

# **A cross-sectional study to assess the patient's confidence regarding secondary lifestyle modification and knowledge of heart attack symptoms following percutaneous revascularization in selected hospitals of Navi Mumbai, India**

## **ABSTRACT**

**Background of the study:** Cardiovascular Disease (CVD) is affecting millions of people in both developed and developing countries. Although the rate of death attributable to the disease has declined in developed countries in the past several decades, it is still the leading cause of death and extorts a heavy social and economic toll globally. In low-middle income countries, the prevalence of CVD has increased dramatically. By 2020, the disease is forecasted to be the major cause of morbidity and mortality in most developing nations. The Global Burden of Disease study estimate of age-standardized CVD death rate of 272 per 100000 populations in India is higher than the global average of 235 per 100000 populations. CAD was estimated to account for around 15%–20% and 6%–9% of all deaths in India and the US. In addition to mortality, CAD is also responsible for morbidity and loss of quality of life

**Material and Methods:** Qualitative cross-sectional study design with a descriptive research approach was adopted for the present study. The study was conducted in D. Y. Patil Hospital and Terna Multi-Speciality Hospital and Research Centre, Nerul, Navi Mumbai with a sample size of 75. A Non-probability purposive sampling technique was used. In this study samples were patients who underwent Percutaneous revascularization for coronary artery disease. Data was collected using an Interview technique. The data was tabulated and analysed in terms of objectives of the study, using descriptive and inferential statistics.

**Results:** The study results show that the majority of the respondents belonged to the age group 46 - 65 years with a frequency of 27 (36%) and were married 57 (76%). Representation of male respondents was 44 (59%) and the rest of the respondents belonged to female gender. They were educated up to high school and employed (service staff); their monthly income was <30,000. They were currently diagnosed as STEMI 22 (29.33%), NSTEMI 17 (22.66%) and CAD/IHD 36 (48%). All the respondents had undergone PCI for CAD. Majority of them presented with the selected risk factor variables mentioned in the data collection tool. The respondents had knowledge about the classical symptoms of heart attack. However, they were unable to identify the other associative symptoms of heart attack. 97.33% of the respondents verbalized the correct response that is sudden pain and heaviness on the chest (n=73) which reciprocates to and sudden pain at the back of chest bone with pain moving towards the left or both arms (n=18) which reciprocates to 24%. However, few respondents have identified that heart attack is a sudden weakness of the upper arm and lower limb on one side of the body (n=26) which reciprocates to 35% and this option remains incorrect. Although from this (n=8) which reciprocates to 10% of the respondents have also managed to verbalize the right response which suggests that they may not have complete knowledge about heart attack symptoms. There was a significant difference between the number of people who were confident and those who were not confident, also there was a significant difference between confidence to some extent and versus confident (that is  $P < 0.05$ ) about the items on the lifestyle modifying factors. The results indicate that fewer patients were confident about the

lifestyle modifying factors. Also, the respondents showed positive correlation ( $< +1.0$ ) and negative correlation ( $< -1.0$ ) with risk factor variables.

The study findings revealed that, patient did not verbalize complete knowledge and confidence regarding secondary lifestyle modification through the statistical analysis. There is a significant difference between the number of people who were confident versus those who were not confident and there was a significant difference between confidence to some extent versus confidence about the items on the lifestyle modifying factors. Also, there is a significant difference between risk factors and all the lifestyle modifying variables.

**Conclusion:** There were substantial disparities in the confidence levels associated with lifestyle modification and recognition/response to heart attack. These gaps need to be studied further and disseminated to improve awareness in terms of health education in the population which will eventually increase their level of confidence.

**Keywords:** coronary artery disease, patient confidence, confidence, lifestyle modification, knowledge

## INTRODUCTION:

Lifestyle modifications, including a balanced diet, smoking cessation, limited alcohol consumption and increased physical activity, are recommended for the first-line management for coronary artery disease (CAD).<sup>(16)</sup> The American Heart Association/American College of Cardiology guidelines recommend a healthy diet with an emphasis on vegetables, fruits and whole grains along with vigorous physical activity (3–4 aerobic sessions per week). Adhering to lifestyle modifications, including higher quality diets or exercise rehabilitation, has been associated with a lower risk of all-cause mortality among patients with CAD.<sup>(17)</sup> The recognition and confidence levels of patients with respect to symptoms and reactions to ‘heart attack’ are also important patient-related factors influencing clinical outcomes. A previous nurse-led study<sup>(23)</sup> revealed that education and counselling intervention led to increasingly positive attitudes in terms of patient response to heart attack, suggesting that knowledge of heart attack could also represent a modifiable factor in the optimization of CAD management. Furthermore, inappropriate understanding of the symptoms of CAD could directly affect the action of patients in seeking prompt emergency care, which is known to contribute to timely reperfusion therapy.<sup>(25)</sup>

