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Cardiac Self-efficacy and Perception among CAD Patients

Lisy Augustin N[1]*, Thephilah Cathrine R[1], Anto Varghese[2], Jayabharthi[1], Sajith Kumar P[3]

[1]Meenakshi College of Nursing, Meenakshi Academy of Higher Education & Research (MAHER), Chennai, India, [2]Health Service Department, Kannur, Kerala, India, [3]Govt. College of Nursing, Medical college, Kozhikode, Kerala, India. *Corresponding Author's Email: lisyaugustinj1@gmail.com

Abstract

Coronary Artery Disease (CAD) is a leading cause of mortality, in developed countries. The economic development, conquering of infectious diseases as well as an increasing westernization of lifestyle, in the past three decades have increased the prevalence of cardiovascular risk factors among these countries. As self-efficacy is considered as a major concept which can affect CAD patients' behaviors in the adherence to medication schedule, healthy diet, physical activities, it has to be studied and modified, so that there will be positive effects on patient' quality of life. This study aimed at assessing the cardiac self-efficacy and perceived social support among patients with CAD. The researchers intended to examine the correlation between cardiac self-efficacy and perceived social support, as well as the association between cardiac self-efficacy and selected demographic variables of patients with CAD. Forty patients diagnosed with CAD, were recruited from cardiology OPDs of a tertiary care hospital, in Kannur, North Kerala. Patients have already diagnosed with CAD. The modified cardiac self-efficacy scale was used to assess the self-efficacy of patients with CAD. A positive correlation between cardiac self-efficacy and perceived social support was found among patients with CAD significant at 0.01 level (2-tailed). Health awareness about the importance of treatment adherence will be improved, which will indirectly foster the self-efficacy and overall health outcomes among CAD patients.

Keywords: Cardiac self-efficacy, Correlational study, Coronary artery disease, Perceived social support.

Introduction

Worldwide, coronary artery disease remains the leading cause of mortality despite advancements in coronary interventions and revascularization techniques. From the year 1990 to 2013, ischemic heart disease is the number one cause of death in India. In United States, the leading cause of death among adults were found to be coronary artery disease (CAD). Around 695000 deaths were reported in U. S. from heart disease in 2021 (1).

Nine traditional risk factors, including smoking, high waist-hip ratio, diabetes, hypertension, dyslipidemia, low physical activity, uncontrolled alcohol use, and psycho social stress, were linked to 90% of the first instances of acute myocardial infarction (MI) according to the INTEHEART study's findings.

The population's prevalence of risk factors, the accessibility of high-quality healthcare facilities, and patients' awareness of and propensity for healthy behavior all influence how well CAD patients respond to therapy. These traits are also influenced by cultural norms, social, economic, and geographic variables. Therefore, these traits have a variety of effects on the development, management, and course of CAD. Aside from that, CAD patients differ significantly in their drug use and adherence to treatment protocols (2). Studies have shown that improved cardiac health behaviour, modifiable risk factors, increasing age and patient physician interactions determine cardiac self-efficacy (3). The quality of life among CAD patients is determined by social and family support of the patient. These aspects remain as a pillar that contribute to patient's well being and emotional balance.

Medical diagnosis of CAD invites a new lifestyle routine with daily pharmacological regimens, numerous doctor appointments, dietary as well as physical restrictions and financial burden. In order to improve the compliance to treatment regimen and burnout, healthier outcome, improvement in coping mechanism combined with family support is essential. This in total can contribute to the quality of life among patients with CAD (3). Understanding and forecasting the process of health behavior is made easier with the help of

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the Health Action Process Approach.

It includes, physical activity, cessation of smoking, maintenance of BMI, glycemic control, regulation of blood pressure and restriction in alcohol intake. Among these, dietary behaviour is directly related to CAD patients' perceived social support and free action self-efficacy, which partly predicts the behavioral intention. Social support has a mediator role in intention behaviour relationships. Through the intermediary of mental toughness, perceived social support influences self-efficacy both directly and indirectly (4). Receiving social support enables patients to adhere to their treatment regimen more closely, which includes diet, medication use and regular exercise, and also helps to have proper compliance.Therefore, availability of social support could improve self-confidence, reduce anxiety and facilitate better treatment outcomes among patients living with chronic diseases (5). It was also proved that there is a reciprocal association of self-efficacy and depression among patients diagnosed with cardiac failure (6). Poor compliance among patients with hypertension could be due to more intricate treatment plans and higher prescription costs. Hence, proper support from family, friends and significant others can help patients to adhere to their treatment regimen (7).

