Journal of Biosciences and Medicines, 2026, 14(6), 205-214
https://www.scirp.org/journal/jbm
ISSN Online: 2327-509X
ISSN Print: 2327-5081

Current Status of the Application of Fear of Disease Progression-Related Scales in Patients with Cardiovascular Diseases

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How to cite this paper: Zeng, Q.Q., Li, J.Y. and Li, G.Y. (2026) Current Status of the Application of Fear of Disease Progression-Related Scales in Patients with Cardiovascular Diseases. *Journal of Biosciences and Medicines*, **14**, 205-214.
https://doi.org/10.4236/jbm.2026.146014

Received: April 23, 2026
Accepted: June 15, 2026
Published: June 18, 2026

Abstract

Fear of disease progression (FoP) refers to the fear of individuals facing all biological, psychological, and social consequences of real existing diseases, as well as the fear of disease recurrence. Patients' long-term excessive fear of disease progression severely reduces their treatment compliance, affecting treatment effects and their quality of life. Patients with cardiovascular diseases often exhibit a psychological state of fear of disease progression when facing sudden cardiac events, complex examinations and surgeries, as well as high recurrence and mortality rates. Dual Heart Medicine points out that psychological factors are important influencing factors of cardiovascular diseases and should be part of the overall prevention and treatment system of the disease. Therefore, this paper reviews the definition of fear of disease progression, relevant assessment tools, and their research progress in patients with cardiovascular diseases, in order to provide a reference for conducting corresponding interventional studies.

Keywords

Cardiovascular Diseases, Fear of Disease Progression, Review

1. Introduction

Chronic diseases seriously affect people's health and increase economic and social burdens, and have become a major public health problem in China. Among them, the mortality rate of cardiovascular diseases ranks first in the spectrum of chronic diseases in China [1]. Due to the generally old age of patients with cardiovascular diseases, long disease course, heavy medical and economic burden, coupled with

high readmission and mortality rates, patients are prone to negative psychology such as fear of disease progression and anxiety, which affects the effect of disease treatment and their quality of life. Studies have shown [2] that one of the main stressors for patients with cardiovascular diseases is fear of disease progression. Foreign scholars have developed a variety of assessment tools to evaluate patients' level of fear of disease progression [3], and China has also developed and revised localized fear of disease progression scales [4]-[6]. These assessment tools are mainly used for cancer and chronic disease patients, and some scales are used for children and patients' spouses [7] [8]. With the deepening of research on fear of disease progression at home and abroad, different types of diseases have also been explored. However, the research on fear of disease progression in patients with cardiovascular diseases is still in the initial stage. Therefore, this paper reviews the definition of fear of disease progression, relevant assessment tools, and their current research status in patients with cardiovascular diseases, to provide a reference for formulating standardized interventional studies.

2. Definition and Characteristics of Fear of Disease Progression

Previous scholars explored the fear of cancer recurrence in cancer patients using the term fear of recurrence (FoR) [9] [10], without elaborating on other diseases. Fear of progression (FoP) was proposed by Dankert *et al.* [11] in 2003, referring to the fear of patients facing the biological, psychological, and social consequences of the disease, as well as the fear of disease recurrence. FoP has also been defined as "a reactive, non-neurotic fear that is conscious in patients" and "based on the experience of a chronic, disabling or life-threatening disease" [12]. Most scholars [13]-[15] have conducted research comparisons between FoP and anxiety disorders. Although anxiety disorders are common in patients with chronic diseases (such as diabetes and cancer), their diagnostic criteria only focus on the general population and have no specific diagnosis for patients with chronic diseases. Dinkel A *et al.* [16] believe that FoP is a specific type of anxiety, which belongs to the specific anxiety that patients face real disease threats and fear the consequences brought by the disease, and is an independent and reasonable response. Moderate fear can improve health behaviors and thus promote physical recovery, while long-term excessive fear will reduce patients' treatment compliance and quality of life.

FoP has 5 clinical characteristics: 1) excessive disease-related worry and intrusive thinking; 2) patients adopt negative coping styles in the face of the disease; 3) the occurrence of functional disorders; 4) negative psychological distress; 5) the impact on future life and career plans. With the deepening of research, researchers have found that fear of disease progression exists not only in cancer patients but also in patients with other chronic diseases [10]. When facing critical conditions, complex examinations and surgeries, as well as high recurrence and mortality rates, patients with cardiovascular diseases often show negative states. The uncer-

tainty and unpredictability of disease treatment and prognosis can trigger anxiety and fear in patients, which is correlated with the development of FoP.

3. Assessment Tools for Fear of Disease Progression

3.1. Fear of Progression Questionnaire (FoP-Q)

This scale was developed by Herschbach *et al.* [2] in 2005. It includes 43 items and 5 dimensions (emotional response, partner/family relationship, occupation, loss of autonomy, and anxiety coping). A 5-point Likert scale is used, with scores from 1 to 5 from "never" to "always". The higher the score, the higher the FoP level. The Cronbach's α coefficient of the scale is >0.7, and the test-retest reliability is 0.77 - 0.94.

