma. The phenomenon of implementation of that angina plan also commenced with a thirty-to-forty-minute interview with other assessments that are mentioned below;

1. It consists of an angina plan outline with subjects such as audiotaped relaxation and patient-held workbook.
2. Assessment of patients' misconceptions about angina and CAD via angina strategy questionnaire, recording delusions on chart, correcting and discussing misconceptions with individuals and in the presence of companion and closest relative, and correcting illness understandings and changing their beliefs.
3. Employed with individuals to classify individual danger factors of disease in accordance with the risk quiz of angina plan. Some risk factors like overweight, obesity, diabetes, hypertension, and hypercholesterolemia according to calculated BMI and status of smoking were separately assessed for every patient. The facilitator also provides some basic explanations about risk features for every individual and evaluates the priority of individuals for change in lifestyle and formulates goals for the first week. Hence, the individual could decide on the section they wanted for the purpose of reading and apply it according to the direction of the quiz.
4. By describing the negative effects of restlessness and overactivity, the facilitator assisted individuals in breaking vicious cycles or increasing levels of physical activity by setting goals and striding for improved aptness. So it assists the individuals to return to their abandoned activities. For this purpose, individuals identify their personal goals. In pacing, individuals selected a baseline activity that was symptomless but also practised it daily for a week. This action was designed to require eighty percent of her or his ability to perform as well as walk in other events. After a week, the action would be increased slightly if it became easy.
5. Individuals were asked to practise relaxation just by listening to a cassette each day for twenty minutes. The facilitator also described the merits of relaxation techniques to control angina and various strategies to complete these techniques.
6. The notebook also contained supplementary material in written form about some of the frightening misconceptions and thoughts involved in activating anxiety and adrenaline release as well as how it could end in poor plans.

Data Analysis

Inferential and descriptive statistics that include t-test and its equivalent tests, ANOVA, standard deviation, mean, percentage, and frequency were used to analyse data using SPSS. We selected the inferential statistics for variables dependent on the result of the test and measured the magnitude of reliant variables. Therefore, all individuals were also included in the investigation. In general, quality of life information depends on SAQ. Depression and anxiety were also evaluated according to the Hospital Anxiety and Depression Scale (HADS).

Result

The results depend on analysis of eighty patients (Fig 1).

Patient Characteristics

To ensure the control groups and experimental groups were matched with demographic and qualitative variables, chi-square was used for all these variables (Fig 2-3). The test also confirmed no significant differences like disease severity, hypercholesterolemia, and hypertension of more than 0.9, diabetes is equal to 0.317, and smoking is equal to 0.175 (Fig. 4, 5).

On the other hand, two groups were not significantly different in education levels, and p was equal to 0.279. So, prior to intercession, no significant changes in BMI occur and p is equal to 0.268, for BP, p is equal to 0.561, and for weight, p is equal to 0.071 (Fig 3, 4, and 5).

The results of this study show that the use of NIV in severe lung injury/severe respiratory distress disease is associated with at least half the success rate of preventive intubation and is effective for 65% of preventive deaths. These results are limited by enormous clinical and measurable heterogeneity, but there is no evidence of a trend in distribution. Each survey includes severe lung injury/severe respiratory

distress disease patient models collected through the US-Europe agreement and detailed intubation and mortality. Table 1 shows the attributes of this model, including age, gender, ICU severity score, respiratory rate, and blood gas self-esteem.

