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**EFFECT OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE ON  
LIFESTYLE MODIFICATION AMONG PATIENTS WITH CARDIOVASCULAR  
DISEASES AT SHARJAH, UAE**

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**ABSTRACT**

**Introduction:**

Cardiovascular diseases are a major health concern worldwide, causing significant morbidity and mortality. Structured education programs and Cardiac rehabilitation programs have been shown to be effective in reducing morbidity and mortality in these patients. Lifestyle modification is an essential component of the management of cardiovascular diseases. Lifestyle changes can help to control risk factors such as high blood pressure, high cholesterol, and diabetes, which are major contributors to the development and progression of these conditions. It typically involves exercise training, dietary counseling, and medication management.

**Objectives:**

The objectives of the study were to Assess the knowledge of cardiovascular patients on life style modification, to test the Effect of Structured Teaching Program on Knowledge regarding lifestyle modification and to determine if there was any Association between the knowledge of patients and their demographic variables.



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### **Materials and Methods:**

A Quantitative research approach was used. The research design was Quasi Experimental – One group Pretest posttest Design. Totally 65 samples who met the inclusion criteria were selected from the general population in a selected area in Sharjah, UAE. The researchers used Health and Life Style Questionnaire to collect data on knowledge on Lifestyle modification among patients with cardiovascular diseases. Initially, a pretest was conducted after which a structured teaching program was administered to the study participants. A week later, post test was conducted using the same questionnaire.

### **Results & Conclusion:**

Findings of the study revealed a significant increase in knowledge in all dimensions of the questionnaire after the structured teaching program. A significant association was seen between the level of knowledge and demographic variables like gender and occupation of the participants. Hence, the researchers concluded that, by incorporating these lifestyle modifications into their daily routine, patients with Cardiovascular diseases, can improve their overall health and reduce their risk of future cardiovascular events.

### **Key Words:**

Effect, Structured Teaching Program, Knowledge, Lifestyle modification, Cardiovascular diseases.



## **Introduction**

Despite a lot of advances in medical technology and pharmacology, cardiovascular disease (CVD) remains the leading cause of death. Lifestyle modification can be helpful in providing additive benefits to the reductions in cardiovascular morbidity and mortality. Health care providers should routinely counsel their coronary patients to engage in exercise, physical activity, consume a heart-healthy diet, quit smoking, and adopt stress reduction techniques<sup>1</sup>.

A study on the effects of a nurse-led lifestyle related risk factor modification intervention on multiple lifestyle behaviors among coronary artery disease patients in Nepal (n=224) over six months showed a statistically significant effect on the experimental group for diet, adherence to medication, physical activity, and perceived stress. Overall, greater improvement in lifestyle habits was found in the intervention group when compared to the control group<sup>2</sup>.

A Cross Sectional study explored lifestyle changes as well as the achievement of targets for risk factors among 973 clients with recognized cardiovascular disease in six European countries. About 14% of the subjects were smokers, 32% were physically inactive, and 30% had nutritionally poor eating behaviors. Findings showed that, LDL cholesterol target value below 70 mg/dl was achieved in about 23% of patients, and in general, women were less cardio-protected by drugs than men. Many patients with a history of cardiovascular disease who attended general practice still failed to achieve the lifestyle, risk factor, and therapeutic targets set<sup>3</sup>.

## **Aim of the Study and Objectives**

This study aimed to assess the effect of Structured Teaching Program on Knowledge regarding lifestyle modification among patients with Cardiovascular Diseases. The objectives of the study were to assess the knowledge on lifestyle modification among patients with cardiovascular diseases, assess the effect of structured teaching program on knowledge on lifestyle modification among patients with cardiovascular diseases, and to associate the knowledge on lifestyle modification among patients with cardiovascular diseases and their demographic variables.



## **Hypothesis**

**Ho1** - There is no Significant Improvement in Knowledge on lifestyle modifications among Patients with Cardiovascular Diseases after Structured Teaching Program

**Ho2** - There is no Significant Association between the Knowledge on lifestyle modifications of patients with Cardiovascular Diseases and their Demographic Variables.

## **Materials & Methods**

### **Research approach and design**

A quantitative research approach was adopted with Quasi Experimental Design with One group pre and posttest.