The purpose of this research is to assess the pattern of cardiac self-efficacy and perceived social support among patients living with CAD (8). Risk factor awareness and CAD specific education were found to be the predictors of cardiac self-efficacy in the past. If appropriate interventions are made, cardiac self-efficacy can also be improved, so that cardiac patients will be able to perform the lifestyle modifications, effectively and confidently. Therefore, as self-efficacy is assessed, their socio - demographic variables as well as the disease specific factors also can be studied.

A proper support system can always positively benefit the cardiac patient's physiological as well as psychological well being. This support system contributes to CAD patient's adaptation to medical regimen, identification and or prevention of further complications (6). Even though the support system varies among races, age and culture, its availability can improve the quality of life, if it is thoroughly examined and possible community referrals are done on time. An acceptable level of social support can improve their confidence level and therefore decrease the amount of negative pressure. Several major studies have concluded that social integration as deciding factor in survival rate of patients who had cardiac events.

As self-efficacy is considered as a major concept which can affect CAD patients' behaviors in the adherence to a medication schedule, healthy diet and physical activities, it has to be studied and modified, so that there will be positive effects on patients' quality of life (9). Therefore, there is a need for developing individualized cardiac care interventions. Hence, the researchers decided to search for the correlation between cardiac self-efficacy and perceived social support among patients with CAD.

According to cross-sectional study conducted by Yaru Zhu *et al.*, patient activation is positively correlated with social support ($r = 0.524$, $P < 0.01$) and with self-efficacy (11). The analysis technique used was multiple linear regression and bootstrap testing to study the relationships between social support, self-efficacy, and patient activation in community-dwelling older adults living with coronary heart disease (11). Mozhgan Kalantarzadeh *et al.,* conducted a content analysis study to investigate adherence barriers to treatment of patients with cardiovascular diseases from the perspectives of patients, family caregivers, and healthcare professionals (12). The results of this study can give medical practitioners a framework for using preventative measures, lowering the risk of disease complications, reducing unhealthy behaviors, and encouraging patients with CVD to adhere to treatment recommendations for longer periods of time. In order to improve patients' quality of life, it was determined that policy makers, healthcare providers, particularly nurses, could better support patients with CVD by developing appropriate interventions, care plans, and understanding of the obstacles, challenges associated with changing lifestyles and beliefs, and patients' limitations.

Methodology

This cross sectional descriptive correlational study used a quantitative approach. Convenience sampling technique was adopted in recruitment process. 40 patients diagnosed with CAD were recruited from cardiology OPDs of a tertiary care hospital, in Kannur, North Kerala. Patients who were already diagnosed with CAD (ACS, unstable angina, NSEMI or STEMI) and attended cardiology

OPD for further follow up/treatment/ review were selected for the study. Basic sociodemographic data and clinical data were collected from the subjects using socio demographic data sheet (Form I). A modified version of Sullivan's cardiac self-efficacy scale was used to assess the self-efficacy of patients with CAD. The first eight items represent the person's level of confidence which is under his/ her control. The remaining five items assess the confidence of the person in maintaining functions. A multidimensional scale of perceived social support ('MSPSS') was used to assess CAD patients' perceived social support (10). It consists of 12 questions and the scoring is categorized as 'high, medium and low' (Form II). The mean age of the subjects was 58.02 years. The Pearson correlation test was performed to assess the correlation between Cardiac self-efficacy and perceived social support of subjects. Patients with a diagnosis of CAD, between the age of 45- years and willing to participate in the study were interviewed.

Form I: Part 1-Socio Demographic Data

IP NO.