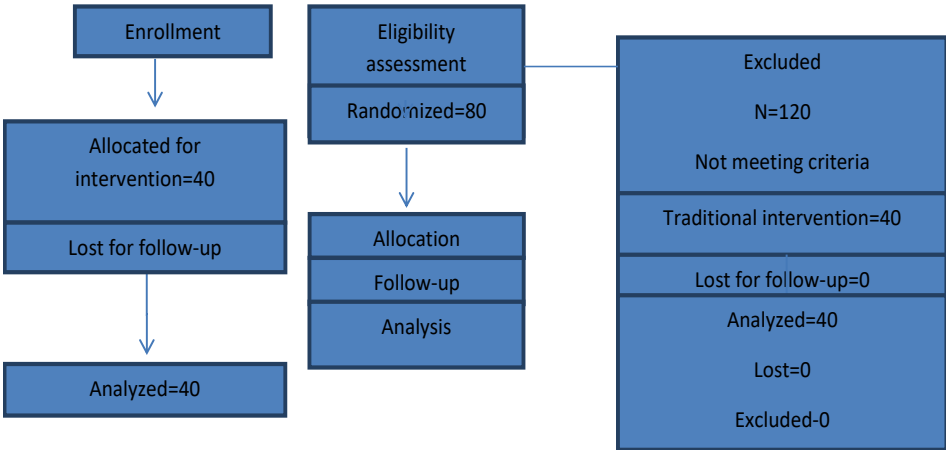

Figure. 1. Assessment of Experimental Process

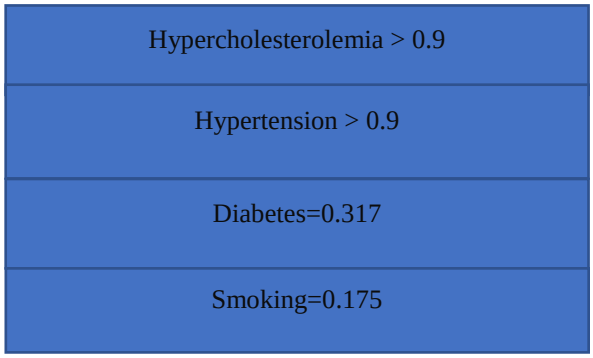

Figure 2a. Markers of cardiac risk

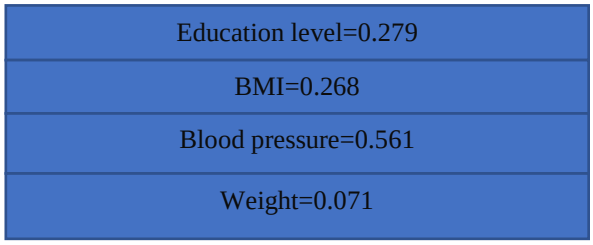

Figure 2b. Qualitative variables

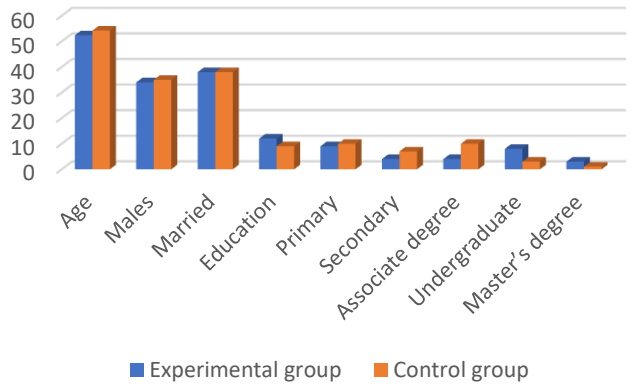

Figure 3. Baseline Demographic Variables

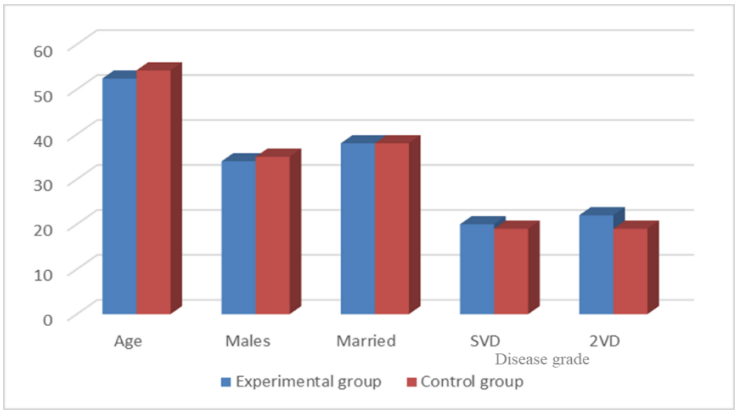

Figure 4. Baseline Disease Grade Variables

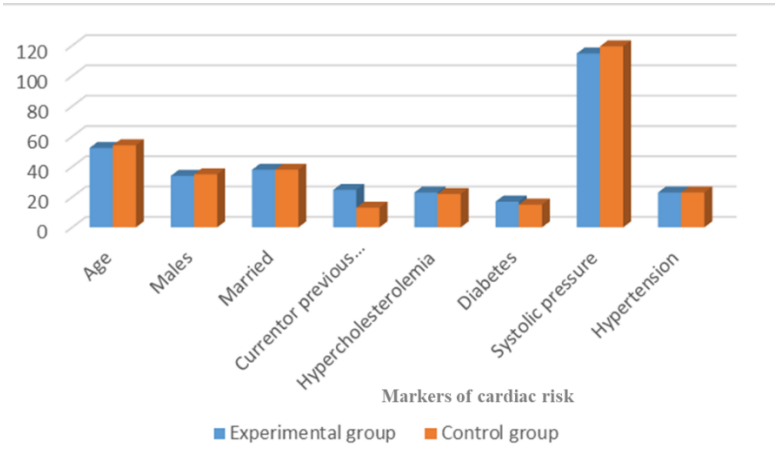

Figure 5. Markers of Cardiac Risk

Intervention Effect on QoL

In this study, limitations 1, 2, and frequency and stability of angina, satisfaction with treatment, and QoL perception were analyzed. Based on the ANCOVA result of the study, we observed a significant difference between these groups in perception of SAQ's dimension. However, no significant difference was observed between the control group and the experiment group except for QoL's dimension (Table 1).

Nonparametric Test Result

For the psychological measures, the pretest and posttest scores were analysed in experimental and control groups. For anxiety mean changes was significant, but not for depression that is measured by HADS (Table 2).

Table 1. Adjusted Scores of QoL

Variables	Control	Experimental	Mean Difference	P Value
Limitation 1	91.64 ±9.66	90.61± 9.66	-0.96(-4.61 to 3.68)	>0.582
Limitation 2	81.18± 13.94	81.48± 13.94	-0.293(-6.94 to 6.35)	>0.85
Frequency and stability of angina	72.12± 11.78	74.024± 11.78	3.11(-2.57 to 8.80)	>0.274
