Effectiveness of an Instructional Program Concerning Healthy Lifestyle on Patients' Attitudes after Percutaneous Coronary Intervention at Cardiac Centers in Baghdad City

فاعلية البرنامج الارشادي حول نمط الحياة الصحي في اتجاهات المرضى بعد أجراء التداخل التاجي عبر الجلد في المراكز القلبية في مدينة بغداد

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المستخلص:

الاهداف:تهدف الدراسة الى تقويم فاعلية البرنامج الارشادي في اتجاهات المرضى حول نمط الحياة الصحي بعد التداخل التاجي عبر الجلد.

المنهجية: تصميم شبه تجريبي استخدم للدراسة الحالية لتقييم فاعلية التداخل الارشادي في اتجاهات المرضى حول نمط الحياة الصحي بعد التداخل التاجي عبر الجلد بدأت الدراسة من الثاني من كانون الاول 2018 الى اذار 2020 لانجاز اهداف الدراسة تم اختيار عينة غرضية متكونة من 60 مريض قسمو الى مجموعتين وهما مجموعة الدراسة ومجموعة الضابطة . تم تحليل البيانات بالطرق الاحصائية الوصفية والاستدلالية.

النتائج: تشير النتائج بأن مستوى الاتجاهات كان ضعيفا لكلا المجموعتين الدراسة الضابطة بناءا على درجة الوسط حسابي على التوالي (1.10±0.24 and 1.12±0.25) اضافة الى ذلك النتائج اظهرت بأن درجة الوسط الحسابي كانت عالية لمتغيرالاتجاهات حول نمط الحياة الصحي في مستوى معنوية ذو دلالة احصائية لمجموعة الدراسة بعد أعطاء البرنامج والتي هي (20.04±3.59) بينما قبل البرنامج كانت (14.40±2.93) . يمكن ان يستنتج ان البرنامج الارشادي المطبق كان فعالا في تحسين مستوى الاتجاهات معنويا لعينة مجموعة التداخل حسب نتائج الدراسة.

التوصيات: الدراسة توصي بتخصيص وحدة تأهيل قلبية في المراكز القلبية في مدينة بغداد لكي نعزز سلوكيات نمط الحياة الصحي للمرضى بعد الخضوع لأجراء التداخل التاجي عبر الجلد لتحسين نوعية حياتهم.

Abstract:

Objective: The study's aim to evaluate the effectiveness of instructional program about healthy lifestyle on patients' attitudes after undergoing percutaneous coronary intervention.

Methodology: Quasi-experimental design/ has been utilized for the current study starting from December 2018 to March 2020 to achieve the objectives of the study. Non-probability (purposive) sample of 60 patients was divided into intervention and control groups. Data were analyzed by the application of descriptive and inferential statistical methods.

Results: findings reported that before intervention both study and control groups demonstrated low total mean of score related to their attitudes respectively (1.10±0.24 and 1.12±0.25). Significant post-intervention high mean score compared with pre-intervention concerning attitudes of healthy lifestyle for intervention group. Attitudes mean scores for post-intervention was (20.04±3.59) while pre-intervention was (14.40±2.93). It can be clearly concluded that applied instructional program was effective to improve the level of attitudes significantly for the intervention group participants based on study findings.

Recommendation: The study recommends specifying a cardiac rehabilitation unit at cardiac centers in Baghdad city to promote healthy lifestyle behaviors for patients after undergoing PCI to improve their quality of life.

Keywords: effectiveness, Patients, Attitudes, Healthy Lifestyle, Percutaneous Coronary Intervention.