3.2. Fear of Progression Questionnaire-Short Form (FoP-Q-SF)

Based on the FoP-Q, this scale was designed by Mehnert *et al.* [17] in 2006, including 12 items and 2 dimensions (physical health and social family, 6 items each). A 5-point Likert scale is used, with scores from 1 to 5 from "never" to "always". The total score ranges from 12 to 60. The higher the score, the higher the FoP level; if the patient has psychological dysfunction, it indicates that their FoP-Q-SF score exceeds 34. The Cronbach's α coefficient of the scale is 0.82. After localization by Chinese scholars [18], the Chinese version of FoP-Q-SF has a Cronbach's α coefficient of 0.883 in patients with primary liver cancer. At present, this scale has been applied to diabetes, chronic kidney disease, hypertensive stroke, acute myocardial infarction, etc., all of which have good reliability and validity.

3.3. Fear of Progression Questionnaire-Short Form for Partners (FoP-Q-SF/P)

Based on the FoP-Q, this scale was compiled by Zimmermann *et al.* [7]. It is used by patients' spouses to assess patients' FoP. It includes 12 items, scored from 1 to 5 from "never" to "always" using a 5-point Likert scale. The total score ranges from 12 to 60. The higher the score, the higher the level of FoP that the spouse perceives in the patient. Its Cronbach's α coefficient is 0.88. The Cronbach's α coefficient of the Chinese version of FoP-Q-SF/P [19] is 0.834.

3.4. Fear of Progression Questionnaire-Short Form/Parents (FoP-Q-SF/PR)

Based on the FoP-Q, this scale was developed by Schepper *et al.* [8]. It is used by the parents of children with diseases to score their children's FoP. It includes 12 items, scored from 1 to 5 from "never" to "always" using a 5-point Likert scale. The total score ranges from 12 to 60. The higher the score, the higher the level of FoP that the parents perceive in their children. The Cronbach's α coefficient of the scale is 0.90. Fidika *et al.* [20] used this scale to study the parents of children with cystic fibrosis, and its overall Cronbach's α coefficient is 0.91. Clever *et al.*

[21] [22] applied this scale to investigate the parents of children with cancer, and their Cronbach's α coefficients are 0.89 and 0.85, respectively. The above has confirmed that the FoP-Q-SF/PR scale has good reliability and validity.

3.5. Fear of Progression Questionnaire for Children (FoP-Q-SF/C)

Based on the FoP-Q-SF, this scale was developed by rephrasing from the perspective of children and adolescents [23]. For example, "I worry that I cannot go to work because of illness" is changed to "I worry that I cannot go to school because of illness". It includes 12 items, using a 5-point Likert scale. The higher the score, the higher the level of FoP in children. Nine items of the scale assess coping styles, such as distraction, relaxation, family support, and support from psychological staff. These items are scored using the same 5-point Likert scale, although the scale is reversed, and high scores indicate high satisfaction with a person's coping strategies.

4. Influencing Factors of Fear of Disease Progression in Cardiovascular Diseases

4.1. Demographic and Sociological Factors

Previous studies have shown that most patients with cardiovascular diseases develop FoP due to the combined effect of multiple factors. The younger the age, the higher the degree of FoP in patients with cardiovascular diseases. Liu Jinwen [24] conducted a questionnaire survey on 370 patients with coronary heart disease and analyzed using ROC curve. The results showed that patients with coronary heart disease under 60 years old are more likely to have FoP psychological dysfunction. Gao Yanli [25] investigated 330 patients with acute myocardial infarction and found that young patients lack psychological preparation for dysfunction and death after myocardial infarction. This may be because young patients are the main source of family income. Facing sudden heart disease with high recurrence and mortality rates, they inevitably worry about the prognosis of the disease, the inability to adapt to the patient role, and feel fear and helplessness about future career challenges, so the fear of disease progression is relatively strong.

In terms of gender, studies by Hu Guili *et al.* [26], Hellem *et al.* [27] and Burstrom *et al.* [28] have shown that female patients with cardiovascular diseases have significantly higher FoP than male patients, but the research results of Li Aoxue [29] did not prove a significant difference between the two, which may be related to different disease types, regional differences, and sample size. In terms of educational level, the current research results are inconsistent. Some studies have shown [25] that there is a positive correlation between the educational level of patients with acute myocardial infarction and fear of disease progression, but some studies have shown that educational level is not related to the level of fear of disease progression in patients.

A cross-sectional survey [24] showed that positive family history of coronary heart disease and positive history of PCI surgery are independent risk factors for

the occurrence of FoP psychological dysfunction. In addition, one of the main factors affecting the occurrence of FoP in patients with acute myocardial infarction is pain [24] [26]. In terms of social factors, Liu Jinwen *et al.* [30] investigated patients with coronary heart disease and suggested that social support has a direct predictive effect on the FoP of patients with heart failure. In addition, patients' dissatisfaction with family intimacy is positively correlated with the FoP of patients with acute myocardial infarction, that is, the more dissatisfied with family intimacy, the higher the FoP level [25]. Therefore, the care and care from family members, friends, and clinical nurses can effectively improve patients' negative emotions such as anxiety and fear, especially the intimate care and support from spouses have a crucial impact on the FoP level of patients. However, the more negative the coping style, the stronger the FoP of patients with acute myocardial infarction. The main reason is that most patients with myocardial infarction are male, who bear great pressure from work and life, and their unwillingness to talk to others aggravates their negative psychology [31].