### **Research setting**

The setting for this study was a selected area in Sharjah, UAE.

### **Population**

The population comprised of patients who were diagnosed with cardiovascular diseases among the general population at a selected area.

### **Samples**

The samples in this study were patients who were diagnosed earlier with cardiovascular diseases and were on treatment.

### **Criteria for sample selection**

#### ***Inclusion criteria***

- Patients with already diagnosed cardiovascular diseases
- Those with pre-existing co-morbidities
- Those above 18 years of age

#### ***Exclusion criteria***

- Patients who were unstable and sick
- Those who could not understand English

### **Sample Size Estimation**

Using total Enumeration method all patients who fit into the inclusion criteria were selected.

### **Sampling technique**

Non-Probability - Purposive sampling technique was used.



## **Study Setting**

The Study setting was a selected area of general population at Sharjah, UAE

## **Duration of Study**

The study was conducted over 8 weeks from February to April 2023

## **Research Tools and Techniques Study instrument**

Section A – Demographic details

Section B – Personal history

Section C - Medical history

Section D – Health and Lifestyle Questionnaire

## **Validity and Reliability of the Tool**

a. Validity – The demographic, personal and medical history sections were validated by medical and nursing experts.

b. Reliability – The Health and Lifestyle Questionnaire was a standardized tool with an established reliability of 0.74 (Cronbach’s Alpha)

## **Plan for method of data collection**

After approval from the CRC and IRB of GMU, permission was sought from the general population in a selected area at Sharjah, UAE. After obtaining the consent of the participants, data was collected. The patients were given questionnaires and data was collected directly. On the first day, pretest and Structured Teaching Program was administered. One week later, posttest was done using the same questionnaire.

## **Ethical Consideration:**

Ethical approval was sought from the CRC of College of Nursing and the IRB of Gulf Medical University. Individual consent was obtained from those with pre-existing cardiovascular diseases. Adequate explanation about the purpose of the study was given to the subjects before proceeding with data collection, and the participants were given the right to withdraw from the study at any time.

## **Techniques of Data Analysis**

- Both Descriptive and Inferential Statistics were employed for analysis of data.
- The baseline data representing the sample characteristics are presented in frequency and percentages.
- Independent ‘t’ test was used to check effectiveness of the structured teaching program.
- Chi-square was employed to test the association between the knowledge on Lifestyle modification of cardiovascular patients and demographic variables of the clients.



## **Results:**

### **I - Demographic Variables of Patients with Cardiovascular Diseases:**

- Out of the 65 study participants, majority (35.4%) of the samples were between 41-50 years of age, 84.6% of them were males by gender and 95.4% of them were Asians by ethnicity. Totally, 46.2% were graduates in regards to educational qualification, all 65 of them were residing in Sharjah and 43.1% were employed in Ministry or private concerns.
- With regards to their personal habits, 30.8% of the samples were found to be smoking and consuming alcohol.
- Data on the dietary habits and exercise among Patients with Cardiovascular Diseases, findings revealed that, majority (92.3%) of the participants were non-vegetarians, around 50.8% were consuming fast foods and more than half (55.4%) consumed fresh fruits regularly. Around 49.2% had no habit of exercising at all.
- Data regarding the Personal Medical History of Patients with Cardiovascular Diseases revealed that, 21.5% had Diabetes, and 21.5% had hypertension. Among 65 samples, 27.7% had an angiogram / stent placed previously. All 65 of them were vaccinated against Covid-19 and 86.2% had been infected with Covid-19. Totally 9.2% had suffered heart attack and 49.2% of them had Diabetes Mellitus, 13.8% had asthma along with cardiovascular diseases and nearly half of them (49.2%) had had chest discomfort with exertion.



**II - Knowledge on Lifestyle Modification among Patients with Cardiovascular Diseases**

**Table 1: Pretest Knowledge on Life Style modification among patients with Cardiovascular diseases based on various Dimensions**

(n=65)

Dimensions / Subscales of Health & Lifestyle	Pretest Knowledge Scores	
	Mean	Standard Deviation
Health and fitness Goal	2.14	1.07
Physical activity	1.03	0.24
Sedentary behavior	1.74	0.56
Readiness	2.45	0.84
<b>Total</b>	<b>7.71</b>	<b>1.61</b>

The above table shows the pretest Mean & SD of dimensions like health & fitness goal, physical activity, sedentary behavior and readiness. The overall pretest Mean was found to be 7.71 and the Standard Deviation was 1.61.

