

Cardiac Self-efficacy, Illness Perception and Health-Related Quality of Life in Patients with Ischemic Cardiomyopathy

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ABSTRACT

Introduction: Illness perception and positive illness beliefs are protective factors that enhance the management of cardiac disease and improve HRQOL. The aim was to determine the relationship of cardiac self-efficacy and illness perception with HRQOL in patients with ischemic cardiopathy candidates for coronary artery bypass grafting surgery. **Method:** Cross-correlational study. 87 hospitalized patients with coronary artery disease requiring coronary revascularization surgery were recruited from a Cardiac Surgery Unit of a Hospital in Mexico City. **Results:** The study included 79.3% male patients with an average age of 63 years (S.D.=8.6). The correlation coefficient indicated a positive relationship between HRQOL and cardiac self-efficacy ($p=0.001$), and a negative association between HRQOL and illness perception ($p=0.001$). Multiple regression analysis demonstrated a significant impact of illness perception and cardiac self-efficacy on the variability of HRQOL ($p=0.046$, $\beta=0.200$ and $p=0.001$, $\beta=-0.412$, respectively), regardless of the patient's age, gender, and education. **Conclusion:** Both cardiac self-efficacy and illness perception were found to be significantly linked to all aspects of health-related quality of life. These factors played a crucial role in explaining the variability of HRQOL regardless of the patient's age, gender, and education level. Patients who feel capable of managing the challenges posed by their illness tend to have a more positive perception of their HRQOL. Conversely, negative beliefs about heart disease were associated with a lower HRQOL.

Keywords: cardiac-self-efficacy, illness perception, quality of life, ischemic cardiopathy.

INTRODUCTION

Ischemic heart disease (IHD) is a leading cause of death globally. In Mexico, about 220,000 people died from heart disease in 2021, with 78% attributed to IHD.^{1,2}

This condition results from an imbalance between coronary blood flow and myocardial needs due to changes in coronary circulation.³ Patients with IHD often undergo treatments like coronary revascularization surgery,⁴ which can be stressful and lead to emotional issues like anxiety and depression, impacting their recovery and their health-related quality of life.^{5,6,7} However, some patients have protective factors like cardiac self-efficacy⁸⁻¹¹ and a positive perception of their disease that help them effectively manage their condition.¹²⁻¹⁷

Self-efficacy refers to an individual's beliefs in their ability to perform specific tasks, influencing their engagement and effort in achieving those tasks.⁸ In the context of cardiac health, cardiac self-efficacy is the belief that patients have in their ability to manage the challenges presented by their heart disease. This includes tasks like medication adherence, symptom control, and maintaining their regular activities.^{8,10} Cardiac self-efficacy also shapes how patients think, feel, and act in relation to their disease, with the goal of preventing further complications.⁹

The perception of illness refers to the cognitive representations and beliefs that patients develop about their heart disease. It includes factors such as identity (symptom perception), consequences (physical, social, economic, and emotional impacts), causes (beliefs about the disease's origin), duration, and cure/control (treatment effectiveness and control).¹² Studies have shown age-related differences in illness perception and health-related quality of life (HRQoL) among heart disease patients.^{13,14} Older individuals tend to view the disease as more severe and chronic, leading to negative beliefs. Conversely, higher scores in controlling the disease and understanding its causes are associated with better HRQoL outcomes.^{13,14,15}

High levels of cardiac self-efficacy and a positive perception of disease (particularly in terms of knowledge and control) are associated with improved health-related quality of life and a reduction in emotional comorbidity, which supports patient recovery. This also contributes to the adoption of a healthy lifestyle, self-care practices, adherence to medical and rehabilitation interventions, and overall psychological well-being.^{10,11,14,15} On the contrary, a negative emotional and physical state in patients can lead to an increase in stress, anxiety, and depression.^{13,18}

The positive impact of self-efficacy, disease perception, and health-related quality of life (HRQoL) has been studied in various countries such as the United States, Japan, and Spain. However, in Mexico, there is insufficient evidence on this topic. The objective of this study is to assess self-efficacy and disease perception and their correlation with HRQoL in patients with ischemic heart disease who are candidates for coronary artery bypass grafting.