Age:
Sex:
Academic qualification :
Occupation:
Income:
Marital status:
Residential area: Type of family:
Diagnosis:
Period since diagnosed:
BMI :
Smoking (current smoking and former smoking):
Dietary habit (daily intake of fruits and vegetables, minimal fat):
Comorbidity:
Presence of DM:
Presence of HTN:
Presence of Hyperlipidemia:
Others:
Daily walk:
Daily exercise/ physical activity:
Availability of care taker/ assistance: Relation with patient:
Availability of financial assistance/health insurance/:
Distance from home to care setting:

Form II: Scale Form

A. Assessment Of Perceived Social Support

Instructions:

Read the following statements carefully. Indicate how you feel about each statement, by making 'tick' mark in the appropriate column.

MODIFIED MPSS SCALE (10)

		1	2	3	4	5	6	7
1	There is someone around, when I am in need	very strongly disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Very strongly agree
2	There is someone with whom I can share my joys and sorrows							
3	My family always tries to help me							
4	I am always emotionally supported by my family							
5	I have someone who is a special source of comfort to me							
6	My friends always try to help me							
7	I can count on my friends when I am disturbed							
8	I always share my problems with my family							
9	I have friends with whom I can share my joys and sorrows							
10	There is someone in my life who cares about my feelings							
11	My family always helps me make decisions							
12	I can share my problems with my friends							

PSS SCORING
TOTAL SCORE : 84
12-36 Low
36-60 Medium
61-84 High

1	2	3	4	5
Not at all confident	Somewhat confident	Moderately confident	Very confident	Completely confident

B. CARDIAC SELF EFFICACY

INSTRUCTION: Choose the answer that best describes your opinion. Please read each question carefully and write down the answer in score column.

Modified Sullivan's CSE SCALE

1	Can you control chest pain by changing your activity levels?	SCORE
2	Can you control your blood sugar level by changing your activity levels?	
3	Can you control chest pain by taking medications as prescribed?	
4	Can you control your breathlessness by taking your medications on time?	
5	Do you know when you should consult your doctor about your heart disease?	
6	Can you make your doctor understand your concerns about your heart?	
7	Know how to take your cardiac medications?	
8	Know the limits of physical activity, good for you?	
9	Can you involve in your usual social activities?	
10	Can you maintain your daily activities with your family?	
11	Can you maintain your usual activities at work?	
12	Can you maintain your sexual relationship with your spouse?	
13	Can you get your regular exercise /relaxation techniques	

CSE TOTAL SCORE: 52 Equal or <26 Low
27-39 Medium
>39 High

Results and Discussion

The basic Sociodemographic variables and clinical variables of the study participants were collected from the subjects using socio demographic data sheet and clinical data sheet, respectively. The total number of study participants was forty and their data was analyzed by calculating the frequency, mean and standard deviation.

Table1: Socio Demographic and Clinical Variables of Participants

CATEGORY	AGE			
	Minimum	Maximum	Mean	Std. Deviation
	42	73	58.02	6.314
	SEX			
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	19	47.5	47.5	47.5
Female	21	52.5	52.5	100.0
Total	40	100.0	100.0	
ACADEMIC QUALIFICATION				
Primary	13	32.5	32.5	32.5
Secondary	9	22.5	22.5	55.0
U.G.	11	27.5	27.5	82.5
P.G.	6	15.0	15.0	97.5
>P. G.	1	2.5	2.5	100.0
Total	40	100.0	100.0	
OCCUPATION				
Govt.	9	22.5	22.5	22.5
Private	7	17.5	17.5	40.0
business	4	10.0	10.0	50.0
Household	11	27.5	27.5	77.5
Others	9	22.5	22.5	100.0
Total	40	100.0	100.0	
INCOME in Rupees				
<10000	2	5.0	5.0	5.0
10000-20000	11	27.5	27.5	32.5
20001-30000	17	42.5	42.5	75.0
>30000	10	25.0	25.0	100.0