Introduction

Coronary artery disease (CAD) represents to be first as a cause of death worldwide. So, the global prevalence of death due to CAD in 2016 was more than seventeen million of people[1]. High incidence and prevalence were within societies with low income accounting for more than seventy percent of the population. CAD is a future single reason for death globally until the year 2030 more than twenty- three millions will be dying [1].Similar reports and results have been obtained from American heart association (AHA) which stated that CAD is considered the major cause of death in United States of America (USA).They showed more than one-third of dead persons due to CAD (43.2 %) [2] .CAD is caused mainly by the deposition of fatty substances on walls of arteries leading to hardness of arterial wall which is called atherosclerosis [3]. Atherosclerosis from a combination of many factors firstly starting with arterial wall injury, then the immunological reaction occurs, facilitating the accumulation of fatty material and platelets on the inner wall of the coronary artery with A plaque produced which is mainly composed of lipids leading to occluding the coronary artery partially or totally ending with ischemia which means reduced blood supply to heart tissues. If the blood supply to the heart muscle is not be maintained; angina pectoris or myocardial infarction or sudden death will occur [3-4]. World heart federation (WHF) mentioned that risk factors for CHD are classified into two categories according to the possibility of control and modification. Risk factors that can be modified including cigarette smoking, unhealthy diet, hypertension, hyperlipidemia, and physical inactivity, obesity, and diabetes mellitus (DM). Risk factors that can not be modified comprising older age, gender, ethnicity, and family history of CAD[5]. Treatment of cardiac patients percutaneously today common with percutaneous coronary intervention (PCI) procedures to enhance blood flow to the myocardial tissues and preventing complications result from tissue damage due to ischemia[4]. American Heart Association (AHA) recommended that the management of CHD patients cannot be ended with PCI alone, but they must be highly compliant with secondary prevention measures including a healthy lifestyle after PCI. An increasing diet rich in fruits and vegetables, maintaining normal body weight, ceasing smoking, maintaining regular follow up to keep blood pressure and diabetes mellitus within control [6]. European society of cardiology (ESC) stated that a healthy lifestyle includes eating healthy food, maintaining normal body weight, avoiding physical inactivity, and avoiding tobacco smoking. It considered the "cornerstone" of secondary prevention regarding patients with CHD [7]. psychological beliefs and attitudes have a positive impact on patients' clinical decisions regarding lifestyle change; this result has been obtained after reviewing thirty-two quantitative observational studies [8].Several nursing Instructional programs have delivered significant effective health education. Especially programs regarding a healthy lifestyle. The improvement in attitudes, and beliefs was statistically significant. After applying for a program researchers found statistically significant Post-test scores compared with pre-test scores [9].The purpose of the current study to evaluate effectiveness of the instructional Program on CAD Patients' attitudes concerning healthy lifestyle after percutaneous coronary intervention.

Methods:

Quasi-experimental design has been utilized for the present study to assess the effect of instructional program on patients' attitudes after percutaneous coronary intervention concerning healthy lifestyle, starting from December 2018 to March 2020. The study was conducted in two centers in which percutaneous coronary intervention is performed continuously; which are: Ibn- Albetar specialist center for cardiac surgery, and Iraqi center for heart diseases in Baghdad city. A non- probability (purposive) sample of 80 patients who have coronary artery disease and was treated with percutaneous coronary intervention to manage coronary artery occlusions. The sample was divided to two groups; 40 patients were exposed to instructional program (the intervention group) and 40 patients were not exposed to instructional program the control group Out of eighty PCI patients who participated in the intervention and the control Groups 20 patients dropped out for following reasons: 6 patients did not complete all parts of the instructional program, 6 patients refused to participate after few days for unknown reasons, and 8 patients did not complete the follow up, after being participated in the study. Sixty patients had actually participated (30 patients) in the study and (30 patients) in the control groups. Topics and contents of the instructional program were built after reviewing related studies, guidelines and the results of preliminary assessment, reviewers' notes recommendation especially experts who are specialist in cardiac interventions. Contents of the program include Simple anatomy and physiology of Heart, Simple definition of CAD, Signs and symptoms of CAD, Simple pathophysiology, Treatment options available for CAD, and healthy lifestyle behaviors. the questionnaire was built to serve as an evaluation tool for applied program. The questionnaire consists of two parts first part was socio-demographic characteristics and second part includes valid and reliable questionnaire which was used to assess attitudes [(10)]. A Permission from researcher had been taken regarding using questionnaire in the current study. The questionnaire consists of thirteen items to assess attitudes of patients with CAD toward role of a healthy lifestyle in the prevention of CAD. The response options had been scaled and scored as the following; "2" for strongly agree, "1" for agree, and "0" for disagree). The instrument was reviewed by a panel of (15) experts. The experts revealed that all the items of the questionnaire were clear and adequate for the measurement in the study with some modification that should be done. A pilot study is carried out in March 28th 2019 to 30th April 2019 on ten samples of post-percutaneous coronary intervention patients both males and females in Baghdad city. Statistical package for social science (SPSS) version 20 was used for the analyzing data in the present study.