**III - Comparison on Dimensions of the Pre and Post test Scores on Knowledge on Life style among Patients with Cardiovascular diseases**

**Table 2: Various Dimensions of Pre and Post test Scores on Knowledge on Lifestyle among Cardiovascular Patients**

(n=65)

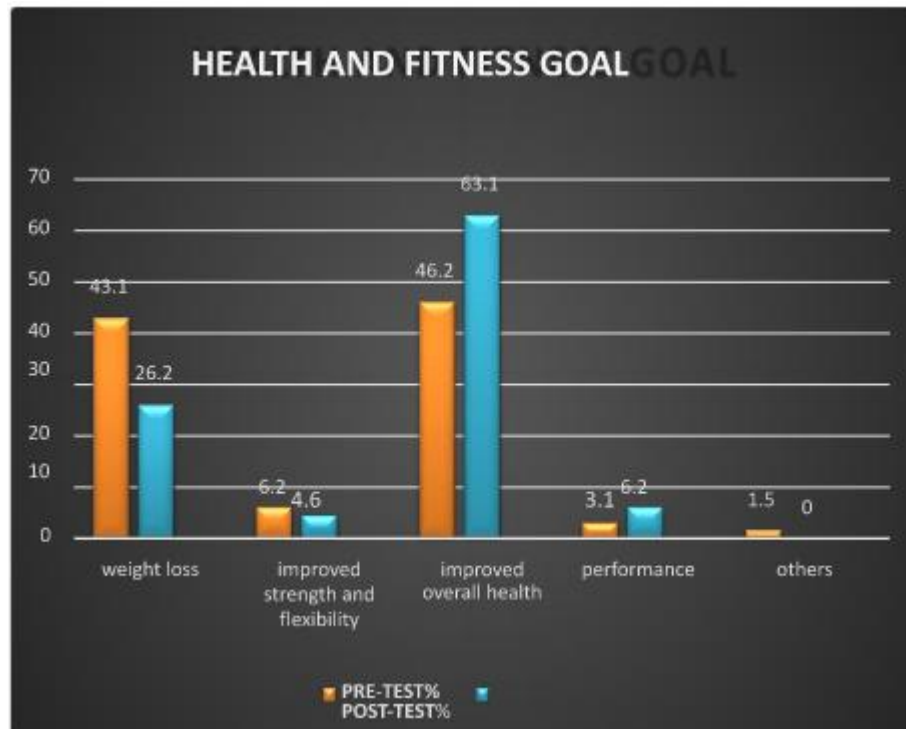
Dimensions / Subscales of Health & Lifestyle	Pre		Post		t-value	(p) value
	Mean	SD	Mean	SD		
Health and fitness Goal	2.14	1.07	2.49	0.95	1.767	0.082
Physical activity	1.03	0.24	1.06	0.25	0.704	0.484
Sedentary behavior	1.74	0.56	2.48	0.83	7.878	0.001*
Readiness	2.45	0.84	3.15	1.55	2.979	0.004*
<b>Total</b>	<b>7.71</b>	<b>1.61</b>	<b>8.83</b>	<b>2.12</b>	<b>3.058</b>	<b>0.003*</b>

\*Significant (P<0.05).