MARITAL STATUS				
Single	2	5.0	5.0	5.0
Married	38	95.0	95.0	100.0
RESIDENTIAL AREA				
Rural	26	65.0	65.0	65.0
Urban	14	35.0	35.0	100.0
TYPE OF FAMILY				
Joint	19	47.5	47.5	47.5
Nuclear	21	52.5	52.5	100.0
DIAGNOSIS				
ACS	12	30.0	30.0	30.0
Non ST Elevation MI	15	37.5	37.5	67.5
ST Elevation MI	10	25.0	25.0	92.5
Dysrrhythmias	3	7.5	7.5	100.0
DURATION OF ILLNESS				
<3 months	7	17.5	17.5	17.5
3-6 months	13	32.5	32.5	50.0
7 months -I year	11	27.5	27.5	77.5
>1 year	9	22.5	22.5	100.0
SMOKING HABITS				
Non smoker	34	85.0	85.0	85.0
Smoker	6	15.0	15.0	100.0
DIETARY HABITS				
Diet containing high fat, low fruits & veg.	11	27.5	27.5	27.5
Diet containing low fat, more fruits & veg.	29	72.5	72.5	100.0
EXERCISE HABITS				
Irregular	34	85.0	85.0	85.0
Regular	6	15.0	15.0	100.0
AVAILABILITY OF CARE GIVER				
Not available	9	22.5	22.5	22.5
Available	31	77.5	77.5	100.0

RELATION WITH CAREGIVER				
Unavailable	9	22.5	23.1	66.7
Wife	17	42.5	43.6	43.6
Daughter	5	12.5	12.8	79.5
Son	6	15.0	15.4	94.9
Husband	3	5.0	5.1	100.0
AVAILABILITY OF FINANCIAL ASSISTANCE/INSURANCE				
Unavailable	19	47.5	47.5	47.5
Available	21	52.5	52.5	100.0
DISTANCE FROM CARE SETTING TO RESIDENCE				
<10 KM	9	22.5	22.5	22.5
11-20KM	8	20.0	20.0	42.5
21-30KM	20	50.0	50.0	92.5
>30KM	3	7.5	7.5	100.0
COMORBIDITIES				
DM	5	12.5	12.5	12.5
HTN	12	30.0	30.0	42.5
Dyslipidemia	5	12.5	12.5	55.0
DM & HTN	5	12.5	12.5	67.5
DM, HTN &Dyslipidemia	6	15.0	15.0	82.5
DM &Dyslipidemia	4	10.0	10.0	92.5
HTN &Dyslipidemia	3	7.5	7.5	100.0
Total	40	100.0	100.0	

BMI

N	Minimum	Maximum	Mean	Std. Deviation
40	19.90	28.60	23.5565	2.19217

Table 1 describes the sociodemographic variables and clinical variables of the study participants. The maximum age of the study subjects was 73 years and the minimum age was years with a mean age of 58.02. Among the study participants, majority (52.5%) were males. 13 (32.5%) subjects had primary education, and 11 (27.5%) had U.G. qualification. Most of the female subjects (27.5%) were housewives. 22.5% (9) had govt. job and an equal percentage of subjects were involved in other work. 42.5% (17) subjects belonged to the income group of Rs. 20001 to 30000. 5% (2) subjects had a monthly income of less than Rs.10000. Only 5% (2) study participants were single. The majority of the study participants 26

(65%) were from rural areas. 52.5% of subjects belonged to a joint family.

Clinical variables of study participants

15(37.5%) subjects had the diagnosis of non ST elevation MI. 15% [6] subjects had habit of smoking. The majority of the subjects 72.5% [29] follow a diet which contains high fat and less fruits and vegetables. 60% [24] of the subjects follow the habit of daily walking. 85% [35] of subjects were not doing any exercise. 30% [12] of the subjects are hypertensive and 15% [6] have commodities including diabetes mellitus, hypertension and hyperlipidemia.

Most of the subjects 77.5% [31] had care givers. The majority of the subjects 17(42.5%) were cared for by their wives, and 5% [3] by their husbands. 47.5% [19] subjects had no sort of financial assistance available. Most of the subjects 50% [20] had less than 10km from their habitat. The minimum BMI of subjects was 19.90 and a maximum of 28.6.

Cardiac self-efficacy and Perceived Social Support of the study participants were rated as low, medium and good and was cross tabulated. The correlation was checked using Pearson's Correlation coefficient.