METHOD

This study utilized a cross-sectional design and included 87 male and female patients who were hospitalized with a diagnosis of ischemic heart disease eligible for coronary revascularization. These patients were recruited from a Cardiac Surgery Unit in a hospital in Mexico City, meeting

the following criteria: a) inclusion, men and women over 30 years and under 80 years of age, literate; b) exclusion, having physical comorbidities (e.g., acute or chronic renal failure, liver failure, pulmonary emphysema, epilepsy, among others) and/or acute or chronic psychological comorbidity (anxiety, depression); consuming anxiolytics and antidepressants.

Procedure

The psychological evaluation was conducted individually in a session lasting approximately 45 to 60 minutes. Before administering the instruments, patients were informed about the study's purpose, and those who agreed to participate signed an informed consent form.

Evaluation Instruments

Identification File:

The identification file comprises 14 questions that assess personal information of the patient (name, telephone, etc.) and sociodemographic data such as age, sex, education, religion, and occupation.

Cardiac Self-efficacy Scale:

The Cardiac Self-efficacy Scale was validated by Fors et al.¹⁹ in patients with acute coronary syndrome, showing a Cronbach's Alpha of 0.89. It consists of 13 items where patients rate their confidence in managing various situations related to their disease. These situations include controlling symptoms, taking medications, attending medical appointments, and maintaining usual activities with family and friends. Responses are provided on a Likert scale from 0 (not at all sure) to 4 (completely sure), with a total score range of 0 to 54 indicating higher perceived cardiac self-efficacy. The scale encompasses three dimensions: self-efficacy for symptom control, self-efficacy for disease control, and self-efficacy for functional maintenance.

Perception of Illness Questionnaire:

Broadbent et al. validated this scale, with the test-retest reliability correlation coefficients of the original English ranging from 0.48 to 0.70.^{12,20} It consists of nine items with a response scale ranging from 0 to 10, adapted to a Likert scale of 0-3, except for item nine where the patient is asked to list the three most important factors that caused their illness. The score ranges from 0 to 19, where higher scores indicate negative beliefs about the disease. The dimensions include control, treatment effectiveness, and understanding of the disease, with low scores indicating positive beliefs. The reliability of each dimension was obtained through a test-retest reliability analysis:²⁰

1. Consequences (Item 1, $r=0.71$): to what extent heart disease affects the patient's life
2. Duration (Item 2, $r=0.73$): how long the patient believes their illness will last
3. Personal control (Item 3, $r=0.42$): how much control the patient perceives over their illness
4. Treatment effectiveness (Item 4, $r=0.70$): how effective the patient thinks their treatment is
5. Identity (Item 5, $r=0.75$): to what extent the patient feels symptoms due to their disease
6. Awareness (Item 6, $r=0.66$): to what extent the patient is concerned about their illness
7. Understanding of the disease (Item 7, $r=0.61$): to what extent the patient understands their disease
8. Emotion (Item 8, $r=0.72$): to what extent the disease affects the patient emotionally

Health-Related Quality of Life Questionnaire:

Ramos et al.²¹ validated this Questionnaire in Mexican patient with heart disease, achieving a Cronbach's Alpha of 0.88. It consists of 23 items using a Likert-type scale ranging from 1 to 6 points, divided into seven factors: 1. Physical limitations ($\alpha=.84$), which refers to the perceived limitation in performing physical activities due to heart disease, 2. Symptoms ($\alpha=.84$) reflecting the presence, frequency, severity, and changes in symptoms over time, 3. Quality of life ($\alpha=.66$) quantifying the impact of the patient's condition on their quality of life, 4. Social interference ($\alpha=.84$) evaluating how much the patient's condition hinders interaction with family and friends, 5. Selfefficacy ($\alpha=.41$) relating to knowledge and control of symptoms, 6. Functional status ($\alpha=.89$) representing the combination of physical limitations and symptoms, and 7. Clinical summary ($\alpha=.90$) focusing on health-related quality of life. A higher score closer to 100 indicates a better Health-Related Quality of Life (HRQoL). The Physical Limitations, Symptoms, Social Interference, and Functional State dimensions are interpreted inversely, with a higher score indicating less interference, fewer symptoms, and less functional impact.