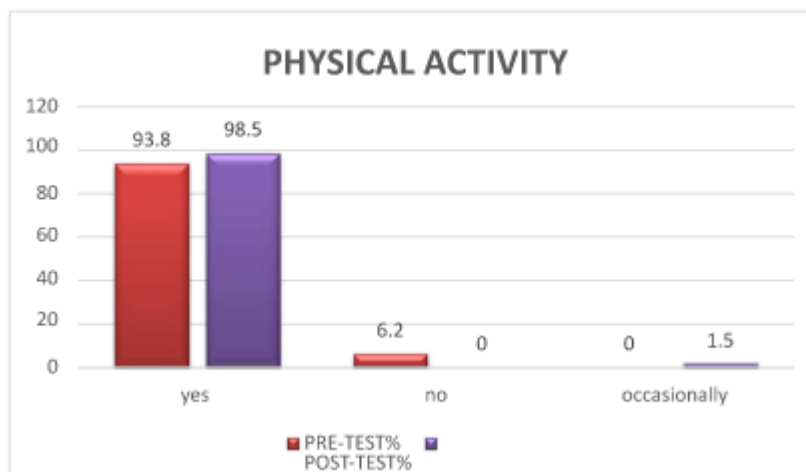


The above table shows the various Dimensions of Pre and Post test Scores on Knowledge on Lifestyle among Cardiovascular Patients. The overall Pre and Post test Mean was found to be 7.71 and 8.83 with a Standard Deviation of 1.61 and 2.12 respectively. The knowledge on dimensions like sedentary behavior and readiness had a significant increase ( $p < 0.05$  level).

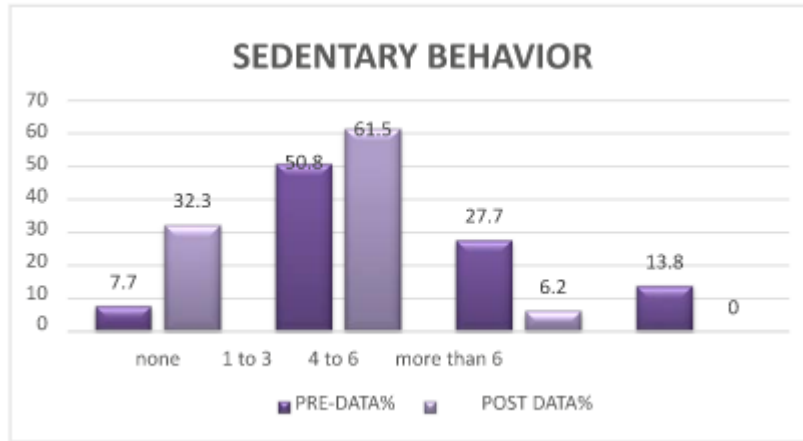
**Figure 1 Comparison of Knowledge on Health & Fitness Goal between Pre and Post test**



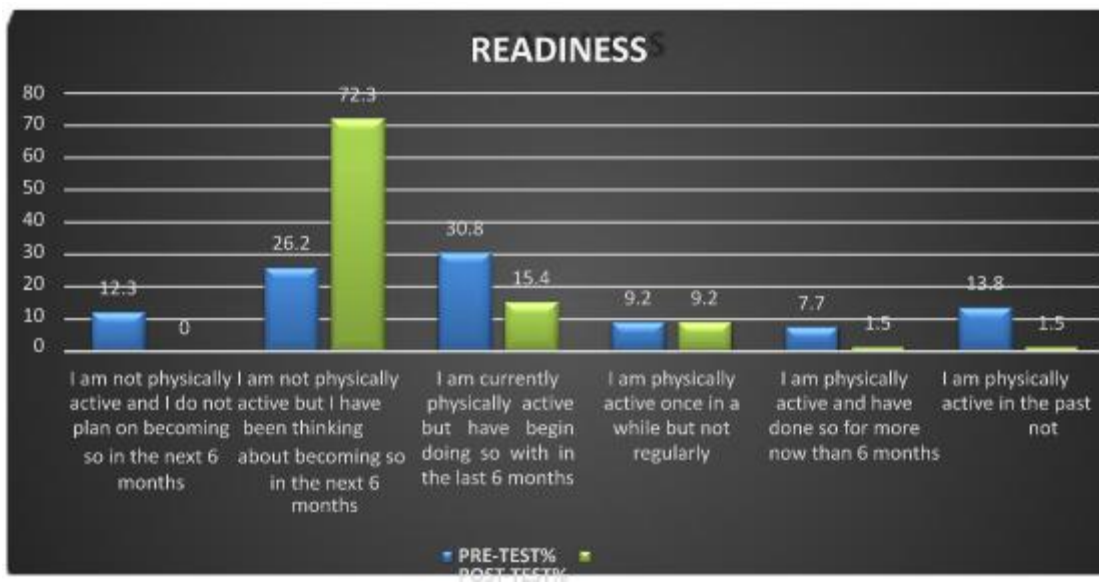
**Figure 2 Comparison of Knowledge on Physical Activity between Pre and Posttest**







