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Assessment Of The Effect Of Muscle Relaxation Technique On Stress Of Patient With Coronary Artery Disease.

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ABSTRACT

The past few years have witnessed an increased interest in non-pharmacological treatment approaches to essential coronary artery disease. Muscle relaxation training had been the focus of more clinical and research attention, for a long period of time. relaxation techniques have been used for hundreds of years as critical components of fundamental philosophical theological and therapeutic traditions. To identify stress level and evaluate the effectiveness of muscle relaxation on stress level amongst patients to coronary conduct ailment, and find affiliation between stress and selected demographic variables. Aims at evaluating the effectiveness of muscle relaxation technique on stress of patients with coronary artery disease. pre experimental one group pretest post-test was used to achieve the objectives of the study was carried out at on 60 patients who fulfilled inclusion criteria at Al Hussein Hospital, Iraq from July 2016 to September 2016. In order to collect the study information a 5-Likert rating scale was prepared to achieve study purpose. The tool consisted of 32 items, divided into two sections. First section which consists of 12 items covered demographic data, while second section which consist of 20 items covered the presence of stressful manifestation. All items were measured by using 5-likert scale option were used in the rating scale as: present (5), sometime (4), rarely (3), decreased (2) and absent (1). In pre test all of the patients with coronary artery disease had moderate stress (Score 47-73). After intervention in post-test, 75% of them had mild stress (Score <47) and 25% of them had moderate stress (Score 47-73). P-values is less than 0.05 (p value = 0.000).The post test stress level was decreased significantly. Stress level of the subjects after muscle relaxation had shown remarkable improvement in post test than in pre test, hence research hypothesis is rejected. The researcher recommends further studies includes larger group of patient, generalize relaxation techniques for all coronary patients in Indian hospitals.

Keywords: muscle, stress, coronary artery disease.

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INTRODUCTION

Coronary Artery Diseases (CAD) maintain to turn out to be a global health hassle, and have an effect on thousands and thousands of human beings global. In addition, the CAD diseases affect people at all ages because it is not just a disease of the elderly (1).

nowadays, about three.8 million guys and three.4 million women international die every yr from CHD. consistent with the global burden of ailment look at, the growing international locations contributed 3.5 million of the 6.2 million global deaths from CHD in 1990. the projections estimate that these countries will account for 7.eight million of the 11.1 million deaths because of CHD in 2020 (2).

hazard factors for coronary artery consist of those which may be modified. an unhealthy weight-reduction plan can boost risk for coronary artery ailment. meals which can be excessive in saturated and tran's fat, cholesterol, sodium, and sugar can get worse other threat factors for coronary artery disorder. dangerous weight loss plan, loss of physical pastime and obesity are relatedness to each different. loss of bodily interest can get worse other danger elements for coronary artery disease, which includes bad blood levels of cholesterol, high blood strain, diabetes, and overweight or obesity. overweight and weight problems check with body weight that's greater than what's considered wholesome for a positive top. obese and weight problems also are connected to other coronary heart ailment danger factors, inclusive of high blood cholesterol, excessive blood pressure, and diabetes (3).

non modifiable hazard elements consist of older age, own family history of early heart disease, genetic or lifestyle factors reason plaque to accumulate for your arteries as you age. usually middle-elderly or older, sufficient plaque has constructed as much as reason signs or symptoms. in men, the chance for CHD will increase after age 45. in women, the chance for CHD will increase after age fifty five years (4).

Stress has been recently evolved as a "trigger" for a heart attack is an emotionally upsetting event, especially the one involving anger. Stress can trigger arteries to tighten. This can raise blood pressure and risk of having a heart attack. Stress also may indirectly raise the risk of heart disease if it makes more likely to smoke or over eat foods high in fat and sugar (5).

"Stress does not handiest make us feel awful emotionally". research have discovered many health issues related to stress. strain appears to worsen or boom the chance of situations like obesity, coronary heart disorder, and asthma (6).