In recent years, patient confidences on lifestyle modification or disease recognition have been the subject of much research in the field of cardiovascular diseases. Understanding patient confidences on these modifiable factors is essential to close the perception gap between healthcare providers and patients in terms of patients’ confidence levels regarding lifestyle modification or disease recognition. These approaches could also help to identify imbalances in the composition of patient education programs and assess the appropriateness of such programs.<sup>(25)</sup>

Zhang, Q.T., et.al. (Beijing,2007), Quan, J.H.J., et.al. (Singapore, 2014), Gill. R. and Chow, C.M. (North America, 2010); studied public knowledge of heart attack symptoms, The purpose of these studies was to document knowledge about heart attack symptoms in the respective population. They found that public heart attack awareness is not adequate and knowledge of a wide range of heart attack symptoms is deficient in the general population.<sup>(36-39-43)</sup>

Kita kata H Kohno et.al in 2018, in her observational cross-sectional study on 236 patients to assess patient confidences on secondary lifestyle modification and knowledge of heart attack after percutaneous coronary intervention (PCI) for coronary artery disease (CAD) found that overall, patients had a high level of confidence (confident or completely confident,>75%) about smoking cessation, alcohol restriction and medication adherence. However, they had a relatively low level of confidence (<50%) about the maintenance of blood pressure control, healthy diet, body weight and routine exercise ( $\geq 3$  times/week). After adjustment, male sex (OR 3.61, 95% CI 1.11 to 11.8) and lower educational level (OR 3.25; 95% CI 1.70 to 6.23) were identified as factors associated with lower confidence levels. In terms of confidence in the recognition of heart attack, almost all respondents answered 'yes' to the item 'I should go to the hospital as soon as possible when I have a heart attack'; however, only 28% of the responders were confident in their ability to distinguish between heart attack symptoms and other conditions. <sup>(25)</sup>

The researcher during her clinical experience has experienced that there were substantial disparities in the confidence levels associated with lifestyle modification and recognition of heart attack symptoms amongst admitted and visiting outpatients. These gaps need to be studied further and disseminated to improve cardiovascular care.

Thus, in this study, the primary goal was to elucidate the confidence of secondary lifestyle modification and specific knowledge of heart attack in patients treated with percutaneous coronary intervention (PCI).

## **RESEARCH METHODOLOGY:**

The aim of present study was to 'Assess the patient's confidence regarding secondary lifestyle modification and knowledge of heart attack symptoms following percutaneous revascularization in selected hospitals of Navi Mumbai.'

The Proposed study was conducted after the approval of the ethical committee of D. Y. Patil University School of Nursing. Written permission was obtained from the D. Y. Patil Hospital and informed written consent of each respondent was obtained before starting the data collection. The anonymity of the respondent was maintained throughout the study.

In this study, an Interview technique is used to assess the patient's confidence regarding secondary lifestyle modification and knowledge of heart attack symptoms following percutaneous revascularization, which is a reliable tool. The domains of the tool are referred from the study conducted by Kitakata et al. in Japan 2018 <sup>(25)</sup> They designed the questionnaire originally after an in-depth discussion among board-certified cardiologists and nurses at their institute for this study and was largely based on the recommendations of the Japanese Circulation Society (JCS) guidelines of 2013. <sup>(59)</sup>

For the final data collection, a morning shift was scheduled at Terna hospital and the evening shifts at D.Y. Patil hospital. The Nursing In-charges were informed about the timings and process of data collection. The investigator checked in the respective settings for patients who have undergone the PCI procedure and observed whether the patient is comfortable to approach at that time, accordingly the investigator had proceeded to the data collection so that it doesn't disturb the rest period of the patient.

