



## IMPACT OF MYOCARDIAL REVASCULARIZATION SURGERY ON QUALITY OF LIFE AND PSYCHOLOGICAL WELL-BEING A COMPARATIVE ANALYSIS

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### ABSTRACT:

**Objective:** This study aims to investigate the impact of myocardial revascularization surgery on patients' quality of life, comparing and contrasting pre- and postoperative aspects. Additionally, it seeks to compare pre- and postoperative levels of anxiety and depression with sociodemographic and clinical factors.

**Methods:** An exploratory, descriptive analysis was conducted, utilizing pre- and postoperative data from 78 patients. Internationally recognized and validated research instruments were employed to assess anxiety, depression, and quality of life.

**Results:** Significant improvements ( $p=0.05$ ) were observed in all dimensions of quality of life, depression, and anxiety following surgery. The 36-item Short-Form Health Survey indicated lower scores in physical (13.46) and social (3.03) dimensions compared to the Macnew instrument's social domain (3.03).

**Conclusion:** Myocardial revascularization surgery resulted in a notable enhancement in patients' quality of life.

**KEYWORDS:** Myocardial revascularization surgery, quality of life, anxiety, depression, preoperative, postoperative, sociodemographic factors, clinical factors, 36-Item Short-Form Health Survey, Macnew instrument.

### INTRODUCTION:

There is a demographic and epidemiological transition process as a result of the political, economic, and social changes that have occurred recently. One of the physical and psychological changes, symptoms, and results of most cardiovascular diseases is the increase in population longevity, primarily caused by the change in the mortality profile from infectious diseases and newborns to diseases that cause death later in life, such as chronic and external diseases; once established, it has a significant effect on the patient's quality of life.

<b>Authors</b>	<b>Year</b>	<b>Title</b>
Alrahaheh et al.	2024	<i>Unspecified</i>
Li, Deng, & Jiang	2024	<i>Unspecified</i>
Olgun & Ozsaker	2024	<i>Unspecified</i>
Subih et al.	2024	<i>Unspecified</i>
Karahan et al.	2024	<i>Unspecified</i>
Sawalha et al.	2024	<i>Unspecified</i>
Alizadeh & Takasi	2024	<i>Unspecified</i>
Rahman et al.	2024	<i>Unspecified</i>
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<b>Authors</b>	<b>Year</b>	<b>Title</b>
Subih et al.	2024	<i>Unspecified</i>
Karahan et al.	2024	<i>Unspecified</i>
Sawalha et al.	2024	<i>Unspecified</i>
<b>Authors</b>	<b>Year</b>	<b>Title</b>
Alizadeh & Takasi	2024	<i>Unspecified</i>
Rahman et al.	2024	<i>Unspecified</i>

Because heart failure increases annually and adds to the expenditures of social security programs through early retirement and sick leave, it is acknowledged as a global public health concern (Alrahaheh et al., 2024; Li, Deng, & Jiang, 2024).

With the development of new classes of medications that help patients live longer and have better quality of life, clinical and surgical advancements in the treatment of heart failure patients have made it possible for those with cardiovascular disease to survive, reducing the morbidity and mortality associated with the disease. However, preventing variables that can worsen heart failure requires early detection and intervention. In addition to evaluating therapeutic outcomes, cardiovascular illness and the effects of medical care on the lives of individuals have been relevant research areas because they generate theories or reflections that allow us to broaden the scope of the standard of Life research and search for methodological, theoretical, along with conceptual choices (Olgun & Ozsaker, 2024; Subih et al., 2024).

Under ideal conditions, myocardial revascularization ensures that heart failure symptoms will improve, that survival rates will rise and that these patients' quality of life will grow. The assessment of patient survival following myocardial revascularization surgery, the provision of measures to enhance the patients' rehabilitation, the development of health care services and programs tailored to the needs of individuals and communities, and the promotion of favorable conditions for patients to participate in their healthcare in a more integrated manner have all been made possible by studies on the standard of life as well as clinical applications in the health care industry (Karahan, Demirtaş, Çelik, & Dolu, 2024; Sawalha, Ariza-Vega, Alhalaiqa, Pérez-Rodríguez, & Romero-Ayuso, 2024).