The past few years have witnessed an increased interest in nonpharmacological treatment approaches to essential coronary artery disease. In traditional or modified form, muscle relaxation training had been the focus of more clinical and research attention, for a long period of time. relaxation techniques have been used for hundreds of years as crucial components of most important philosophical theological and healing traditions (7).

the muscle relaxation is a systematic technique for accomplishing a deep state of rest. it includes getting to know to stressful after which relax diverse muscle agencies all through the frame, while at the same time paying very near attention to the feelings related to both anxiety and rest. the regular practice of PMR can pass an extended way closer to helping one to higher manipulate one's stress and feel better all round (8).

Objectives

1. To identify the stress level among patients with coronary artery disease.
2. To evaluate the impact of muscle relaxation on the stress level among patients with coronary artery disease.
3. To find association between stress and selected demographic variables.

Methodology

Pre experimental one group pretest posttest only design was used to identify stress level and to evaluate the effect of muscle relaxation on the stress level amongst patients with coronary artery disease. the

subject was consisted of 60 patients who admitted to Al Hussein Hospital and fulfillment the inclusion criteria during the period of 1st of July 2016 to September 2016.

Likert stress rating scale is used in this study as for the data collection. It is further divided into three sections:

Section I-Demographic/clinical profile:

Consist of 12 items of demographic variables profile such as age, sex, religion, residence, type of family, educational qualification, occupation, family monthly income, type of food, Coronary artery disease was diagnosed, family history of coronary artery disease, risk factors applicable for client.

Section II-Likert stress rating scale.

Consist of Likert stress rating scale. It comprises of following indicators for monitoring the stress level in coronary artery disease patient. The stress rating scale is divided into four aspects

- i) Physiological aspect: It includes pain in the chest, shortness of breath, rapid heartbeat, weak point, dizziness, nausea and increased sweating.
- ii) Psychological aspect: It includes anger, inability to concentrate, anxious, constantly worrying, confused while making any decision, depression.
- iii) Sociological aspect: It includes arguments with family members, interaction with family members, and conflict with health team member.
- iv) Emotional aspect: It includes irritability, dependence, crying when I feel lonely, feeling of boredom and frustration.

These were included as the indicators of stress in coronary artery disease patient.

Section III-Procedure profile

Consist of procedure profile for the muscle relaxation technique.

The reliability was done by inter rater method, calculation was done by kappa correlation formulation and the reliability coefficient of the tool was 0.82. Also the calibration of the pulse oxymter and sphygmomanometer was done by the biomedical engineer and found that the instrument was reliable.

Data analysis was done by using descriptive and inferential statistics.

- Item related to the demographic/clinical variable was analyzed interm of frequency and percentage.
- Bar graph was plotted to compare the distribution of pretest andpost test score.
- Mean, median, standard deviation and mean percentage wascomputed t test and ANOVA test was applied.

RESULT

Table 1: Description of samples (Patients with coronary heart disease) according to pretest vital signs by frequency. N=60

Sr No.	Pre test vital signs	Frequency
1	Pulse	
	70-74	14
	75-78	25
	79-82	17
	83-86	4
2.	Blood pressure	
	111/80-120/80	5
	121/80-130/80	8
	131/80-140/80	4

	141/80-150/80	2
	111/90-120/90	3
	121/90-130/90	25
	131/90-140/90	9
	141/90-150/90	3
	131/100-140/100	1
3.	Respiration	
	18-21	20
	22-24	11
	25-27	22
	28-30	7

From the above table 2, it can be interpreted that majority of 25 samples pulse rate between 75-78. Majority of 25 samples had blood pressure between 121/90-130/90. Majority of samples 25 had respiration between 23-26.