First and foremost, the investigator introduced herself to the patients and then briefed them about the research study, its importance, and their moral responsibility in being genuine with

their responses. The investigator oriented them to the tool and the data gathering process to ensure reliability in data collection. The respondents were enlightened about their rights as ‘the respondents’ of the study and regarding the ‘Data Protection Act’. The respondents were made aware that they can ask for any kind of clarifications from the investigator at any point in the interview. An informed consent was obtained from every respondent of the study at the start of the interview. The investigator interviewed each respondent individually and at the end of their interview the participants were thanked for their participation. The investigator explained all the respondents in detail on lifestyle modifications and heart attack using a PowerPoint presentation, if they lacked any information.

After the collection of the data according to the inclusive and exclusive criteria for the respondents, the researchers further proceeded with the data analysis and interpretation plan. The data which was gathered from respondents were organized on the excel sheet for the statistical process. After putting it on the excel sheet, the demographic data and the prevalence of risk factor were tabulated and graphically presented with frequency and percentage.

The chi-square analysis and p value were calculated to determine the statistically significant difference between the no. of patients who were not confident vs confident and confident vs confident to a certain extent.

All the variables included in the study were correlated with the disease modifying variables. The spearman correlation coefficient statistical rho test was used to determine the correlation between significant medical history and all the disease modifying variables. Also, the correlation coefficient was calculated to determine the relationship between the items of questionnaire about the lifestyle modification, significant medical history, and relevant disease markers. The correlation coefficient matrix is presented in the separate tables with the correlation coefficient (r, p value) and p value presenting the significance of relationship SPSS package 22 version.

## RESULTS AND INTERPRETATION:

The gathered data was organized, tabulated, analysed with SPSS v25 and interpreted using descriptive and inferential statistics, on the basis of the following objectives and hypothesis of the study.

### Section 1: Biographic data and prevalence of risk factor of CAD in the respondents

**Table no. 1: Description of Biographic data of samples**

N = 75

Sr. No.	Demographic Variables		Samples	
			Frequency	Percentage
			(n)	(%)
1.	Age	≤ 45 years [young age]	27	36%
		46 - 65 years [middle-age]	29	39%
		> 65 years [old age]	19	25%

2.	Gender	Male	44	59%
		Female	31	41%
3.	Education	Illiterate	16	21%
		< High school	12	16%
		High school	25	33%
		> High school	20	27%
		Profession	2	3%
4.	Caste / religion	Hindu	62	83%
		Muslim	13	17%
5.	Marital status	Unmarried	5	7%
		Married	57	76%
		Divorced	7	9%
		Widow	6	8%
6.	Occupation	Manual laborers	19	25%
		Service staff	33	44%
		Mental laborers	9	12%
		Others	14	19%
7.	Total family income	< 30,000 per month	54	72%
		30,000-50,000 per month	17	23%
		> 50,000	4	5%
8.	Clinical data of the respondents	Current diagnosis		
		STEMI	22	29.33%
		NSTEMI	17	22.66%
		IHD/CAD	36	48%
		Diagnosed since when (Recent within 5 days)	39	52%
		Diagnosed since when (More than 5 days)	36	48%
PCI (specify what intervention was done.) -PTCA	75	100%		