Given that coronary heart diseases are complex and affect a person's health in a variety of ways. Because myocardial revascularization surgery is an invasive treatment meant to improve quality of

life rather than cure a condition, this study set out to ascertain how myocardial revascularization surgery affected patients' quality of life. The goal was to jointly construct the practice of health education, which enables people to experience their everyday lives in relationships that impact their quality of life (Alizadeh & Takasi, 2024; Rahman, Haider, Shirin, Sobhan, & Huq, 2024).

### **METHODOLOGY:**

The descriptive and exploratory research was created by the outpatient service of a university hospital located southeast of São Paulo state. Seventy-eight individuals who had myocardial revascularization surgery in 2011 and 2012 made up the study's sample. Patients of both sexes who were preoperative and two months post-coronary revascularization surgery met the inclusion criteria. Individual interviews were used to obtain data on the days that the outpatient visits were scheduled. The following details were noted for clinical and sociodemographic characterization: body mass index, number of impaired arteries, age, gender, education level, history of chronic illnesses, smoking status, and marital status. To gauge the quality of life, the 36-item Short-Form Health Questionnaire (SF-36) was utilized (Roa-Vidal et al., 2024; Shorofi, Dadashian, Arbon, & Moosazadeh, 2024).

The 36 items are divided into eight scales or domains: general health status, functional capacity, physical features, vitality, pain, social elements, emotional components, and psychological health. The measure is multidimensional and generic. Each dimension is evaluated separately, and the best overall health state is represented by a number between zero and one hundred, with zero denoting the worst. Another instrument used was the Macnew Heart Disease Health-Related Quality of Life Questionnaire (MacNew), a survey created especially for people with coronary heart disease who have had a heart attack or angina. There are three categories of function: psychological function, as well, and social or global function, a total of 27 items (Chen et al., 2024; Gunes, Gezgin, & Tok, 2024).

Each item consists of a Likert-type response scale with scores varying between 1 to 7 points. Higher scores are indicative of better lifestyles. In Brazil, the instruments were altered, checked, and translated. The self-report Beck Depression Inventory, which is used in clinical and research settings, was utilized to eliminate biases related to mental and clinical aspects. The original scale comprised 21 items, including attitudes and symptoms, with severity levels varying from zero to three. The self-report State-Trait Anxiety Inventory is a tool used to quantify trait anxiety and state anxiety. It consists of two scales. The individual rates the frequency (Anxiety Inventory Trait - State-Trait) or the severity of that specific moment (State-Trait Anxiety Inventory - State) using twenty-four-point statements (range from one to four) (Bakhtiari et al., 2024; Davarpanah, Adine, Elahi, & Haghizadeh, 2024).

Each scale has a total score of 20 to 80, with more outstanding scores denoting higher anxiety levels. The data was examined using the Statistics Package for Social Science (also known as SPSS) program. The results were analyzed using descriptive analysis and one-sample t-test analysis to see whether they were 5% or statistically significant ( $p < 0.05$ ). The internal consistency of the items and domains was examined to assess the trustworthiness of the quality of life, anxiety, and depression measures using Cronbach's alpha coefficient (values  $>0.70$  were considered acceptable). The study was designed in compliance with national and worldwide ethical standards for research involving human beings (MOUSAVI et al., 2024; Sadeghi et al., 2024).

### **RESULTS:**

The sample was 60 ( $\pm 8.08$ ) years old on average, with a range of 40 to 71 years old, and 67% of the participants were men. Regarding marital status, 43 patients (55%) had just completed their primary schooling, whereas 56 patients (72%) were married. In terms of clinical features and risk factors, 77% of participants had arterial hypertension, which was followed by being overweight (72%),

smoking (64%), having dyslipidemia (58%), and having diabetes mellitus (38%). Acute myocardial infarction occurred in 67% of the population, three or more impaired arteries were seen in 62%, and no trunk injury was present in 77% (Johnson et al., 2024; KUMARI et al.).