Analysis of data related to the stress level among patients with coronary artery disease: N=60

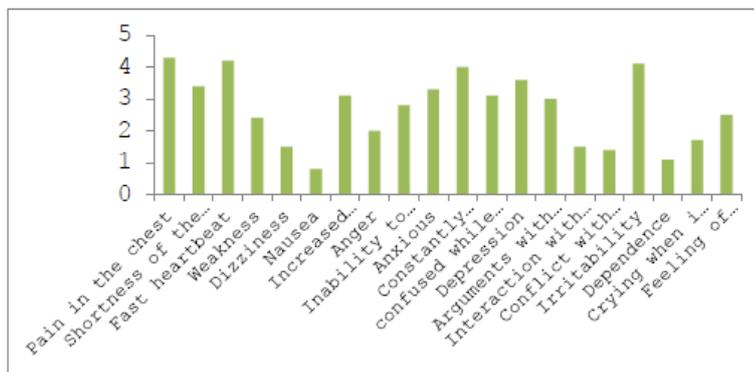


Fig. 1: Bar diagram showing area wise pretest mean stress score of coronary artery disease patients.

From figure 1 can be interpreted that the mean score of stress in coronary artery disease patient due to chest pain was 4.31, shortness of breath 3.48, fast heartbeat 4.21, weakness 2.46, dizziness 1.55, nausea 1.5, increased sweating 3.15, anger 4.06, anxious 2.86, inability to concentrate 3.3, constantly worrying 4.0, confused while making decision 3.16, depression 3.68, arguments with family members 1.53, conflict with health team members 1.41, irritability 4.15, dependence 1.16, crying when i feel lonely 1.7, feeling of boredom and frustration 2.58.

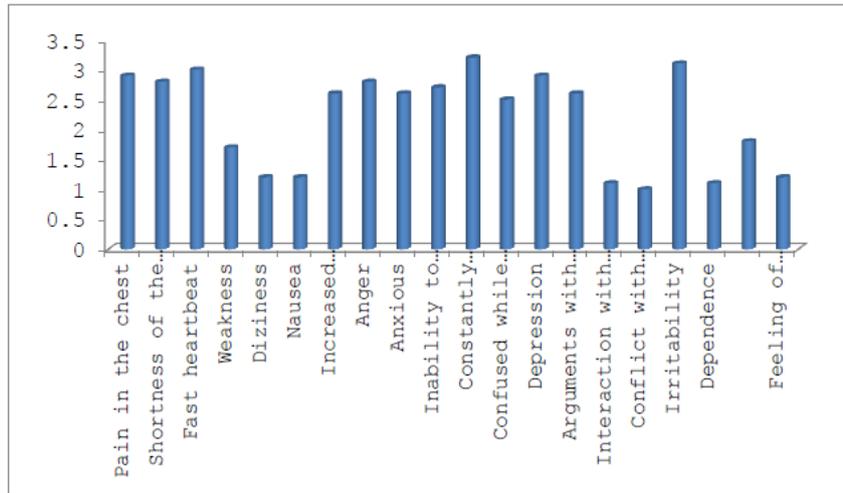


Fig 2: Bar diagram showing area wise posttest means stress score of coronary artery disease patients.

From figure 2 it can be interpreted that the mean score of stress in coronary artery disease patient due to chest pain was 2.9, shortness of breath 2.8, fast heartbeat 3.08, weakness 1.76, dizziness 1.26, nausea 1.25, increased sweating 1.26, anger 2.85, anxious 2.6, inability to concentrate 2.7, constantly worrying 3.25, confused while making decision 2.51, depression 2.9, arguments with family members 2.6, interaction with family members 1.11, conflict with health team members 1.08, irritability 3.16, dependence 1.13, crying when i feel lonely 1.8, feeling of boredom and frustration 1.254.

Table2: Description of samples (Patients with coronary heart disease) according to posttest vital signs by frequency. N=60.

Sr No.	Post test vital signs	Frequency
1	Pulse	
	70-74	27
	75-78	23
	79-82	9
	83-86	1
2.	Blood pressure	
	111/80-120/80	13
	121/80-130/80	27
	131/80-140/80	0
	141/80-150/80	0
	111/90-120/90	4
	121/90-130/90	14
	131/90-140/90	2
	141/90-150/90	0
131/100-140/100	0	
3.	Respiration	
	18-22	22
	23-26	26
	27-30	12

From the above table 3, it can be interpreted that majority of 27 samples pulse rate between 70-74. Majority of 27 samples had blood pressure between 121/80-130/80. Majority of samples 26 had respiration between 23-26.