**Figure 3 Comparison of Knowledge on Sedentary Behavior between Pre and Post test**



**Figure 4 Comparison of Knowledge on Readiness between Pre and Post test**



#### IV - Effect of Structured Teaching Program on Knowledge on Life style modification among Patients with Cardiovascular diseases

**Table 3: Effect of Structured Teaching Program on Knowledge on Life style modification among Patients with Cardiovascular diseases**

(n=65)

Test	Mean Scores	Standard Deviation	Mean Difference	't' value 'P' value
Pretest	7.71	1.61	1.12	3.058
Post Test	8.83	2.12		P = (0.003)*

\*Significant (P<0.05).

Table 3 reveals the effect of Structured Teaching Program on Knowledge on Life style modification among Patients with Cardiovascular diseases. The overall Pre and Posttest Mean was found to be 7.71 and 8.83 with a Standard Deviation of 1.61 and 2.12 respectively. The mean difference was 1.12. The 't' test value was 3.058 which showed that, the Structured Teaching Program had caused an improvement in the knowledge scores among patients with cardiovascular diseases at 0.05 level of significance. Thus, the Null Hypothesis Ho1- There is no Significant Improvement in Knowledge on lifestyle modification among Patients with Cardiovascular Diseases after Structured Teaching Program was rejected.

#### V - Association between Knowledge on Lifestyle Modification among Patients with Cardiovascular Diseases and Demographic Variables



**Table 5: Association between Knowledge on Life style modification and demographic variables of Patients with Cardiovascular Diseases**

(n=65)

Demographic Variables	Pretest	Significance test	Post test	Significance test
<b>Age</b>				<b>(P)</b>
21-30 years	7.0±0	F=0.881 (0.481)	8.5±0.7	F=1.555 (0.198)
31-40 years	9.6±2.3		7.3±1.6	
41-50 years	8.7±2.2		7.3±1.4	
51-60 years	8.5±2.2		7.5±1.3	
61-70 years	8.7±1.6		8.5±1.9	
<b>Gender</b>				
Male	8.8±2.1	T=0.044 (0.834)	7.4±1.6	T=8.418 (0.005*)
Female	8.7±2.5		9.0±0.9	
<b>Ethnicity</b>				
Asian	8.8±2.1	F=0.027 (0.973)	7.7±1.6	F=1.469 (0.238)
Pak	8.5±0.7		8.0±0	
Iran	9.0±0		5.0±0	
<b>Emirate of Stay</b>				
Sharjah	8.4±2.1	F=0.744 (0.594)	7.6±1.2	F=1.989 (0.108)
Ajman	9.0±1.2		7.5±1.7	
Dubai	9.5±2.5		7.6±1.8	
Rak	8.0±0		12.0±0	
Fujairah	9.2±1.2		7.3±2.6	
Abudhabi	7.5±0.7		9.0±0	
<b>Occupation</b>				
Employed	9.3±2.1	F=2.011 (0.143)	8.1±1.6	F=3.552 (0.035*)
Unemployed	7.9±1.8		8.2±1.7	
Own Business	8.7±2.1		7.1±1.4	
<b>Education</b>				
Illiterate	7.7±2.5	F=0.576 (0.681)	7.7±1.5	F=1.721 (0.159)
Primary	8.5±2.5		8.8±1.6	
Secondary	8.9±2.3		8.3±1.9	
Graduate	8.7±2.1		7.3±1.5	
Professional	9.4±2.1		7.5±1.4	

t: t- test      F: anova tests      \*Significant (P<0.05).



Table 5 shows that, there is an association between Knowledge on Life style modification with gender and occupational status of Patients with Cardiovascular Diseases at 0.05 level of significance. None of the other demographic variables were associated. Hence, the Null Hypothesis, Ho2 - There is no Significant Association between the Knowledge on lifestyle modifications of patients with Cardiovascular Diseases and their Demographic Variables was accepted.