Satisfaction of treatment	72.64± 10.34	72.27± 10.34	0.36(-4.67 to 5.41)	>0.775
QoL perception	37.47± 12.37	55.29 ±12.37	-16.81(-22.77 to -10.85)	<0.001

Table 2. Change in the Scores for the Psychological Measures

Psychological variables	Experimental		Control		P value
	Pre test	Post test	Pre test	Post test	
Depression	5.82 ± 2.55	5.42 ± 3.12	4.80 ± 2.81	4.66 ± 2.51	0.446
Anxiety	7.62 ± 2.17	6.46 ± 1.62	5.74 ± 1.13	5.82 ± 2.20	0.007

Discussion

This research supported beneficial effects on reducing anxiety levels of individuals through angina plan. However, there was not significant difference regarding score of depression between groups. Anxiety is also called psychological factor for the patients of CAD and unfavorable consequences. Due to some limitations, angina episodes were not measured.

In addition, the results have supported impacts of angina plan in patients of post angiography on anxiety and QoL's perception. However, the impact of intervention on depression and QoL's aspects may require a follow up and intervention. Additional researchers are recommended to recognize the impacts of angina strategy on anxiety, depression, and QoL.

Many internal and environmental variables might impact one's perception of QoL. Another study found that depression, educational level, rural versus urban living region, religion and social support all had an impact on people with multiple sclerosis' overall assessment of QoL. (27).