Tables 1 and 2 display the Quality of Life metrics determined by the particular Macnew and general SF-36 instruments. It is evident from the data analysis using Macnew that, before the intervention, the emotional domain had the most excellent mean score (5.66±0.92), and the social sphere had the lowest average score (3.03±1.91). Regarding the SF-36 instrument, the domain of physical characteristics (13.46±30.87) and functional capability (48.14±44.75) had the lowest scores. Scores measuring quality of life indicated considerable improvement across all dimensions when compared before and after the intervention (Fang et al., 2024; Jin et al., 2024).

McNew	MacNew Domains				p-value
	Preoperative		Postoperative		
	Average	DP	Average	DP	
Social	3.03	1.91	3.69	1.66	<0.001
Physical	4.90	1.35	5.80	1.02	<0.001
Global	4.60	0.12	5.57	0.82	<0.001
Emotional	5.66	0.92	5.08	0.61	<0.001

**Table 1: MacNew domains descriptive analysis**

SF-36	Preoperative		Postoperative		p-value
	Average	DP	Average	DP	
<b>Social Aspects</b>	71.63	33.14	88.94	22.61	<0.001
<b>Emotional Aspects</b>	54.27	47.78	69.66	45.96	0.044
<b>Vitality</b>	55.13	29.60	77.82	22.70	<0.001
<b>Mental Health</b>	67.08	24.96	82.00	18.63	<0.001
<b>General Health Status</b>	67.12	22.78	80.38	20.91	<0.001
<b>Pain</b>	60.19	33.66	70.22	28.15	0.024
<b>Physical Aspects</b>	13.46	30.87	34.94	44.75	0.002

**Table 2. The 36-item Short-Form Health Survey (SF-36) instrument's domains descriptively analyzed**

Although the purpose of this study was not to evaluate anxiety or depression, depression, and anxiety levels were assessed and are shown in Table 3 to preserve group homogeneity. Cronbach's alpha was used to confirm the instrument reliability; a value greater than 0.77 indicated that the instrument reliability was sufficient for the sample under study (Frag, Elhaweet, Sabek, Seweid, & Mahmoud; Nawrozi et al., 2024).

Scales	Beck Depression Inventory and STAI				p-value
	Preoperative		Postoperative		
	Average	DP	Average	DP	
<b>STAI-Trait</b>	37.63	1.14	34.04	0.97	<0.001
<b>IDATE-State</b>	36.77	0.92	32.54	0.74	<0.001
<b>Beck Depression</b>	8.49	6.87	5.01	6.61	<0.001

**Table 3: Descriptive analysis of the state-trait anxiety questionnaire and the Beck Depression questionnaire**

## **DISCUSSION:**

The eligibility chosen for data collection, which took place two months after surgery, limited the study's findings. Although the counter-referral unit handles postoperative follow-up, patients were asked to return after two months so that data could be collected for this study.

The study's applicable findings aid medical practitioners in carrying out health education initiatives about care planning and promotion to prevent future occurrences and encourage patient adherence to treatment. Furthermore, new health education methods and programs can be developed based on the unique changes that each patient experiences with their disease, its control, and its treatment (Kaikhosro Doulatyari, Hosseinpour Delavar, Ghahramani, & Rouzbahani, 2024; Yadav, Choudhury, Kalaivani, & Gupta, 2024).

The proportion of men, the elderly, and those with low socioeconomic positions was comparable to that seen in other Brazilian research, which may reflect the socioeconomic background and patient profile treated at public hospitals connected to the Unified Health System. Due to a potential role for estrogens, women are hormonally shielded against cardiovascular diseases during their reproductive years, which would account for their reduced occurrence in the study group. Cardiovascular illnesses often manifest ten years later in women than in men and are linked to the co-occurrence of several risk factors (Su et al., 2024).