It suggests that severe fear of disease progression in young and middle-aged CHF patients can make them have negative emotions, regard their condition as "severe", and try to give up the roles and social functions they should bear, thus losing hope and enthusiasm for work and life, and losing confidence in returning to work. Therefore, medical staff should pay attention to and take targeted strategies to effectively manage the symptom distress of patients with cardiovascular diseases, so that patients can receive treatment in a more comfortable condition, thereby reducing or eliminating their fear of disease progression, improving their quality of life, and regaining confidence in life and work.

4.2. Disease-Related Factors

Patients with cardiac discomfort symptoms are likely to perceive fear of disease progression, and those with higher FoP levels have more severe post-traumatic stress disorder symptoms. Dong Jianxiu *et al.* [32] investigated 341 patients with acute myocardial infarction. The results showed that cardiac discomfort symptoms after acute myocardial infarction affect post-traumatic stress disorder completely through the mediating effect of FoP. The reason may be that most patients with acute myocardial infarction interpret cardiac discomfort symptoms as the potential endpoint of disease progression, and FoP is an independent risk factor for predicting the severity of post-traumatic stress disorder symptoms in patients with acute myocardial infarction [33].

Previous studies have shown [25] that the worse the cardiac function and the more chronic diseases combined, the higher the FoP level. This may be because the worse the patient's cardiac function, the more serious the symptom distress, and the heavier the patient's psychological burden, resulting in a higher FoP level. A cross-sectional survey [24] showed that positive family history of coronary heart disease and positive history of PCI surgery are independent risk factors for the occurrence of FoP psychological dysfunction. In addition, pain is one of the main

factors affecting the occurrence of FoP in patients with acute myocardial infarction [26]. The severe pain and sense of impending death during the onset of acute myocardial infarction seriously affect the physical activity and sleep of patients with myocardial infarction, making them more afraid of the prognosis of the disease. Pain is not only physical and mental suffering but also affects the quality of life of patients [34].

Recently, Wang Yujie and Wu Zhangping investigated young and middle-aged patients with chronic heart failure [35] and found that the more severe their fear of disease progression, the lower their willingness to return to work. It suggests that severe fear of disease progression in young and middle-aged CHF patients can make them have negative emotions, regard their condition as "severe", and try to give up the roles and social functions they should bear, thus losing hope and enthusiasm for work and life, and losing confidence in returning to work. Therefore, medical staff should pay attention to and take targeted strategies to effectively manage the symptom distress of patients with cardiovascular diseases, so that patients can receive treatment in a more comfortable condition, thereby reducing or eliminating their fear of disease progression, improving their quality of life, and regaining confidence in life and work.

4.3. Psychological Factors

Dual Heart Medicine points out that psychological factors are important influencing factors of cardiovascular diseases. The FoP of patients with cardiovascular diseases is essentially a psychological fear. It is necessary to accurately assess the relationship between FoP and other negative psychology and explore the internal key mechanisms. Fait *et al.* [36] and Zeng Kai *et al.* [33] found in their studies on patients with acute myocardial infarction that there is a positive correlation between patients' post-traumatic stress disorder symptoms and FoP. Waldenburger *et al.* [37] studied patients after left ventricular assist device implantation and also found that patients with negative emotions are more likely to be affected by stressful events and have a higher degree of FoP.

The possible reason is that when facing critical conditions, high recurrence and mortality rates, complex examinations and surgeries, patients with cardiovascular diseases often show negative states. The uncertainty and unpredictability of disease treatment and prognosis may cause intense helplessness and fear in patients, which correlates with the elevation of FoP. It suggests that nurses should pay attention to the FoP degree of patients with cardiovascular diseases and take effective measures to improve self-efficacy and social support, effectively improve negative emotions, and reduce the FoP level of patients.

5. Conclusion

At present, there is little information about fear of disease progression in cardiovascular diseases in China. Therefore, clinical workers should accurately assess the FoP status of different types of patients with cardiovascular diseases from multiple

angles, analyze their main influencing factors, and take intervention measures in line with the characteristics of Chinese patients with cardiovascular diseases, in order to reduce the FoP level of patients, improve treatment compliance, and promote physical and mental health.

Fund Project

Self-financed Project of the Health and Family Planning Commission of Guangxi Zhuang Autonomous Region (No. Z20210682); Self-financed Scientific Research Project of Guangxi Zhuang Autonomous Region Administration of Traditional Chinese Medicine (No. GXZYA20230200); 2024 Open Project of Guangxi Health Emergency Skills Training Center (No. HESTCG202403).

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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