In this study, we were concerned about the anxiety of patient through this angina plan by correction and identification of misconceptions. Besides this, we asked the patients to practice and listen to these techniques of relaxation provided in audio cassettes. Despite this QoL's perception improvement that could be easily seen as first parameter to evaluate the CR effectiveness, other QoL's dimensions remained unimproved (28). However, after six months of follow-up, Lewin et al. (29) found that the angina strategy had a favourable effect on physical activity but not on QoL perception. The researchers in the aforementioned study also examined the frequency of angina attacks, the number of short acting glyceryltrinitrate (GTN) pills or puffs of sublingual spray used daily, as well as the degree and duration of discomfort. They discovered a substantial difference between angina and the quantity of GTN pills used each week (29). After six weeks, McGillion et al. found evidence to support the efficacy of the chronic angina self-management programme in the angina rate and stability aspects of QoL. (30). In another trial, with a 12-month follow-up, the same programme demonstrated substantial increase in physical activity levels among CHF patients up to 6 months after the programme ended (31). Hofman et al. done a research at Karolinska Hospital's Cardiology Department's outpatient clinic. In this trial, a 12-month rehabilitation program was designed, which included a 4-week residential stay at the intervention unit focusing on health education and behaviour modification, followed by an 11-month maintenance programme for patients who had had coronary angioplasty (32).

Depression among the CAD patients is important and requires modalities of intervention. Of note, this research has excluded individuals with high depression and anxiety levels. Several studies have found that CAD patients with mild anxiety are four times more likely to develop angina, whereas those with clinical depression are three times more likely to experience frequent angina (33). A comparable trial in patients with CVD by Lewin et al. found a decrease in depression rates six months following the treatment (29). Moore et al. employed a six-week educational programme that comprised instruction, health records, and rehabilitation for refractory angina. After one year, the findings supported the usefulness of this method for anxiety and sadness (34). After one year, the findings supported the usefulness of this method for anxiety and sadness (34). In another trial, Lewin et al. looked at the benefits of a complete home-based CR programme that comprised education, a home-based exercise programme, tape-based relaxation, and a stress management programme on psychological distress in patients with a severe heart attack (35). Anxiety and depression, as psychological variables, improved in the treatment group throughout a 12-month period (36).

Future researchers and studies are suggested for evaluating effectiveness of angina plan with the high scores on patients for depression and anxiety. According to result of research and positive properties of angina strategy to reduce the anxiety as a necessary factor in prognosis of CAD, this is also hoped that application of these programs plays very significant part in monitoring CAD's process and prevention of the coronary events.

Conclusion

This randomized test aimed for the investigation of plan of angina on depression, anxiety, and QoL in set of patients of post angioplasty. In this research, the results supported positive impacts of angina plan to improve the QoL's perception and dropping the anxiety stages of patients. The outcomes could be featured to the nature of angina strategy also functional in that research. Strong opinions in this research comprised the recognition of risk factors of individuals, including modification of risk factors according to the priorities of patients, identifying the misconceptions of patients related to the disease or correcting the misconceptions by intervention and emphasis on essential strategies to set the goals.

As another point we have also involved the family members or patients and this is very productive. Therefore, mutual cooperation was considered between the patients and education providers.

Limitation of the study

In the current study, it was possible that the angina plan had no effect on other aspects of QoL in study patients; however, due to limitations, we were unable to measure the number of episodes of angina, the number of short acting GTN tablets or puffs of sublingual spray taken each day, or the severity and duration of pain. These characteristics, if examined in future research, might give additional evidence of the angina plan's effectiveness.

Acknowledgement

The authors thank the first affiliated Hospital of Jinan University, Guangzhou, China for providing the data.

Conflict of interest

The author declares that no conflict of interest is associated with this study.

Funding

The nursing research fund of Ruijin Hospital Affiliated to Shanghai Jiaotong University (RJHK-2021-17).

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