Section III

Analysis of data related to the effect of muscle relaxation on the stress level among patients with coronary artery disease N=60

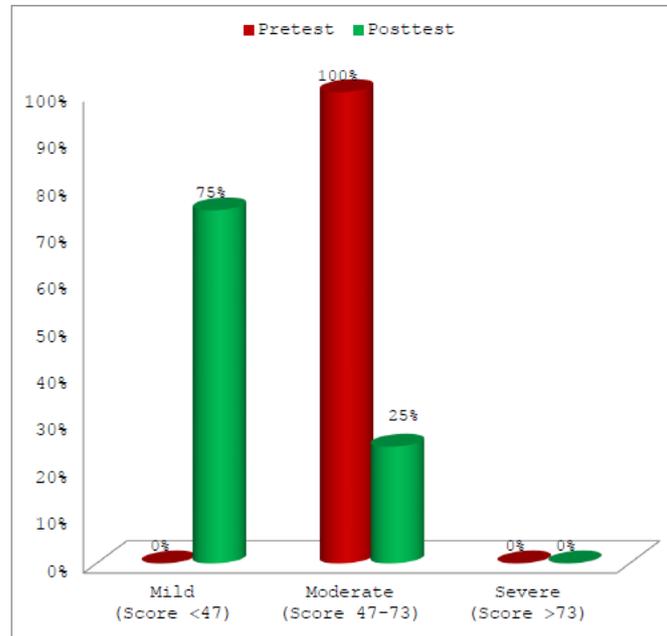


Figure 4: Multiple bar diagram showing stress level before and after muscle relaxation.

After muscle relaxation, 75% of them had mild stress (Score <47) and 25% of them had moderate stress (Score 47-73). This indicates that the stress level of the patients with coronary artery disease improved remarkably after the muscle relaxation.

Table 2: Paired t-test for effect of muscle relaxation on stress level of patients with coronary artery disease:

Pretest and posttest stress scores were compared using paired t-test. The summary of the results of paired t-test is:

Admin	Mean	SD	T	Df	p-value
Pretest	56.6	7.1	16.7	59	0
Posttest	45.2	4			

Researcher applied paired t test to compare pretest and posttest stress scores of the patients with coronary artery disease. T-value of this comparison was found to be 16.7. The p-value was very small (of the order of 0.000). Since p-value is very small (less than 0.05), the null hypothesis is rejected. Average stress score of patients in pretest was 56.6, in posttest average stress score was 45.2. This indicates that the muscle relaxation was significantly effective in improving the stress of patients with coronary artery ailment.

Table 3: An analysis of data to association between demographic variables and stress score of patients with coronary artery disease N=60

The results summary of ANOVA are tabulated below:

Demographic variable	F	p-value
Age	0.9	0.478
Gender	0.2	0.678
Religion	2.6	0.087
Residence	2.2	0.145
Type of family	4.6	0.014
Educational Qualification	0.6	0.535
Occupation	0.4	0.767
Family Monthly income	1.2	0.319
Type of food	0.3	0.619
CAD was diagnosed	0.7	0.552
Family history of Coronary artery disease	2.2	0.146
Risk factors applicable for client	7.2	0.00

The association between stress score and demographic variables was assessed using ANOVA. Since the p-values corresponding to type of family and risk factors applicable for client are small, (less than 0.05), the null hypothesis(H₀) which states that there will be no significant change in the stress level among patient with coronary artery disease who receives muscle relaxation is rejected. Demographic variables 'Type of family' (i.e extended family) and 'Risk factors applicable for client' (physically inactive client) were found to have significant association with stress of the patients with coronary artery disease.

