Cardiac Self-Efficacy and its Predictors Among Patients with Coronary Artery Disease: A Cross Sectional Study

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Abstract

Introduction: Coronary artery disease is a leading cause of death in both men and women. It is well known that the maintenance of health behaviours is essential for patients with CADs to prevent recurrence of CAD and cardiac events. Cardiac self-efficacy motivates the individual to select a life style related to cardiovascular disease by creating an enthusiasm to adhere with such behaviours.

Aim: The present study was aimed to investigate the Cardiac self-efficacy and it's predictors among patients with coronary artery disease, to provide fundamental knowledge for developing nursing interventions that can improve self-efficacy in patients with CADs.

Materials and methods: Cross sectional survey design was adopted for this study. Our study was conducted among 300 Patients with coronary artery disease seeking treatment in cardiology outpatient department. Socio demographic and clinical performa, Cardiac self-efficacy scale were used for collecting the required data. Socio demographic, clinical variables and level of cardiac self-efficacy was analysed by using frequency, percentage, median and interquartile range. Simple logistic regression and multiple logistic regression were used to determine the predictors of cardiac self-efficacy.

Results: This study revealed that 66% of the subjects had good cardiac self-efficacy. The median score of cardiac self-efficacy was 56 and with the interquartile range of 46 and 51. Age (OR=0.07, p=0.04) and revascularization (OR= 1.94, p=0.01) were found to be the statistically significant predictors of cardiac self-efficacy.

Conclusion: The findings provided important insights into the cardiac self-efficacy predictors. These findings helps to develop interventions for enhancing cardiac self-efficacy of patients with coronary artery disease and encourage the patients to improve their cardiac self-efficacy to prevent recurrent occurrence of cardiac events.

Keywords: Cardiac self-efficacy; Predictors; Coronary artery disease.

Introduction

It is widely acknowledged that cardiovascular diseases (CVDs) are the leading cause of mortality worldwide. We are in the midst of the true global cardiovascular disease epidemic. CVDs are the number one cause of death globally. More people die annually from CVDs than from any other cause. An estimated 17.9 million people died from CVDs in 2016, representing 31% of all global deaths. Out of these deaths, 85% are due to heart attack and stroke.[1] Heart disease is still the leading cause of death in India, killing 1.7 million Indians in 2016, according to the 2016 Global Burden of Disease Report, released on September 15, 2017.[2] 15% of

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deaths in India were due to heart diseases in 1990; Cardiac ailments killed more Indians in 2016 (28%) than any other non-communicable disease, said a new study published in the September 2018 issue of health journal The Lancet.

Only with medications it is not possible to prevent the recurrent cardiac events, so the patients must take care of themselves by changing their health behaviors. Self-efficacy is a vital factor in both initiating and maintaining health behavior of the patients.[4]

Cardiac self – efficacy (CSE) is a person's belief in his/her ability to manage the challenges posed by a coronary disease. Self- efficacy has an important role in person centered care.[5] A patient's CSE directly influences their level of commitment, effort, and perseverance towards the recommended life style changes. As the management of CVD is a chronic process, patients who have self-confidence in their abilities to manage their illness are more likely to make beneficial changes and are more likely to experience better long term health outcomes. Patients with a low sense of self - efficacy are more likely to have worst health outcomes.[6] Self-efficacy has been mentioned as one of the most important basic elements in chronic disease self-management programs.[7]

Many patients do not observe the recommended lifestyle changes. Thus, those with CAD are in need of boosting their empowerment skills in order to effectively control their symptoms and prevent the disease induced complications. Cardiac self-efficacy is indeed an exclusive cardiac scale about an individual's belief about his capabilities to do the activities related to CAD symptoms and challenges. Determining the cardiac self-efficacy predictors can help the medical staff to identify the patients' self-efficacy promoting factors in order to take measures to improve health behaviors, self-management and as a result, improve quality of life.[8] A patient's cardiac self-efficacy has been shown to directly influence their level of commitment, effort, and perseverance towards making suggested lifestyle changes.[9]

In the present study researcher investigated predictors of cardiac self-efficacy to provide fundamental knowledge for developing nursing intervention strategies that improve self-efficacy in patients with coronary artery disease.

Materials and Methods

Cross sectional study was conducted among 300

Patients with coronary artery disease seeking treatment in cardiology outpatient department, of a tertiary care Hospital, Ernakulam. Samples were selected using Convenience sampling technique. Ethical clearance obtained from the IEC (Institutional ethics committee) and permission obtained from Medical Superintendent and Head of the department of Cardiology.

Inclusion criteria

⮝ History of having Coronary artery disease for at least 6 months.