Ethical considerations

The Institutional Review Board (IRB) in college of nursing /university of Baghdad reviewed contents of program and questionnaire before conducting a study. Informed consent was taken orally before participating in the study. After that information regarding study title and objectives had been given. Two official requests were submitted through the College of Nursing / University of Baghdad to medical city directorate/ Ministry of Health (MOH) to take approval for data collection from Iraqi center for cardiac disease and Al-Karkh health directorate/ Ministry of Health (MOH) to take approval for data collection from Ibn-Albetar specialist center for cardiac surgery in Baghdad city.

Results

Table (1): Demographic Characteristics of the participants (Intervention and Control group)

Demographic Variables	Intervention Group (N=30)			Control group (N= 30)		P. Value
	Groups	F.*	%	F.	%	
. Gender	Male	19	63.3	21	70.0	0.804
	Female	11	36.7	9	30.0	
. Age	40-47	2	6.7	3	10.0	0.765
	48-55	16	53.3	9	30.0	
	56-63	9	30.0	12	40.0	
	≥ 64	3	10.0	6	20.0	
	MS±SD = 54.80±5.92			MS±SD =60.14± **9.43**		
. Marital status	Single	1	3.3	4	13.3	0.690
	Married	29	96.7	26	86.7	
. Educational level	Illiterate	2	6.7	3	10.0	0.421
	Primary	12	40.0	7	23.3	
	Intermediate	4	13.3	9	30.0	
	Secondary	3	10.0	5	16.7	
	Diploma	7	23.3	6	20.0	
	College and above	2	6.7	0	0.0	
. Occupation	Governmental employee	9	30.0	8	26.7	0.340
	Retired / does not work	5	16.7	8	26.7	
	Retired / work	1	3.3	0	0.0	
	Housewife	7	23.3	8	26.7	
	Free job	8	26.7	6	20.0	

F= frequency, %= percentage, MS = mean score, SD= standard deviation, NS=non-significant

This table (1) illustrated that majority of the sample was male for intervention and control groups, (63.3% and 70.0%) respectively at age group (48-55) for intervention group and (56-63) for the control group with the mean age respectively (54.80±5.92 and 60.14± 9.43) .Regarding marital status, both study and control groups have the highest percentage of married participants. High percentage (40%) of intervention group's participants were graduated from primary education level corresponds with high percentage (23.3%) of the control group was graduated from primary education level furthermore high percent of both groups were a governmental employee for intervention and control groups (30.0 % and 26.7%) respectively.

Table (2): Clinical Characteristics of the participants (Intervention and Control Group)

Variables	Intervention Group (N=30)			Control group (N= 30)		C.S. P. Value.
	Class		F.*	%	F.	%	
Body Mass Index (BMI)	Less than 18.5 (Underweight)		0	0.0	0	0.0	0.712 NS
	18.5-24.9 (Normal)		0	0.0	0	0.0	
	25.0-29.9 (Overweight)		23	76.7	21	70.0	
	30.0 - 34.9 (Obese class I)		1	3.3	9	30.0	
	35.0 - 39.9 (Obese class II)		6	20.0	0	0.0	
	40 and above (Obese class III)		0	0.0	0	0.0	
			MS±SD =29.03±4.148		MS±SD =28.71±2.272		
Hypertension	Yes		12	40.0	13	43.3	0.367 NS
	No		18	60.0	17	56.7	
Diabetes mellitus	Yes		11	36.7	10	33.3	0.789 NS
	No		19	63.3	20	66.7	
Dyslipidemia	Yes		6	20.0	0	0.0	----
	No		24	80.0	30	100.0	
Smoking history	Current smoking history	Current smoker	8	26.7	4	13.3	0.195 NS
		Noncurrent smoker	22	73.3	26	86.7	
	If answer no (Previous smoking (History	Quit more than two years	2	6.7	4	13.3	
		Quit less than two years	7	23.3	6	20.0	
		Never smoking	21	70.0	20	66.7	