**Table no. 2: Description of the prevalence of risk factor of CAD in the respondents.**

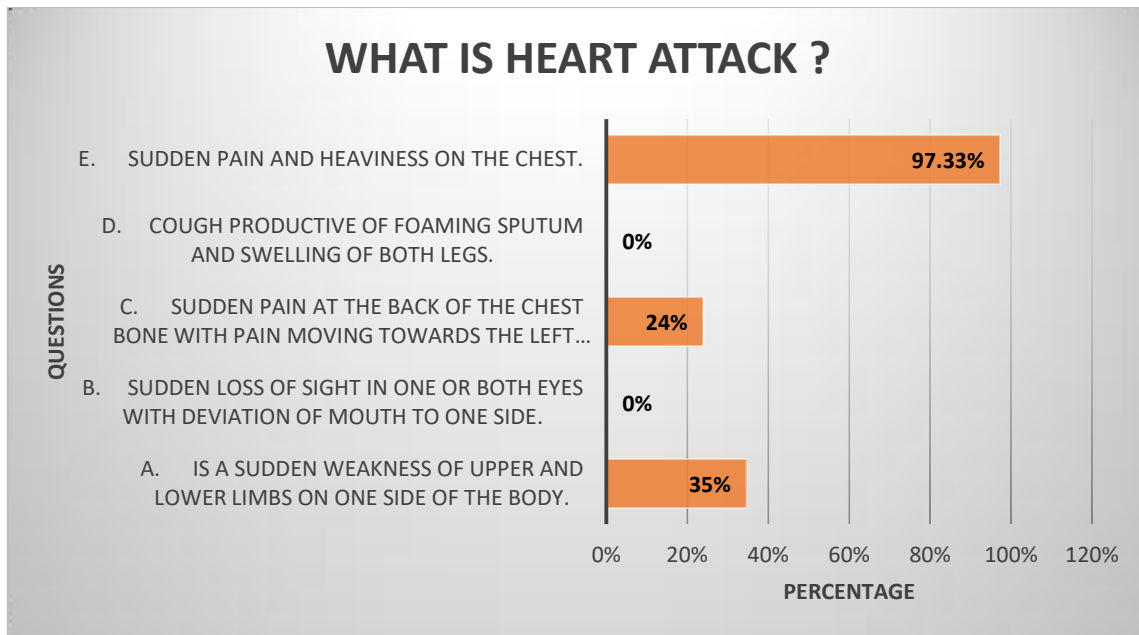
**N = 75**

Sr. No.	Risk factor variables	Data				Total	
		Yes		No			
		(n)	(%)	(n)	(%)	(n)	(%)

1	Family history	52	69%	23	31%	75	100%
2	History of hypertension	54	72%	21	28%	75	100%
3	History of diabetes	34	45%	41	55%	75	100%
4	Dyslipidaemia	24	32%	51	68%	75	100%
5	Smoking / oral tobacco addiction	49	65%	26	35%	75	100%
6	Consumption of alcohol	39	52%	36	48%	75	100%
7	Sleep	58	77%	17	23%	75	100%
8	Exercise	26	35%	49	65%	75	100%
9	Diet	31	41%	44	59%	75	100%
10	Obesity	28	37%	47	63%	75	100%
11	Waist hip ratio	24	32%	51	68%	75	100%
12	Blood homocysteine	40	53%	35	47%	75	100%
13	Attained Menopause (if female respondent)	19	39%	31	41%	-	-
14	Stress level	59	79%	16	21%	75	100%
15	Current BP	56	75%	19	25%	75	100%
16	HGT	40	53%	35	47%	75	100%

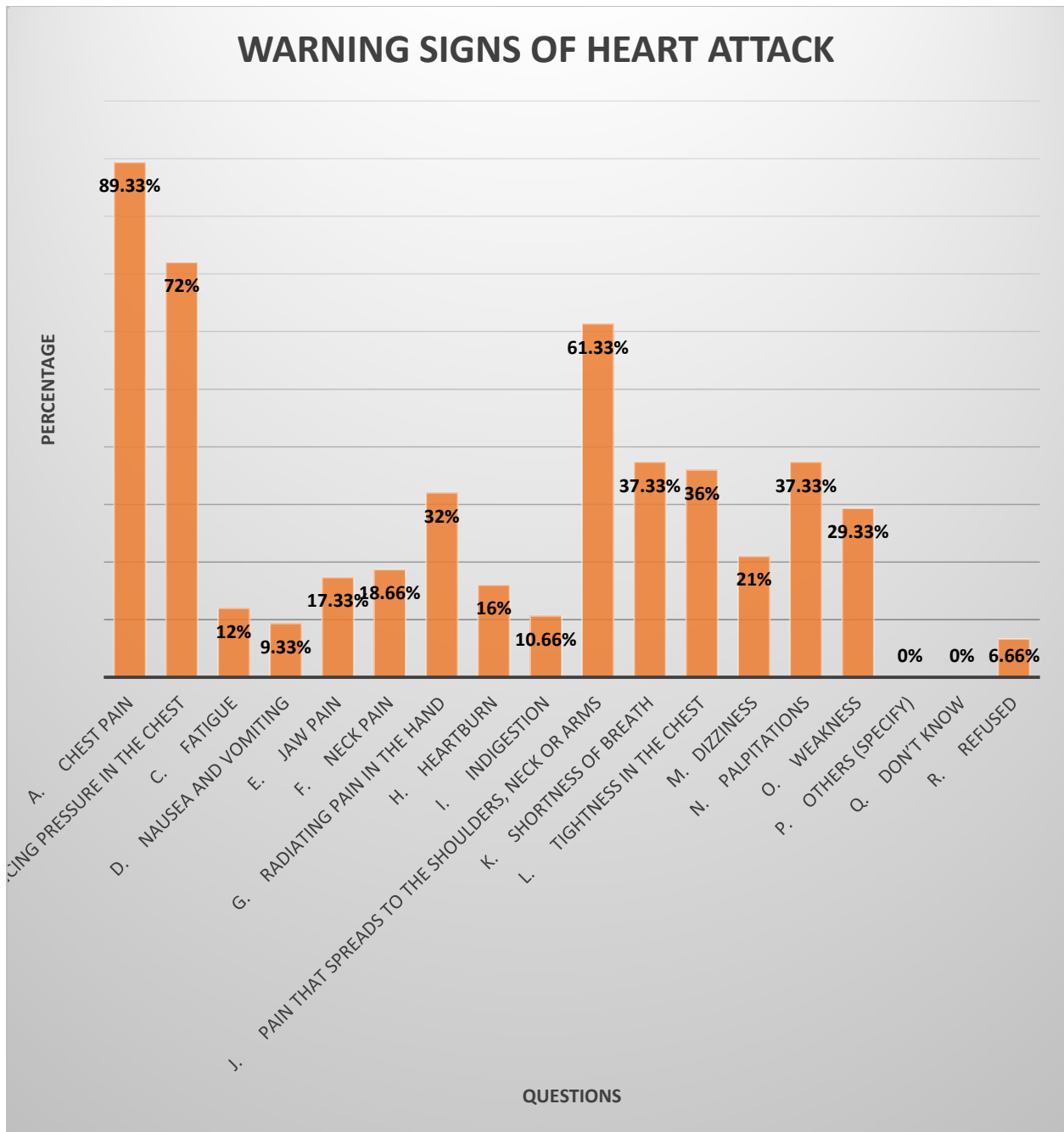
**Section 2:** Knowledge about heart attack symptoms of the respondents.