RESULTS

Sociodemographic Characteristics

A total of 87 patients participated in the study, with an average age of 63 years (s.d.= 8.6). The majority were men (79.3%), married (73.6%), with a bachelor's degree (33.3%), 36.8% were retired, 11.15% were homemakers, and the rest were engaged in some form of work activity (Table 1).

Table 1: Sociodemographic characteristics of the sample

N= 87	%	n=
Mean age 63±8.6 years (42-78)		
Sex		
Men	79.3	69
Women	20.7	18
Civil status		
Single	8.0	7
Married / Free union	73.6	64
Widowed	12.6	11
Divorced	5.7	5
Scholarship		
Knows how to read and write	4.6	4
Primary	17.2	15
Secondary	13.8	12
High school / Technical career	24.1	21
Bachelor's degree	33.3	29
Postgraduate	6.9	6
N= 87	%	n=
Occupation		
Home	11.5	10
Employee	20.7	18
Businessman	18.4	16
Professional	12.6	11

Retired/ Pensioner	36.8	32
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Cardiac Self-efficacy

Patients reported moderately high scores for total cardiac self-efficacy (mean: 38.5). In terms of self-efficacy for symptom and disease control (13.2 and 12.7, respectively), they felt confident in knowing how to carry out the tasks related to managing their disease. Additionally, they obtained moderate scores for self-efficacy in functional maintenance (mean=12.6) (Table 2).

Table 2: Cardiac Self-efficacy Scores

	Mean	Standard deviation	Min-Max
Total Cardiac Self-Efficacy	38.5	10.2	0-52
Self-efficacy for Symptom Control	13.2	4	0-16
Self-efficacy for Disease Control	12.7	3.4	0-16
Self-efficacy for Maintenance Functional	12.6	5.9	0-20

Perception of Illness

According to the results by dimension, patients have both negative and positive beliefs about their heart disease. For example, in the negative beliefs, patients reported that their disease significantly impacts their life (consequences, 58.6%) and emotional state (emotion, 47.1%), and they are quite concerned about their heart disease (awareness, 46%). On the positive side, patients feel that they have control over their disease (control, 46%), have some understanding of their heart disease (understanding, 46%), with 33.3% reporting complete understanding. Additionally, they believe that their treatment is effective (treatment effectiveness, 43.7%) and perceive few symptoms related to their heart disease (identity, 51.7%) (Table 3).

The Likert scale options "Nothing," "Little," "Quite a bit," and "Completely" were used to assess illness perception. These options are suitable and align with the criteria established in the study.

Table 3: Scores of the dimensions of the Perception of Illness

	Answer choice			
Factors	0	1	2	3
Consequences	6.9% Nothing	16.1% Little	*58.6% Quite a bit	18.4% Completely
Duration	11.5% Nothing	*54% Little	20.7% Quite a bit	13.8% Completely
Personal Control	19.5% Completely	*46% Quite a bit	24.1% Little	10.3% Nothing
Treatment effectiveness	*40.2% Completely	*43.7% Quite a bit	6.9% Little	9.2% Nothing
Identity	*33.3% No symptoms	*51.7% Some symptoms	12.6% A significant number of symptoms	2.3% Numerous symptoms
Awareness	21.8% None	25.3% Little	*46% Quite a bit	6.9% Completely

Understanding of the disease	*33.3% Completely	*46% Quite a bit	12.6% Little	8% Nothing
Emotion	16.1% None	26.4% Little	*47.1% Quite a bit	10.3% Completely

Health Related Quality of Life

Health Related Quality of Life is assessed through the Clinical Summary, where patients reported an average score of 64.2. Patients perceived limitations in performing daily activities such as bathing, walking a block, and doing housework (Physical Limitations, mean=56.6). They also reported consistent presence, frequency, and severity of symptoms (Symptoms, mean=76.2, with a higher score indicating fewer symptoms). Patients expressed uncertainty about how to handle their disease worsening (Self-efficacy, mean=57.4) and felt dissatisfied, discouraged, and limited in participating in recreational activities due to their heart disease (Quality of life, mean=51.7). Additionally, they achieved an average score of 67.9 in the Functional State, reflecting their physical functioning in relation to the impact of symptoms (Figure 1).