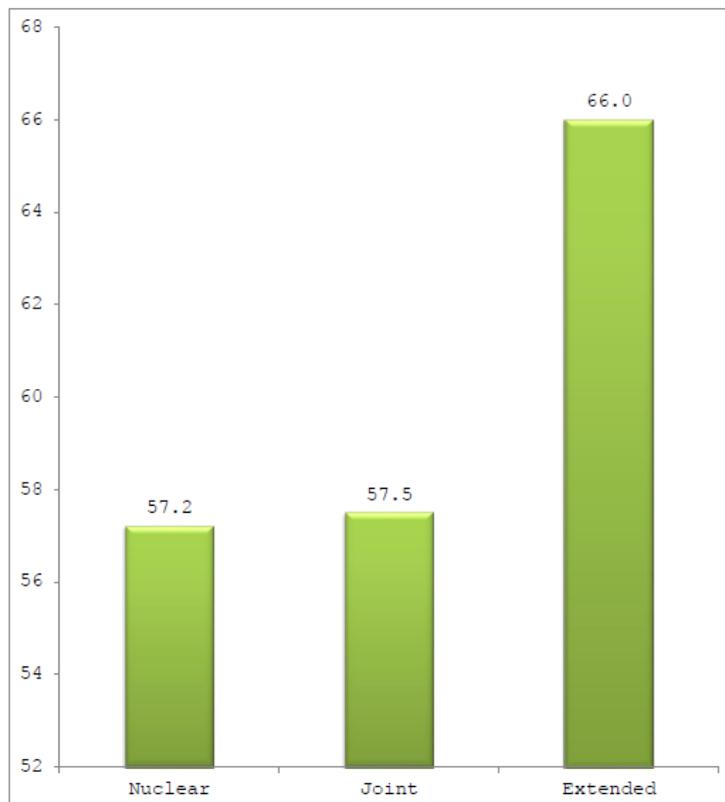


Figure 6: Bar diagram showing type of family and its relationship between average stress score with CAD.

Patients with nuclear family of 57.2, joint family 57.5 extended 66.0 had stress. It was found that patients from extended family were found to have the highest stress as compared to those from nuclear and joint family.

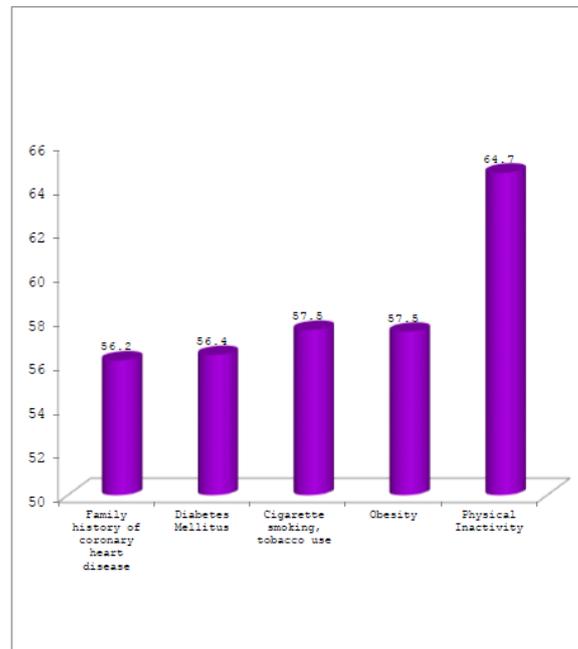


Figure 7: Bar diagram showing risk factor applicable versus average stress score.

Physically inactive patients were found to have the highest average stress score of 64.7 as compared with those from the other applicable risk factors.

DISCUSSION

The finding of the present study showed that Majority of the patients with heart coronary diseases had 41-45 years of age i.e. 30% of patients. Maximum samples 66.7% of them were males. These findings are supported by Silva (2014) as she stated that (77.5%) of subjects in her study were ranged from 44-59 years and 70% were males (also it's miles supported with the aid of some other observe carried out by means of the National heart and lung institute which found out coronary artery disorder among 184 males out of 250 topics. this indicates the prevalence of coronary artery disorder in adult males as compared to females (10).