**N = 75**



**Figure 1a: Bar diagram showing percentage wise distribution according to the knowledge of heart attack of the respondents**

According to the present data, 35% respondents have verbalized incorrect knowledge of heart attack symptoms. Out of these, 22.85% respondents have verbalized the right perception to a certain extent as they have in their answers wrong option too. Thus, their information towards heart attack symptoms is incomplete.



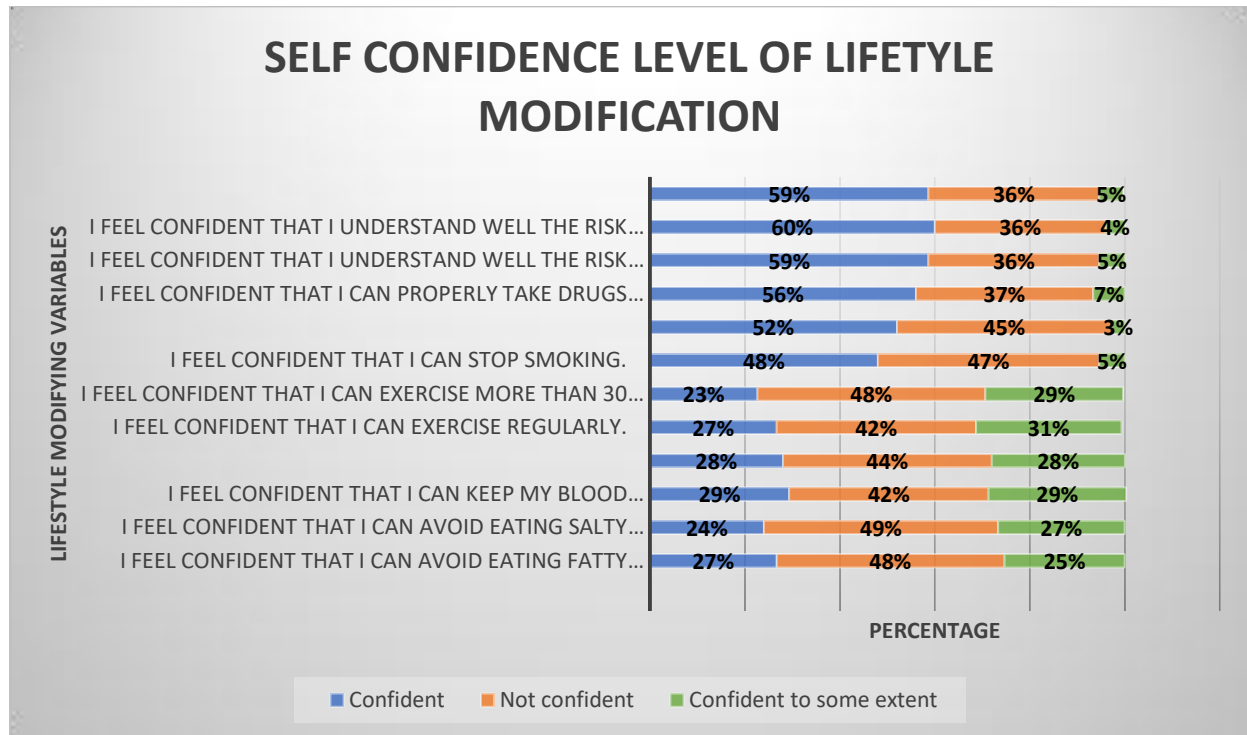
**Figure 1b: Bar diagram showing percentage wise distribution according to the warning signs of heart attack**