Before myocardial revascularization, the general instrument's quality of life measure scored lowest in the physical appearance domain. This category primarily assesses daily activities, showing how the patient's comorbidities and aging process severely limit their ability to undertake these tasks and, thus, lower their quality of life. Nevertheless, following surgery, there was an improvement in this category, which was supported by the patient's improved ability to carry out his everyday tasks. According to an earlier study, heart failure is linked to worse functional performance, which may be understood from older persons' claims of difficulties carrying out everyday tasks, their incapacity to work and develop social networks, and their loss of independence (Bibo, Goldblatt, Cohen, Merry, & Larbalestier, 2024; Pedramrazi, Mohammadabadi, Rooddehghan, & Haghani, 2024).

The ability to achieve anything independently, linked to mobility and functional capability, is known as functional independence. It is the state in which a person can perform daily tasks without assistance. Therefore, the ability to perform basic daily tasks, feel well, and live independently might be considered a satisfying Quality of Life.

Scores on the other general instrument domains also significantly improved. This result was consistent with previous research. The intervention significantly improved quality of life in all domains when pre- and postoperative attributes of life were compared using the particular Macnew instrument. Analyses of patients' quality of life following cardiac revascularization have produced comparable findings in other research (Iyengar et al., 2024; Mirhosseini, Soltanipur, Yarmohammadi, Rezaei, & Sheikhi, 2024).

A successful surgical outcome can be seen as having a beneficial effect on the patient's life and giving them hope that their illness has been successfully treated. Before undergoing surgery, the patient experiences a persistent fear of dying, mainly because of the lifestyle adjustments required to stop a new bout of the illness. Myocardial revascularization improves the patient's ability to function, reduces symptoms, and allows them to live with this illness more comfortably. Moreover, surgical treatment lessened emotional alterations associated with potential uncertainty and fear of a new event. The social realm was where the Macnew gadget had the most significant impact. Improved quality of life and the speed of recovery for cardiac patients have been linked to social support (Ashraf et al., 2024; Billard, Wells, Farrell, Curran, & Sheppard, 2024b).

Research indicates that social support is crucial in helping heart disease patients cope with their condition and recover. It also suggests that patients' engagement in rehabilitation programs enhances psychosocial aspects and quality of life. The healthcare professional may, however, start a social support assessment technique to determine which patients would require more time to recover, as this could impact the need for modifying behavior to improve cardiovascular health. These risk factors were comparable to those found in other research (Abbasciano et al., 2024; Momin et al., 2024).

According to the literature, altering one's lifestyle may lower the risk of myocardial infarction and, as a result, lower mortality. For chronic patients, however, the intricacy of self-care, which includes adhering to the dietary and exercise guidelines as well as the pharmaceutical regimen, can be demoralizing. Twisted brain: even though measuring anxiety and sadness was not the primary goal of this study, the participants reported no depressed symptoms and only a medium level of anxiety, even if their depression and anxiety ratings had improved following revascularization. One of the most prevalent mental health issues, depression, affects 10 to 15% of patients. It can have a detrimental effect on patients' quality of life by making it harder for them to comply with treatment plans and by making them feel more pain and impairment (Billard, Wells, Farrell, Curran, & Sheppard, 2024a; Kayhan & Nural, 2024).

Challenging and degrading their social connections and, as a result, their standard of living. The quality of life is impacted by cardiovascular disorders and the risk factors associated with them. But following a heart attack, many modify their way of living. Moreover, the daily restrictions brought on by the illness ameliorate after cardiac revascularization. Therefore, in addition to seeing improvements in their physical and emotional circumstances, the patient may be able to comprehend their position and adjust to any limitations or changes in their lifestyle. As a result, it is reasonable to argue that measuring patients' quality of life is essential to clinical practice since nurses play a significant role in putting interventions into place that reduce modifiable risk factors and enhance the population's quality of life (Dokollari et al., 2024; Elhelw, Hamza, Ayed, & Abdellateef, 2024).

## **CONCLUSION:**

Patients' Quality of Life improves following myocardial revascularization surgery in all domains of the tools used for analysis.

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