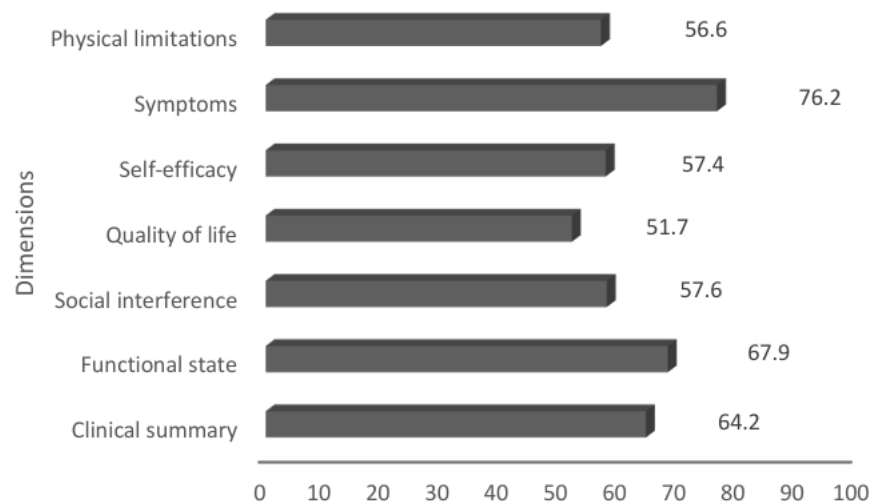


Figure 1: Average score of the dimensions of health-related quality of life

Cardiac Self-efficacy, Illness Perception and HRQoL

A correlation analysis was conducted among the variables of interest, revealing that HealthRelated Quality of Life (HRQL) and all its dimensions were positively associated with Total Cardiac Self-efficacy ($p=0.001$, $r=0.30$) and negatively with Illness Perception ($p=0.001$, $r=-0.48$). This indicates that patients who feel capable of managing activities related to their heart disease tend to have a higher perception of HRQoL, fewer symptoms, fewer physical and social limitations, and greater overall well-being. Patients with a positive perception of the disease also show similar positive outcomes (Table 4).

Table 4. Correlation Analysis of Cardiac Self-efficacy and Illness Perception with Health-Related Quality of Life (HRQoL)

	Cardiac self-efficacy		Perception of the disease	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>

Quality of life related to health	0.28	0.007*	-0.45	0.000*
Physical limitation	0.08	0.43	-0.39	0.000*
Symptoms	0.31	0.003*	-0.30	0.004*
Quality of life	0.29	0.005*	-0.34	0.001*
Social interference	0.19	0.07	-0.25	0.017*
Functional status	0.21	0.04*	-0.44	0.000*

A multiple regression analysis was conducted, adjusting for sociodemographic variables such as sex, age, and education. Perception of Illness and Cardiac Self-efficacy were found to have a significant relationship with HRQoL ($p=0.000$ and $p=0.046$, respectively). The β coefficients indicated that the perception of disease had the greatest impact on the variation of the scores ($\beta=0.412$), suggesting that negative beliefs about the disease decrease HRQoL perception. Conversely, high cardiac self-efficacy was associated with an increase in HRQoL perception ($\beta=0.200$). The model explained 32.4% of the variability in HRQoL scores (Table 5).

Table 5: Multiple regression analysis

Variable	Coefficient	ES	p	β	R ²
Cardiac self-efficacy	0.348	0.50	0.046*	0.200	0.324
Perception for illness	-2.127	0.17	0.001*	-0.412	
Sex (man)	-8.23	0.19	0.052	-0.189	
Age	-0.27	4.17	0.169	-0.131	
Scholarship	-0.82	1.28	0.521	-0.63	
Constat	101.8	17.54	0.001		

DISCUSSION

The objective of this study was to evaluate cardiac self-efficacy and perception of disease, as well as their relationship with health-related quality of life in patients with ischemic heart disease eligible for coronary artery bypass grafting.