According to the present data, maximum respondents have knowledge about the classical symptoms of heart attack. However, they are unable to identify the other associative symptoms of heart attack.

Thus, the investigator can conclude that a maximum of respondents did not verbalize complete knowledge regarding heart attack symptoms.

**Section 3: Self- confidence level of lifestyle modification of the respondents.**

N = 75



**Figure 2: Bar diagram showing percentage wise distribution according to the self-confidence level of lifestyle modification**

The primary objective of the study was to assess the confidence of patient’s regarding disease modifying variables. The information was collected on a structured questionnaire. The responses were collected on the nominal scale. The responses were assessing patients’ confidence about the items on disease. The data was processed through categorical analysis. The response categories were assessing whether patients were ‘confident’, ‘not confident’ or ‘confident to a certain extent’ for the disease modifying habits items. The chi-square analysis and p value were calculated to determine the statistically significant difference between the number of patients who were not confident vs confident and confident vs confident to a certain extent and shown in the table 3.

**Table 3: Confidence response categories for the questionnaire on modified Likert scale about the awareness of lifestyle modifying factors.**

N = 75

Sr. No.	Lifestyle modifying factor	Interaction	Chi square	p value
1	I feel confident that I can avoid eating fatty food	Not confident/confident	25.17	0
		confident/confident to some extent	9.25	0.002
2	I feel confident that I can avoid eating salty food throughout the year	Not confident/confident	23.06	0
		confident/confident to some extent	8.6	0.003

3	I feel confident that I can keep my blood pressure target	Not confident/confident	21.93	0
		confident/confident to some extent	12.92	0
4	I feel confident that I can keep my body weight target	Not confident/confident	22.91	0
		confident/confident to some extent	11.34	0.001
5	I feel confident that I can Exercise regularly	Not confident/confident	20.29	0
		confident/confident to some extent	12.06	0.001
6	I feel confident that I can exercise more than 30 minutes in each session	Not confident/confident	20.29	0
		confident/confident to some extent	9.12	0.008
7	I feel confident that I can Stop smoking	Not confident/confident	60.57	0
		confident/confident to some extent	3.9	0.048
8	I feel confident that I can Limit my alcohol intake	Not confident/confident	67.37	0
		confident/confident to some extent	2.226	0.136
9	I feel confident that I can properly take drugs without failure	Not confident/confident	56.8	0
		confident/confident to some extent	6.81	0.009
10	I feel confident that I understand well risk of smoking	Not confident/confident	59.87	0
		confident/confident to some extent	5.99	0.01
11	I feel confident that I understand well risk of alcohol intake	Not confident/confident	63.28	0
		confident/confident to some extent	4.68	0.03
12	I feel confident that I understand well risk of depression anxiety and insomnia	Not confident/confident	59.87	0
		confident/confident to some extent	5.99	0.01

There was a significant difference between the number of people who were confident and not confident. Also, there was a significant difference between confidence to some extent and confidence about the items on the lifestyle modifying factors. The results indicate that fewer patients were confident about the lifestyle modifying factors.

### **Section 3b: Correlation of disease modifying variables with all the variables in the study.**

All the variables included in the study were correlated with the disease modifying variables. The spearman correlation coefficient statistical rho test was used to determine the correlation between significant medical history and all the disease modifying variables (marker). Also, the correlation coefficient was calculated to determine the relationship between the items of questionnaire about the lifestyle modification, significant medical history, and relevant disease markers.