⮝ Patients aged between 35–95 years.

Exclusion criteria

⮝ Patients with history of serious cardiac complications or chronic conditions.

⮝ Patients with motor disabilities, cognitive and memory impairment.

⮝ Patients with active psychiatric illness.

Tools used for this study were,

• Tool 1: Socio demographic Performa (10 items) and clinical performa (14 items).

• Tool 2: Cardiac self-efficacy scale (CSES),it is a standardized tool developed by Sullivan MD, Andrea Z, Russo J, Katon WJ. This tool consists of 16 statements with the score of 64 on a 5 point Likert scale 0 = not at all confident, 1=somewhat confident, 2=moderately confident, 3=very confident, 4=completely confident.

In each statement higher score indicates better self-efficacy. Knowledge assessment statements consisted of 4 items, self - efficacy for controlling symptoms (CSS-CS) has 8 items and self - efficacy for maintaining function has (CSS-MF) 4 items. Researcher did not include not applicable response option. Permission was obtained from the author Dr. Mark Sullivan MD, the developer of the tool. Reliability of the tool was established (0.78).CSES was arbitrarily classified into 3 levels. Poor cardiac self–efficacy: 0–32 (Upto50%), Average cardiac self–efficacy: 33–50 (51%–80%), Good cardiac self–efficacy: 51–64 (81 –100%).

Socio demographic, clinical variables and level of cardiac self–efficacy was analysed by using frequency, percentage, median and interquartile range. Simple logistic regression and multiple logistic regression were used to determine the predictors of cardiac self–efficacy. A p value of <0.05 was considered to be statistically significant.

Results

A total of 300 patients with coronary artery diseases were included in this study. The results showed that, the majority (66%) had good cardiac self efficacy followed by 26% had average and 8% had poor cardiac self efficacy. Median was 56 and the and IQR (Inter quartile range) were 46 and 61 respectively (Table 1).

Simple logistic regression analysis (Table 2) revealed that, age (OR=0.06, p=0.01) type of family (OR=0.32, p=0.02), revascularization (OR=0.15, p=<0.001), medical comorbidities (OR=4.78, p

=0.03), smoking (OR=9.20, p =0.002), alcohol intake (OR=9.55, p =0.004), cardiac related hospitalization (OR=9.24, p =0.002), exercise (OR=0.9.36, p =0.03), diet modification (OR=0.35, p =0.01), and awareness about the risk factors of cardiac diseases (OR=0.35, p =0.01) were found to be a significant factors of cardiac self-efficacy hence these variable were selected for the multiple logistic regression.

After multivariate logistic regression (Table 2) it was evident that age (OR=0.07, p =0.04) and revascularization (OR=0.22, p = 0.01), were the predictors of cardiac self–efficacy. Even though the odds ratio was high for some variables, the p value was significant only for age and revascularization.

Table 1: Level of cardiac self efficacy of subjects according to their cardiac self-efficacy score.

n=300

Level of cardiac self efficacy	Frequency (f)	Percentage (%)	Median and IQR (Inter quartile range)
Poor: < 32 (<50%)	24	8	
Average: 33–50 (51% –80 %)	78	26	56 (46,61)
Good: 51–64 (81%–100%)	198	66	

Table 2: Simple logistic and multiple logistic regression analysis of socio-demographic and clinical variables.

n=300

Variables	Categories		Simple-logistic regression		Multiple-logistic regression	
	Low	High	Odds ratio	p value	Odds ratio	p value
Age in years						
35–50	1	25	–	–	–	–
51–65	6	123	0.82	0.85	0.71	0.78
66–80	12	116	0.38	0.37	0.32	0.34
81–95	7	10	0.06	0.01	0.07	0.04
Gender						
Male	18	190	–	–	–	–
Female	8	84	0.99	0.99	–	–
Religion						
Christian	15	155	–	–	–	–
Hindu	5	89	1.72	0.30	–	–
Muslim	6	30	0.48	0.16	–	–
Marital status						
Married	22	252	–	–	–	–
Others	4	22	0.48	0.21	–	–
Occupation						
Employed	17	179	–	–	–	–
Unemployed	6	49	1.0	0.99	–	–
Self/ relatives from the Medical field						
Yes	11	90	–	–	–	–
No	15	184	1.50	0.33	–	–
Type of family						
Nuclear	20	250	–	–	–	–
Joint	6	24	0.32	0.02	0.33	0.08
Residence						
Rural	22	252	–	–	–	–
Urban	4	22	0.48	0.21	–	–