The present study showed that the mean score of stress in coronary artery disease patient due to chest pain was 4.31, shortness of breath 3.48, fast heartbeat 4.21, weakness 2.46, dizziness 1.55, nausea 1.5, increased sweating 3.15, anger 4.06, anxious 2.86, inability to concentrate 3.3, constantly worrying 4.0, confused while making decision 3.16, depression 3.68, arguments with family members 1.53, conflict with health team members 1.41, irritability 4.15, dependence 1.16, crying when i feel lonely 1.7, feeling of boredom and frustration 2.58 comparable findings had been stated in a look at performed with the aid of the National institute of health and medical studies, france on 726 topics, which found out that anxiety issues have been related to a higher risk of coronary artery disease. these findings indicate the want of counseling patients or having relaxation treatment options incorporated as a part of cardiac rehabilitation program(11).

Moreover, a similar study was done by J. Godlin (2009) to assess effects of the Effectiveness of Progressive Muscle Relaxation Therapy (PMRT) on Anxiety among Coronary Artery Disease Patients in a Selected Hospital, Bangalore. Thirty samples were selected and progressive muscle relaxation was given for 2 weeks. The study results shown that mean pretest score was 56.23 and mean posttest score was 40.78. There was a significant reduction in anxiety score. The results of the study revealed that a significant reduction in SBP ($p < 0.01$) were observed after PMR. In pre-test it was found that all of the patients with coronary artery disease

had moderate stress (Score 47-73). In posttest 75% of them had mild stress (Score <47) and 25% of them had moderate stress (Score 47-73) (12).

CONCLUSION

The findings of this study shed light on the impact of applying relaxation technique on patients with CAD. this examine has established that training rest approach every day for three days 2 times an afternoon for 5 min has substantially reduced the stress level of patients with CAD. consequently it can be considered as a cost-effective strategy in the prognosis of the disease.

RECOMMENDATION

- Inclusion of relaxation technique as a new strategy of CAD prognosis.
- Developing educational and training programs inserted in the hospitals policies as learning program in hospitals for CAD patients.
- A comparative study can be done by using other methods and to find the accuracy.

REFERENCES

- [1] Al-Jubouri, M. Assessment of Stressful Life Events of Adult Patients with Ischemic Heart Disease in Baghdad City. Published Thesis. University of Baghdad, College of Nursing, 2014; 2-11.
- [2] Guy G. De Backer, *Medicographia*. 2009;Vol 31.p.343-348
- [3] David Zieve, The most reliable approach to kill 'a silent killer'. *IJPSR* 2011 July; 18. Abramson Stephen, Risk factors for coronary artery disease, 2001 May; Vol 15(8):p.907-909.
- [4] Abramson Stephen, Risk factors for coronary artery disease, 2001 May; Vol 15(8):p.68-71.
- [5] Gary.H.Gibbons, Stress and high blood pressure. 2012
- [6] Mary C. Townsend Coping With Stress When Caring for a Terminally Ill Relative. *Health Guide*. Wednesday, March 03, 2008.
- [7] Lucas Thompson, Stress management methods on perceptions of physical and mental energy, *JR soc med*. Austria2009 May; Vol 86(5).p.254-58.
- [8] SharonBegley'Systemicreviewofrelaxationinterventionsforstress'.*J Nursscholarsh*.2005; Vol 38(3).p.269-77.
- [9] Silva, F. Vinay, H. and Muninarayanappa, N. Effectiveness of dep breathing exercise (DBE) on the heart rate variability, BP, anxiety and depression of patients with coronary artery disease. *NUJHS* Vol. 4, No.1, March 2014, ISSN 2249-7110.
- [10] Park JH, Bae SH. A systematic review of psychological distress as a risk factor for recurrent cardiac events in patients with coronary artery disease. Available from:
- [11] URL:<http://www.ncbi.nlm.nih.gov/pubmed/>
- [12] Jean M, Joanne Runions. Anxiety and depression after acute myocardial infarction. *Heart & Lung: The journal of Acute and Critical Care* 2004. available from: URL :
- [13] <http://www.sciencedirect.com>
- [14] 12.Godlin J. Effectiveness of Progressive Muscle Relaxation Therapy (PMRT) onAnxiety among Coronary Artery Disease Patients in a Selected Hospital,Bangalore. 2009; unpublished thesis, Bangalore University.