In result, the present study showed that there was a significant difference between the number of people who were confident and those who were not confident, also there was a

significant difference between confidence to some extent versus confidence (that is  $P < 0.05$ ) about the items on the lifestyle modifying factors. The results indicate that fewer patients were confident about the lifestyle modifying factors. Also, the respondents showed varying degrees of correlation between confidence and the risk factor variables, which interprets:

### **Determinants showing non-confidence of the respondents with respect to lifestyle modifying factors**

- 1) The respondents who had risk factors such as history of diabetes, dyslipidaemia, disturbed blood homocysteine levels, increased stress levels, alteration in current BP and HGT are not confident that they can follow most of the selected lifestyle modifying factors as mentioned in the data collection tool throughout the year.
- 2) The respondents who had a history of hypertension are not confident that they can achieve or maintain their body weight target, exercise regularly, limit their alcohol intake and adhere to their drug regimen.
- 3) The respondents who had smoking and tobacco consuming habit are not confident that they can achieve or maintain their BP target, achieve or maintain their body weight target, stop smoking, avoid alcohol intake, understand well risk of depression, anxiety and insomnia as a risk to the cause of their CAD
- 4) The respondents who had alcohol consumption habits are not confident that they can neither stop smoking nor do they understand smoking as a risk factor of CAD; Also, they are not confident that they can neither avoid alcohol intake nor understand the risk of alcohol and take their drugs without failure.
- 5) The respondents who had sleep disturbances are not confident that they can stop smoking and reduce their alcohol intake
- 6) The respondents who had obesity are not confident that they can avoid taking salty food, BP target, weight target, alcohol intake.
- 7) The respondents who had increased WHR are not confident that they can avoid fatty food, stop salty food, BP target

### **Determinants showing confidence of the respondents with respect to lifestyle modifying factors**

The respondents who had the habit of exercising, good dietary habits and who had attained menopause are confident that they can follow most of the selected lifestyle modifying factors as mentioned in the data collection tool throughout the year.

## **DISCUSSION:**

The present study demonstrated the following key points:

- (1) Recognition of the level of knowledge regarding heart attack symptoms which was incomplete and inadequate.
- (2) Confidence levels in lifestyle modification were different across the various risk factors for patients with CAD and patients had low confidence in overall lifestyle modification.

In this study, majority of the respondents significantly belonged to the middle age group and young age group. Most of the population were males. The clinical data of the respondent

showed past and current diagnosis of STEMI, NSTEMI and CAD/IHD and all the respondents underwent PCI for CAD.

It was demonstrated that patients with CAD do not have adequate knowledge about heart attack symptoms. Majority of the respondents have knowledge about the classical symptoms of heart attack that is, chest pain (n=67) which reciprocates to 89.33%, experiencing pressure in chest (n=54) which reciprocates to 72% and pain that spreads to the shoulders, neck or arms (n=46) which reciprocates to (61.33%). However, they are unable to identify the other associative symptoms of heart attack. Also, 97.33% (n=73) respondents verbalized the correct knowledge related to the concept of heart attack that is sudden pain and heaviness on the chest and 24% (n=18) said that it is sudden pain at the back of the chest bone with pain moving towards the left or both arms. However, few respondents have also identified that heart attack is a sudden weakness of the upper arm and lower limb on one side of the body (n=26) which reciprocates to 35% and this concept of heart attack is incorrect. Although from these (n=8) which reciprocates to 10% of the respondents, they know that heart attack is sudden pain and heaviness on the chest. Thus, these 35% have not verbalized complete knowledge about heart attack concept. This analysed data revealed that respondents do not have knowledge of heart attack symptoms following percutaneous revascularization for CAD. Hence, H1 is accepted.

The following studies have their findings similar to the present study. The level of knowledge of signs and symptoms of heart attack in Singapore is comparable to the USA and Canada. They found a comparable knowledge of heart attack signs and symptoms in the community to countries within the same economic, educational, and healthcare strata. However older persons, those with lower educational level and those who are unemployed/retired, require more public health education efforts. <sup>(39)</sup> Patient education is known to be an important intervention in enhancing the adherence to lifestyle modification, <sup>(44)</sup> the challenge is how to effectively deliver education programmes to patients with CAD in given limited human resources and limited duration of hospitalisation or outpatient consultation. The comparable knowledge of heart attack signs and symptoms in the community to countries within the same economic, educational, and healthcare strata is inadequate. <sup>(37-39)</sup> The health care workers (doctors and nurses), need to emphasise more extensively for education on the same. It is common for patients to have limited knowledge of heart attack symptoms. The lack of awareness in this regard represents a significant barrier to patients taking action and seeking medical care. <sup>(43)</sup>