Regarding cardiac self-efficacy, the results indicated that patients perceived themselves capable of facing the challenges posed by their disease. They demonstrated confidence in controlling their symptoms like chest pain or shortness of breath, whether by taking medications or adjusting their levels of physical activity (self-efficacy for symptom control). Additionally, they felt confident in knowing when to contact or visit their doctor regarding their condition and how to manage their heart medications. Moreover, they were able to communicate their concerns about their heart disease clearly to their doctor (self-efficacy for disease control). Lastly, they believed they could continue with their usual social activities, whether with family, partners, or at work (self-efficacy for functional maintenance). These findings are crucial when considering the diagnosis and treatment of patients since cardiac self-efficacy plays a significant role in initiating and maintaining healthy behaviors, reducing hospitalization duration in cardiac events, facilitating better recovery, and enhancing adherence to cardiac rehabilitation programs.^{8,22-25}

The results regarding the perception of disease showed that patients hold both negative and positive beliefs about their heart disease. For instance, they expressed feeling emotionally affected and worried about their illness, while also believing in the effectiveness of their

treatment, experiencing fewer symptoms, and feeling confident in managing their heart condition. This underscores the importance of psychological interventions aimed at altering negative beliefs and reinforcing positive ones to enhance emotional well-being, quality of life, and reduce comorbidity.^{13,14,26}

In relation to health-related quality of life, it can be inferred that patients do not perceive a high quality of life based on the score obtained in the clinical summary. Although they do not have significantly low levels of quality of life, there is an observed negative impact of the disease on their daily life, including physical limitations and social interference caused by their heart condition. Previous research has indicated that patients with heart disease often see themselves as physically restricted and generally have a lower quality of life.²⁷

The multiple regression analysis confirmed a significant relationship between self-efficacy and the perception of disease with HRQoL regardless of the age, sex, and education of the patients. It was also determined that the perception of disease and cardiac self-efficacy significantly influence the variability of HRQoL ($p=0.046$, $\beta=0.200$, and $p=0.000$, $\beta=-0.412$, respectively). Patients with a negative perception of the disease, such as feeling little control and effectiveness of treatment, emotional impact, and concerns about heart disease, tend to perceive lower HRQoL. Conversely, patients with high cardiac self-efficacy, who feel capable of managing the symptoms of the disease and continuing their regular activities, tend to have higher HRQoL.

These findings emphasize the significant role of cardiac self-efficacy and the perception of disease as psychological factors that directly impact the physical and emotional well-being of patients, ultimately affecting their quality of life. As mentioned earlier, self-efficacy is linked to the adoption and continuity of healthy behaviors, enhances adherence to cardiac rehabilitation programs, and improves HRQoL.⁸⁻¹¹ Similarly, a positive perception of the disease contributes to overall physical and emotional well-being.^{13-15,26}

Some limitations of this study include: a) the lack of validation of the instruments in this Mexican population and, b) the use of a cross-sectional study design, which does not allow for causal inferences to be made.

In Mexico, as far as we know, a similar study has not been conducted. Given the significance of cardiac self-efficacy and the perception of disease in patients' cardiovascular health, the outcomes of this research hold crucial implications for designing and executing psychological interventions. Examples include reducing emotional comorbidity (anxiety and depression), reinforcing protective factors, and enhancing the perception of health-related quality of life in this population. This comprehensive care approach involves collaborative multidisciplinary efforts among cardiologists, social workers, nurses, physiotherapists, and psychologists to enhance the cardiovascular health of patients.

CONCLUSIONS

Cardiac self-efficacy and illness perception were significantly associated with all dimensions of health-related quality of life and are key factors in explaining the variability of health-related quality of life regardless of age, gender, and educational level of the patients. Patients who believe they can effectively manage the challenges presented by their illness tend to have a

better perception of their health-related quality of life. On the other hand, negative beliefs about heart disease contribute to a decrease in health-related quality of life.

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