F= frequency, %= percentage, MS = mean score, SD= standard deviation, NS=non-significant

Table (2) shows that approximately three quarters (76.7%) of sample within study group and more than two third (70%) of the control group were within the overweight class regarding BMI. More than one third of intervention and control groups (40.0% and 43.3%) respectively have a history of hypertension. About one third (36.7 %, 33.3%) of participants in the intervention and the control group, respectively, have a history of diabetes mellitus and only one fifth (20%) of them have hyperlipidemia regarding study group while control group no history of hyperlipidemia found. Also results found that roughly one quarter (26.7%) of the intervention group and less than one quarter (13.3%) of the control group were current smokers.

Table (3): Descriptive Analysis of Patients' Attitudes toward a Healthy Lifestyle for Study and Control Groups before Applying the Program

Attitudes items	Pre-test period					
	Intervention Group Pre-test			Control Group Pre-test		
	M.S*	SD	Ass.	M.S	SD	Ass.
1. High blood pressure is considered a serious illness	1.17	0.37	L	1.20	0.40	L
2. DM is considered a serious illness	1.03	0.71	L	1.30	0.70	L
3. Obesity is considered a serious illness	1.07	0.52	L	0.97	0.49	F
4. The probability of having coronary artery disease for the second time after PCI?	0.63	0.55	F	0.57	0.56	F
5. Coronary artery disease can be preventable?	1.10	0.54	L	0.87	0.57	F
6. Coronary artery disease leads to mortality	1.27	0.74	M	1.57	0.50	H
7. Changing lifestyle can help to control or prevent the occurrence of high blood pressure?	1.03	0.71	L	1.24	0.42	L
8. Changing lifestyle can help to control or prevent the occurrence of diabetes mellitus?	1.07	0.52	L	0.97	0.41	F
9. Changing lifestyle can help to control or prevent the occurrence of obesity?	1.03	0.61	L	1.07	0.52	L
10. You have the motivation of doing exercises?	0.80	0.61	F	0.73	0.64	F
11. You should change your dietary habits?	1.17	0.37	L	1.30	0.46	L
12. You have the readiness to take your prescribed medications?	1.63	0.49	H	1.30	0.46	L
13. Regular Doctor Follow-up visits to prevent the re-occurrence of heart disease?	1.40	0.49	M	1.57	0.56	H
Mean of mean score	1.10	0.24	**L**	1.12	0.30	**L**

***M.S. = Mean of score, SD=Standard deviation, *Ass. = the level of assessment, < 1= fail (F), 1-1.25= low (L), 1.26-1.50= moderate (M), 1.51-1.75= high (H), 1.76-2= great (GR).**

Table (3) demonstrated that vast the majority of items of attitudes for both intervention and control groups before applying instructional program had low and the same level of assessment based on their mean of scores. Also, this table showed means of mean score which was low for both intervention and control groups respectively (1.10, 1.12).

Table (4): Descriptive Analysis of Patients' Attitudes toward a Healthy Lifestyle for Intervention and Control Groups after Applying the Program

Attitudes items	Intervention Group N=30			Control Group N= 30		
	M.S	SD	Ass.	M.S	SD	Ass.
1. High blood pressure is considered a serious illness	1.63	0.61	H	1.23	0.43	L
2. DM is considered a serious illness	1.77	0.56	GR	1.37	0.49	M
3. Obesity is considered a serious illness	1.40	0.62	M	0.93	0.45	F
4. The probability of having coronary artery disease for second time after PCI?	1.27	0.45	M	0.77	0.62	F
5. Coronary artery disease can be preventable?	1.43	0.56	M	0.87	0.57	F
6. Coronary artery disease leads to mortality	1.67	0.47	H	1.47	0.50	M
7. Changing lifestyle can help to control or prevent the occurrence of high blood pressure?	1.50	0.50	M	1.25	0.44	L
8. Changing of lifestyle can help to control or prevent the occurrence of diabetes mellitus?	1.47	0.50	M	0.93	0.45	F
9. Changing of lifestyle can help to control or prevent the occurrence of obesity?	1.50	0.50	M	1.10	0.48	L
10. You have the motivation of doing exercises?	1.30	0.46	M	0.77	0.67	F
11. You should change your dietary habits?	1.70	0.46	H	1.37	0.49	M
12. You have the readiness to take your prescribed medications?	1.77	0.43	GR	1.20	0.40	L
13. Regular Doctor Follow-up visits to prevent the re-occurrence of heart disease?	1.37	0.55	M	1.50	0.57	M
Mean of mean score (MMS)	1.52	0.17	H	1.13 54	0.25	L

