

Effectiveness of Health Education Program about Health Beliefs Related to Cardiovascular Disease on Readiness of Engagement in Healthy Behaviors of Older Adults at Geriatric Home in Baghdad City

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Abstract- A Study aims: A experimental design had been conducted through study in order to determine effectiveness of health education program about health beliefs related to cardiovascular disease on readiness of engagement in healthy behaviors of older adults at geriatric home in Baghdad city.

Methodology: The sample is randomly allocated in the present study included 60 participants and randomly divided to two groups of older adults 65 age and over, how residents at government geriatric care home for implement the study, which had beginning conducted from period of October 22th 2015, to August 11th 2016. Each group was included 30 women and men equally. The group have been exposed to program consider study group, while group that not exposed to the program it's considered the control group. Health education program was designed according on the sciences literatures review related to CVD and previous study published. Questionnaires had designed developed based on theories and other depended available scales as a tool to data collection and using interview technique of these older adults who participants in the study. The content of validity of the instrument was established through a panel of (10) experts while reliability instrument had computed by using Cronbach's Alpha test after conducted the pilot group has consist of (10) older adults whose residents in the same geriatric home care and they had been selected randomly assignment. Collected data had been performed by use the study instrument through structured interview technique. Data had collected through three tests are the pre-test, post-test (I) directly and post-test (II) after (3) to (6) months. Statistical analysis approach had used through the descriptive statistical measures of (frequency, percentage, and standard deviation) were used to describe the participants' socio-demographic characteristics. In addition, inferential analysis applied that include Repeated Measure ANOVA, which was used to demonstrate the differences in means of study variables over time. Finally, bivariate correlation was used to determine the association among study variables.

Results: The descriptive statistics referred that the mean age of study group was 43.3 in age 70 – 74 year; comparison with mean of control group was 40.0 in age 70-74 year. The study results finding that the negative significant association between the number of smoked cigarettes and subjects' readiness to engage healthy behavior and subjects of change unhealthy lifestyle. In addition, there are negative significant associations between subjects' level of education and the number of smoked

cigarettes. Moreover, there is a positive significant association between subjects' beliefs related to cardiovascular disease and subjects of readiness to engage in healthy behavior. The result of inferential statistical analysis referred to that the study group have benefits from implement the health educational program. The statistical analysis implies that the improving in their subjects' of health beliefs related to cardiovascular disease risk perceptions in approximately 46%, and in subjects of readiness to engage in healthy behaviors related to cardiovascular health in approximately 82%. In addition, there are significant differences in enhance subjects' change lifestyle unhealthy behaviors related to cardiovascular and was accounted approximately 28%. However, the education program had not showed significant influence on subjects' general health status of participants.

Recommendation: Study recommended that the health preventive education program can elevate readiness to engage in healthy behaviors and its benefits to improve lifestyle older adults and can be more develops to improve general health status. In addition, possibility of the designing and applying this program on the older adults outside geriatric homes, furthermore, try to applying program on younger age.

Index Terms- Effectiveness, Health Education Program, Health Beliefs, Older Adults.

I. INTRODUCTION

Cardiovascular disease (CVD) is a wide term for a range of diseases that affect the heart and blood vessels. Heart attacks and stroke are considered as two main manifestations of CVD⁽¹⁾. Cardiovascular disease are caused by group of disorders of the heart and blood vessels and these do not refer to just coronary heart disease and cause heart attacks but also include cerebrovascular disease (coagulopathies and stroke), raised blood pressure (hypertension) , peripheral artery disease, rheumatic heart disease, congenital heart disease and heart failure. CVDs is considered one of the more common group of disorders that are widely distributed among population and causes death and influences on human quality of life and impaired their independency. It occupies first place in the mortality and morbidity rate compared with other reasons of the world mortalities and disabilities. These clarifying in a statistical data of world health organization and in most statistical agencies as

one of the major causes of mortality and loss of disability-adjusted life years globally. There are estimated 17.5 million people died from CVDs in 2012 ^{(2) (3)}. In the (20th) century the development in technology have been helping in examination of large numbers of population in little time such as angiographic ultrasonography examination to measure lesion in carotid arteries. Advanced technology and studies performed on autopsy, clinical manifestation and other research efforts it has much established the importance of which risk factor that contributed in development severity and extent of cardiovascular disease in middle and particularly with a late adulthood ⁽⁴⁾.

Objectives of the study:

1. To evaluate effectiveness of health educational program about health beliefs related to cardiovascular diseases on readiness of engagement in healthy behaviors of older adults at geriatric home in Baghdad.
2. To Find out relationship between socio-demographic data and health beliefs of cardiovascular diseases.
3. To find out relationship between socio-demographic data and readiness to engage in health behaviors of older adults.

II. METHODOLOGY

Design of the Study: Experimental intervention design of (pre-test, post-test I, and post-test II after (3) to (6) months), is carried out after taking the advice of a many of experts and a review of multiple studies and previous theories to choose the most appropriate design. The beginning of the implementation of the study was from October 22th 2015 and end at 11th August 2016. These periods which are divided into several stages through the study, depending on the requirements of each stage.