Variables	Categories		Simple-logistic regression		Multiple-logistic regression	
	Low	High	Odds ratio	p value	Odds ratio	p value
Social and family support						
Yes	26	265	–	–	–	–
No	0	9	4.17	0.99	–	–
Diagnosis						
Stable angina	2	11	–	–	–	–
Unstable angina	6	48	1.45	0.67	–	–
Myocardial infarction	18	15	2.17	0.33	–	–
Revascularisation						
Yes	4	148	–	–	–	–
No	22	126	0.15	0.001	0.22	0.01
Duration of disease						
<1 year	9	64	–	–	–	–
1–3 years	11	104	1.33	0.55	–	–
4–5 years	1	26	3.66	0.33	–	–
>5 year	5	80	2.25	0.16	–	–
Family history of cardiac diseases						
Yes	5	93	–	–	–	–
No	21	181	0.46	0.13	-	-
Medical comorbidities						
Yes	24	196	–	–	–	–
No	2	78	4.78	0.03	1.94	0.21
Medication intake						
Regular	23	260	–	–	–	–
Irregular	3	14	0.41	0.18	–	–
Smoking						
Smoker	7	17	–	–	–	–
Non smoker	16	190	4.69	0.002	2.29	0.27
Ex- smoker	3	67	9.20	0.002	3.17	0.25
Alcohol consumption						
Alcoholic	5	11	–	–	–	–
Non Alcoholic	18	200	5.05	0.006	2.40	0.35
Ex- Alcoholic	3	63	9.55	0.004	2.72	0.43
Frequency of cardiac related hospitalisation						
Nil	7	24	–	–	–	–
1–2 times/ year	16	155	2.63	0.03	1.23	0.75
>3 times/ year	3	95	9.24	0.002	3.19	0.19
Physical exercise						
Nil	17	89	–	–	–	–
3 times/week	8	136	3.25	0.008	1.60	0.38
>3 times/ week	1	49	9.36	0.03	3.29	0.28
Diet modification						
Yes	16	224	–	–	–	–
No	10	50	0.35	0.01	0.57	0.27
BMI						
Underweight	2	24	–	–	–	–
Normal	14	187	1.11	0.89	–	–
Overweight	10	63	0.52	0.42	–	–
Anxiety regarding the disease condition						
Yes	13	147	–	–	–	–
No	13	127	0.86	0.72	–	–
Awareness about the risk factors cardiac diseases						
Yes	16	224	–	–	–	–
No	10	50	0.35	0.01	0.57	0.27

Level of significance at p value <0.05

Discussion

The current study results indicated that the patients with coronary artery disease had good cardiac self-efficacy. A study by Younhee Kang on Correlates of health behaviors in patients with coronary artery disease showed moderately high cardiac self- efficacy score.[10] Similarly, The research by Boroumand et. al.[11] also showed that the majority of the patients had high self-efficacy.

On the contrary, a study on patient's cardiac self-efficacy after coronary angioplasty by Arsalan Salai et. al.[8] showed that majority of the subjects had low cardiac self-efficacy score. The study by Jalilian et. al. aimed to analyze the general self-efficacy and the perceived social support influencing the life quality of patients with cardiovascular disease showed that units had average self-efficacy.[12] The study conducted by Younhee Kangetal. On cardiac self-efficacy and its predictors among patients with coronary artery disease revealed that subjects cardiac self-efficacy was moderate.[13]

These difference in the cardiac self-efficacy may be related to the tool applied for this study.

Present study showed that age and the revascularization were the predictors of cardiac self-efficacy. A supporting study on patients cardiac self-efficacy after coronary angioplasty conducted in Iran showed age was the predictor for cardiac self - efficacy.[8]

On the other hand, a study on cardiac self-efficacy and its predictors among patients with coronary artery diseases in Korea[13] showed that occupation, diagnosis, BMI, experience of receiving patient education and awareness of risk factors were found to be the predictors of cardiac self-efficacy. Study conducted by Parkinson etal titled cardiac rehabilitation outcome psychosocial factors predictors,[14] showed that there was no significant relationship was found between age and cardiac self - efficacy.

These differences may be due the different settings of the study.

Conclusion

This study highlighted that most of the subjects 66% had good cardiac self-efficacy, 26% had average and 8% had poor cardiac self-efficacy. It also showed that age and revascularization were potent predictors of cardiac self-efficacy. Those with average or poor cardiac self-efficacy has to get involve in cardiac self-efficacy enhancement programs. The findings of the study could provide fundamental knowledge to nurses and other health care providers in developing programs to enhance the cardiac self-efficacy of patients with coronary artery disease. Furthermore, future intervention studies on cardiac self-efficacy would be enhanced by modifying its predictors.

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