***M.S. = Mean of score, SD=Standard deviation, *Ass. = level of assessment, < 1= fail (F), 1-1.25= low (L), 1.26-1.50= moderate (M), 1.51-1.75= high (H), 1.76-2= great (GR),**

This table (4) presented a descriptive analysis of patients' attitudes toward a healthy lifestyle for Intervention and Control groups after applying the program by assessing their means and standard deviations. The findings indicated that the mean scores of attitude's items for intervention group were higher than attitudes' items in control group after applying the instructional program furthermore the mean of mean score clearly indicates that change where the intervention group accounted (1.52) which is assessed as high based on MMS while the control group accounted (1.13) as low based on MMS.

Table (5): Comparison of Patients' Attitudes toward a Healthy Lifestyle between Intervention and Control Groups Before and After Applying the Program

Variables	Test period	Intervention Group (N=30)		Control Group (N=30)		Independent t Test statistics		
		M.S	SD	M.S	SD	t value	Df	Sig.
Attitudes toward healthy lifestyle	Pre	14.41	2.52	14.64	2.23	0.37	57	0.707 NS
	Post	20.04	3.59	14.75	2.23	6.85	58	0.000 HS

***M.S= mean of score, SD=standard deviation, sig= significance levels, df= degree of freedom NS= non-significant, HS=highly significant**

This table (5) showed that there are no significant differences between attitudes levels as general between the intervention and control groups of the current study before applying the instructional program at a p value <0.05. While there are significant mean differences regarding knowledge and attitudes, levels as general between the intervention and control groups of the current study after applying the instructional program at a p value <0.05.

Discussion

Part I: discussion of level of attitudes of study samples before applying instructional program about healthy lifestyle

Findings of the present study showed low level regarding items related to risk factors of CHD which are: high blood pressure is considered a serious illness, Diabetes mellitus is considered a serious illness, and Obesity is considered a serious illness for both intervention and control groups before applying instructional intervention. This can predict that the participants of the present study may have low perception regarding these risk factors and perceive that factors may have a weak relationship with CHD.A descriptive study has been conducted to assess attitudes of hypertensive patients regarding their disease and chronic problems. Three hundred and forty samples have been selected to perform the study. The main outcome agrees with our findings that poor attitudes found in (69.11%) of study participants in addition to the major chronic disease as co-morbidity was DM. The health education program was the major recommendation of the study to raise awareness and increase positive attitudes to maintain the healthy behavior practice [(11)].In contrast; a descriptive study was done to assess one hundred patients selected from Jaipur, India. The patients had poor attitudes regarding the impact of obesity before incidence of IHD compared with after disease occurrence good attitudes have been found. This change was due to effect of disease on patients' knowledge and perception that contribute to increase good attitudes[(12)].The results of the present study showed that intervention and control groups had low level based on their mean of score before applying instructional program toward following items The probability of having coronary artery disease for second time after PCI, and Coronary artery disease can be preventable. This may predict that patients had an idea toward PCI is procedure to cure and they do not have full knowledge about process of atherosclerosis which is considered a systemic process. They perceive that merely local occlusion can be removed and no lifestyle change needed.