### **Discussion**

A study conducted by Mezhal et al on 5167 participants in the UAE explored socio-demographic factors, general health, and early life exposures. The findings of the study suggested that, there is a high prevalence of cardiometabolic risk factors like prevalence of obesity, dysglycemia, dyslipidemia, hypertension and central obesity in the UAE amongst young adults. The present study also found that there was a high percentage of those who had co-morbidities and had also experienced chest pain<sup>4</sup>.

Few of the major contributing factors for diabetes and its related complications in the GCC countries are rapid urbanization, increasing obesity, inactive lifestyle, poor diet intake and cultural customs. Global recommendations for prevention of diabetes and its associated cardiovascular complications are crucial in managing diabetes effectively<sup>5</sup>. In the present study 21.5% had Diabetes, 21.5% had hypertension and 27.7% had an angiogram/stent placed earlier.

A study on the knowledge of possible risk factors for CHD, and its relation relation to advice on compliance with lifestyle changes to attain therapy goals and adherence to drug therapy was undertaken among 347 participants from both genders less than 71 years of age. Findings revealed statistically significant correlations between cognitive aspects on risk factors for CHD and compliance to certain changes in lifestyle like, body weight, activity, management, of stress and anxiety, diet, achieving therapeutic lipid levels and anti-hypertensive intake<sup>6</sup>.

A similar study was carried out among 60 patients to assess the effectiveness of structured teaching program on lifestyle modifications of patients with myocardial infarction attending Cardiology Out Patient Department at a hospital in India. Pre experimental one group pretest and posttest design was used. A total of 60 samples were selected using simple random sampling technique. The data were collected using a Semi Structured questionnaire regarding lifestyle modifications like habits, diet, exercise, medications and follow-up care. The results of post-intervention showed significant improvement in ( $P < 0.05$ ) in knowledge scores. The study concluded that, adequate level of knowledge in lifestyle modifications of



myocardial infarction patients will help to lead to better quality of life and prevent further cardiac complications and its related consequences. These findings are in line with the findings of the present study<sup>7</sup>.

Another study assessed the knowledge and attitude on lifestyle modifications, the effectiveness of structured teaching program, and determined the association between knowledge and attitude of participants with selected demographic variables. Level of knowledge was also correlated with attitude of the 30 samples with Myocardial Infarction (MI) patients. Results showed that around 63.3%) had inadequate knowledge while 36.7% had a moderately adequate knowledge on lifestyle modifications. The post-intervention assessment revealed that, only 6.7% had inadequate knowledge, more than half of them (53.3%) had moderately adequate knowledge and 40% had adequate knowledge. Totally 20% demonstrated positive attitude and 24 (80%) demonstrated negative attitude for life style modifications in pre-test. In posttest, 19 (63.3%) demonstrated positive attitude and 11 (36.7%) demonstrated negative attitude regarding life style modifications among those with MI. There was a highly significant difference in the mean knowledge scores and attitude on lifestyle modifications after STP. The study concluded that the STP was effective in improving the level of knowledge<sup>8</sup>.

Shared and individual lifestyles are both, vital determinants of health. Knowledge gain can be achieved through teaching programs which can motivate clients in consuming less fat, increasing physical activity, and cessation of smoking and alcohol. Hence, a multifaceted and collaborative implementation of strategies on lifestyle modification is necessary<sup>9</sup>.

### **Nursing Implications**

This study has several implications for Nursing Education, Administration, Practice and Nursing Research.

### **Limitations of the Study**

- Data collection period was only for 2 months.
- Study was limited to those in a particular area alone.



## **Conclusion**

Patients with cardiovascular diseases are at a high risk of unexpected morbidities and sudden mortality. Findings from this study have showed that those with cardiovascular conditions have a lot of co-morbidities and are not following healthy lifestyle. It is the duty of physicians and all health care workers to provide counselling on a regular basis regarding lifestyle changes as these measures can significantly reduce cardiovascular mortality and the risk of recurrent cardiac issues. Hence adopting appropriate practices will help to protect them from sudden consequences and fatal conditions.

## **Acknowledgement**

The authors wish to thank all the study participants, and the Institutional Review Board of Gulf Medical University, Ajman, UAE for granting approval to carry out the study.

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