Investigator also demonstrated the correlation between the risk factors and various variables assessed to understand the patient's confidence regarding lifestyle modification. Although the significant relationship presented in the data showed a not confident and confident level of respondents with regards to lifestyle modifying factors, there were crucial findings of the study about the non-significant relationship. The most important variable of the study was the patient's information or their knowledge about the lifestyle modifying factor which can prevent further morbidity in them. It was found that the majority of the population were not confident about the lifestyle modifying factor. The level of confidence vs not confident was compared and it was found that majority of the patient population were not confident about the lifestyle modifying factors. chi square analysis was undertaken to determine this association statistically. and it showed the significant amount of majority of the patient population were not confident about the lifestyle modifying factors. Also, a portion of the population were slightly confident about their knowledge of lifestyle modifying factors but to a certain extent. The analysed data also revealed that statistically patients do not have

confidence regarding secondary lifestyle modification following percutaneous revascularization for CAD. Hence, H2 is accepted.

Thus, the researcher can conclude that maximum of the respondents did not verbalize complete confidence regarding secondary lifestyle modification due to varying influencing factors as stated above. Hence, there is a future scope, and the clinical staff should further consider that potential for improving their information about the lifestyle modifying factors and it is the nursing responsibility to educate the patient population which can further play a significant role in prevention of morbidity, hospital stay. This would also help to seek medical care at the appropriate time if the patient is found not following the routine of the disease modifying factors.

The following studies have their findings similar to the present study. Much of the existing research on lifestyle modification has focused on single behaviours, for example, smoking cessation. However, the level of accomplishment regarding lifestyle modification can vary among the main modifiable risk factors, including alcohol restriction, dyslipidaemia, obesity, physical inactivity, hypertension and diabetes. <sup>(25)</sup> It is also evident that patients with CAD were not confident in adhering to regular and sufficient exercise after discharge. The adherence to exercise training has been reported as low in previous studies, that is, approximately <60% in patients with heart failure (HF), <sup>(60-61)</sup> which is consistent in terms of patient's confidence in this study. Nurses need to emphasise the importance of exercise training and pursue strategies to promote regular exercise, such as more extensive referral for cardiac rehabilitation and structured nurse-led or therapist-led contact. <sup>(23)</sup> Respondents were also less confident about factors related to dietary and nutritional factors. Several previous studies reported poor adherence to salt restriction or diet restriction in general among patients with chronic diseases such as HF or diabetes mellitus, <sup>(17)</sup> suggesting that the difficulties in adhering to dietary modification could be universal. Despite its powerful opportunities to reduce adverse health, confusion surrounding nutritional guidance sometimes emerges because of the rapid advances in dietary and nutrition science. Continuous education performed by multidisciplinary teams, especially nutritionists and diabetologists, could be essential in improving lifestyle modification.

## **LIMITATION AND IMPLICATIONS OF THE STUDY**

- This was a small study based on only two centres. Therefore, the study involved a small number of patients that is 75.
- The cross-sectional design of this study limits its ability to clarify the impact of a patient's confidence level on lifestyle modification at home and awareness of heart attack symptoms and long-term clinical outcomes.
- This study can give an insight to the healthcare professionals and their awareness of these interactions with the terminologies can prevent morbidities arising from CAD
- This study can be taken as a baseline learning and an effective module can be developed for Patient Education.
- With adequate and appropriate health education provided, our community will be less likely to face the incidences of CAD, or the morbidity associated with the same.

## CONCLUSION:

The present study assessed the patient's confidence regarding secondary lifestyle modification and knowledge of heart attack symptoms following percutaneous revascularization in selected hospitals of Navi Mumbai. It is evident that the patient did not verbalize complete knowledge and confidence regarding secondary lifestyle modification through the statistical analysis. There is a significant difference between the number of people who were confident versus those who were not confident and there was a significant difference between confidence to some extent versus confidence about the items on the lifestyle modifying factors. Also, there is a low correlation between risk factors and all the lifestyle modifying variables, revealing low confidence amongst the respondents. Thus, there were substantial disparities in the confidence levels associated with lifestyle modification and recognition/response to heart attack. These gaps need to be bridged by nurses to generate health awareness.

**Ethics Approval:** The study was approved by the independent ethics committee of D. Y. Patil University School of Nursing.

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