These findings come in agreement with results from a descriptive study conducted to assess patients' status toward education after undergoing PCI in Sweden. The study outcomes reported that about two-thirds of study samples had a perception of cure after PCI this means that patients perceive that coronary artery has been cured and no obstruction can re-occur again while only less than one third had attitudes that they had CHD and require lifestyle changes [13]. The present results demonstrated that following items (Changing of lifestyle can help to control the occurrence of diabetes mellitus, Changing of lifestyle can help to control the occurrence of obesity, and Changing of lifestyle can help to control the occurrence of high blood pressure) of attitudes for both intervention and control groups before applying instructional program had low level based on their mean of score. Randomized controlled trial was conducted in Iran to study the effects of educational and behavioral interventions on knowledge, attitudes and behaviors of Iranian patients toward healthy preventive behaviors after PCI. They reported that both control and case groups have a lower mean score regarding controlling of hypertension by lifestyle changes[14]. Moreover results from another study in Jordan also confirm this where researchers applied instructional intervention for one hundred and two patients with IHD concerning healthy lifestyle. Before implementation of intervention the samples were assessed for their attitudes toward risk factors management of CHD. The results showed low level of attitudes regarding risk factors management had been found[15].The present results of the following item (You have the motivation of doing exercises) of attitudes for both intervention and control groups before applying instructional program had fail level based on their mean of score. In contrast British Cardiac Society announced that practicing exercise like walking vastly or swimming is considered healthy lifestyle measure has capacity to decrease incidence of coronary events and CVD. Adults should practice at least thirty minutes per day to increase physical activity that contributes positive health of the heart[16]. furthermore AHA also stated that physical activity has contributing role in lowering LDL cholesterol in addition, decreasing elevated blood pressure so AHA recommends practicing three to four sessions per week in which forty minutes for each one to achieve cardiac benefits of exercise especially moderate and vigorous ones [17].Findings from a study conducted in Bangladesh support statement suggested by above-mentioned guidelines where the study done by the quantitative cross-sectional design on patients with CAD. They reported that patients had high intention and attitudes toward practicing exercises [18].Results demonstrated that the item (you should change your dietary habits) of attitudes for both intervention and control groups before applying instructional program had low level based on their mean of scores. Dietary factor is very important in treating patients with CHD furthermore, it has high importance in guidelines and studies concern toward dietary positive attitudes [7,17-19].Similar results have been obtained that attested low attitudes regarding dietary factors in patients with CHD[14] .

Part II discussion of effectiveness of Instructional Program on Patients' Attitudes Concerning Healthy Lifestyle

Health education should be promoted for all patients with CHD to raise awareness concerning lifestyle practices as secondary preventive strategy recommended by the European Society of Cardiology (ESC) [7]. Study conducted by applying educational intervention for Jordanian adults. They demonstrated that there is increase in positive attitudes in the intervention group compared with control group significantly. Before program implementation no significant mean difference found between intervention and control group while a post-test score significantly differ between intervention

and control groups. Thus, they concluded that the positive attitudes increase led to more practice of healthy lifestyle behaviors indicated by high HLBs scores post-intervention at significant p value [19]. furthermore improving knowledge in addition to attitudes concerning Healthy behaviors related to lifestyle should be implemented by interventional programs. Especially nurses have high potential to do this [14]. Moreover significant outcomes supported above-mentioned conclusion by results obtained from RCT has been done to try effect of individual education on cardiac patients with IHD. The Positive results concerning attitudes are indicated by a mean difference. A significant p value between intervention and control groups of the study[20].

Recommendations

Based on the results of the present study the researcher recommends the following:

1. Establishing special department at cardiac centers in Baghdad city for patients' rehabilitation, focusing on healthy lifestyle measures as secondary preventive strategies.
2. Instructing patients after PCI by giving them pamphlets, booklets, and brochures related to healthy lifestyle aspects as an apart of self-care.
3. Following the Patients through taking address and phone number in order to continue contact with patients to remind the patients about follow-up and to identify the patients' problems regarding healthy lifestyle adherence.
4. Conducting nursing health education program for patients after PCI with large sample to study the effect of the program on patients' knowledge and attitudes concerning healthy lifestyle.
5. Conducting and replicating this study in other clinical settings of Iraq provinces to show the effectiveness of the program.
6. Conducting future interventional studies with randomized controlled trial design, focusing on behaviors and practices of healthy lifestyle Post-PCI and their effect on patients' health.

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