Table 2: Cardiac Self-Efficacy - Perceived Social Support

			PSS			
			LOW	MEDIUM	GOOD	Total
CSE	LOW	Count	3	6	1	10
		% within CSE	30.0%	60.0%	10.0%	100.0%
		% within PSS	50.0%	27.3%	8.3%	25.0%
	MEDIUM	Count	2	8	3	13
		% within CSE	15.4%	61.5%	23.1%	100.0%
		% within PSS	33.3%	36.4%	25.0%	32.5%
	GOOD	Count	1	8	8	17
		% within CSE	5.9%	47.1%	47.1%	100.0%
		% within PSS	16.7%	36.4%	66.7%	42.5%
	Total	Count	6	22	12	40
		% within CSE	15.0%	55.0%	30.0%	100.0%
		% within PSS	100.0%	100.0%	100.0%	100.0%

Table 3: Correlations between Cardiac Self-Efficacy and Perceived Social Support among Patients with CAD

		CSE	PSS
CSE	Pearson Correlation	1	.417**
	Sig. (2-tailed)		.007
	N	40	40
PSS	Pearson Correlation	.417**	1
	Sig. (2-tailed)	.007	
	N	40	40

Table 2 shows the cross tabulation of cardiac self-efficacy and perceived social support of subjects. Among 40 participants, 55% [6] had medium level of cardiac self-efficacy. Around 15% of subjects showed a poor level of cardiac self-efficacy and 30% of subjects had a good level of cardiac self-efficacy. 66.7% had a high level of perceived social support and 16.7% with a poor level of perceived social support.

Table 3 depicts the correlation between cardiac self-efficacy and perceived social support among patients diagnosed with Coronary artery disease. The Pearson correlation test was performed to assess the correlation between cardiac self-efficacy and perceived social support of subjects. It was found that there is a positive correlation between cardiac self-efficacy and perceived social support among CAD patients, significant at 0.01 level (2-tailed). There was no association between selected socio - demographic variables and cardiac self-efficacy of patients with coronary artery disease.

Nursing Implications

Cardiac self-efficacy and perceived social support shows a positive correlation in this study. Understanding the influence of cardiac self-efficacy and social support will better predict the quality of life among patients living with coronary artery disease. This can be achieved by planning and implementing special educational and motivational programs on self care and adaptation to lifestyle modifications, on the basis of CAD patients' risk status as well as the general health status. Recognition of barriers to self-efficacy and its maintenance would show light on the path of nurse researchers to conduct studies on lifestyle modification strategy development and their implementation for patients living with cardiac illnesses.

Conclusion

There is a positive correlation between cardiac self-efficacy and perceived social support among patients with CAD. Also, those with poor social support are at a greater risk of poorer cardiac self-efficacy compared to those with a relatively good level of social support. As there is a positive correlation between cardiac self-efficacy and perceived social support among patients with CAD, those with poor social support are at a greater risk of poorer cardiac self-efficacy compared to those with a relatively good level of social support. If appropriate interventions are made, cardiac self-efficacy can also be improved, so that cardiac patients will be able to perform the lifestyle modifications, effectively and confidently. Further prospective longitudinal studies can be conducted to explore. Therefore, there is a need for developing specific cardiac intervention approaches, in particular, raising cardiac health awareness about treatment adherence is essential to improve self-efficacy and overall health outcomes among CAD patients. Further prospective longitudinal studies can be conducted to explore the variability of cardiac self efficacy of CAD patients, as they undergo aging.

Abbreviations

ACS: Acute coronary syndrome
CAD: Coronary artery disease
CSE: Cardiac self-efficacy
NSTEMI: Non ST elevation Myocardial infarction
PSS: Perceived social support

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Author Contributions

LAN designed the study, conducted data collection and drafted the study. TC reviewed the protocol and suggested modifications. JB outlined the descriptions of analysis and results. VK facilitated the conduct of the study and recruitment of subjects. SK analyzed the data and contributed to the results.

Conflict of Interest

None of the Co-authors expressed Conflict of Interest.

Ethics Approval

The ethical committee of A.K.G. Memorial cooperative Hospital reviewed the protocol and approved the conduct of the study. Ethics approval no: AK/MT/27/06

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