Setting of the study: The study has conducted on older adults >65, which includes both gender groups. The sample includes older adults who reside in geriatric home in Al-Rashad/Baghdad. It contains two major departments for men and

women. This place is selected by drawing randomly from among two governmental geriatric homes care in Baghdad city.

Sample of the Study: The total number of residents is (107); four of them have suffered from severe weakness of memory or other mental health problems. After excluding the participants of pilot study, the study sample is randomly assignment from the rest of residents, which including (60) residents of both sex equally. The participants were divided randomly into two groups, group study consisted of (30) who have been exposed to the program; and (30) residents who considered the control group that have not been exposed to the program.

Study Instrument: It is consist of the followings parts:

Part I: Demographic information

Part II: Health Beliefs Related to Cardiovascular Disease (HBCVD)

Part III: Readiness to Change Life Style

Part IV: Health Status Questionnaire

Method of Data collection: The data collected by used of the study questionnaire (questions in Arabic version) and through used interviewing each participant who is president in Geriatric Home. Each interview take approximately (20 to 30) minutes. Total time spent to collect data is from (10) to (15) participants is approximately 5 hours per day in each test. Time for pre-test was from April 3th 2016 to April 10th 2016, the post-test-(I) was from April 17th 2016 to April 24th 2016, and from August 3th to August 11th was the post-test-II.

Statistical Data Analysis: It is computed by using SPSS version 20 that include: Descriptive Analysis which is include frequency, percentage, and standard deviation are used to describe the participants' socio-demographic characteristics; and Inferential Analysis which include ANOVA test.

III. RESULTS

Table (1): Subjects' of Socio-demographic Characteristics

List		Study		Control	
		Frequency	Percent	Frequency	Percent
1.	Age	Mean (SD) = 71.63 ± 5.1		Mean (SD) = 72.8±5.85	
	65 – 69	10	33.3	9	30.0
	70 – 74	13	43.3	12	40.0
	75 – 79	5	16.7	4	13.3
	≥ 80	2	6.7	5	16.7
2.	Gender				
	Male	15	50.0	15	50.0
	Female	15	50.0	15	50.0
3.	Level of education				
	Unable to read and write	10	14.9	14	20.9
	Read and write	9	13.4	9	13.4
	Elementary School	1	1.5	3	4.5
	Middle School	1	1.5	3	4.5
	High School	3	4.5	0	0.0
	Diploma	3	4.5	1	1.5
Bachelor or above	3	4.5	0	0.0	

4.	Marital Status				
	Not married	1	3.3	0	0.0
	Widow/Widowed	27	90.0	29	96.7
	Divorced	2	6.7	1	3.3
5.	Visits by family members, relatives, and friends				
	Always	2	6.7	3	10.0
	Sometimes	9	30.0	16	53.3
	Never	19	63.3	11	36.7
6.	Are you a smoker or tobacco users?				
	Yes	6	20.0	8	26.7
	Sometimes	5	16.7	2	6.7
	No	19	63.3	20	66.6
7.	The number of cigarettes consumed almost	(n = 11)		(n = 13)	
	< 10	4	13.3	3	10.0
	10 – 20	1	3.3	1	3.3
	21 – 30	5	16.7	9	30.0
	31 - 40	1	3.3	0	0.0
7.1	Smoking Type				
	Cigarettes	11	100.0	10	76.9
	Missing values	0	0.0	3	23.1
8.	Having any medical chronic conditions				
	Hypertension	11	36.6	14	46.7
	Diabetes Mellitus	3	10.0	2	6.7
	Both	8	26.7	8	26.6
	None	8	26.7	6	20.0
9.	Having one or more of the following conditions				
	Heart attack	7	23.3	8	26.6
	Cerebrovascular accident	3	10.0	2	6.7
	Both	1	3.3	0	0.0
	None	19	63.3	20	66.7

The Mean age for subjects in the study group is 71.63 ± 5.1 in comparison with 72.8 ± 5.85 for the control group. More than two fifth of subjects in the study group are in the 70–74 years-old age ($n = 13$; 43.3%), followed by about a third who are in the group of 65–69 years-old age ($n = 10$; 33.3%). On the other hand, two fifth of subjects in the control group are in the 70-74 years-old age group ($n = 12$; 40.0%), followed by less than a third who are in the 65–69 years-old age ($n = 9$; 30.0%). Subjects are distributed equally in terms of their gender in both of the study and control groups ($n = 15$; 50.0%) for each group. Less than a fifth of subjects in the study group are unable to read and write ($n = 10$; 14.9%), followed by those who are able to read and write ($n = 9$; 13.4%). For the control group, more than a fifth of subjects are unable to read and write ($n = 14$; 20.9%), followed by those who are able to read and write ($n = 9$; 13.4%). The vast majority of subjects in both in the study and the control groups are widow/widowed ($n = 27$; 90.0%, $n = 29$; 96.7%) respectively. Most of the subjects in the study group reported that they never been visited by family members, relatives, and friends ($n = 19$; 63.3%), followed by those who reported that they

sometimes have been visited by family members, relatives, and friends ($n = 9$; 30.0%). For the control group, more than a half of subjects reported that they sometimes have been visited by family members, relatives, and friends ($n = 16$; 53.3%), followed by those who reported that they sometimes have been visited by family members, relatives, and friends ($n = 11$; 36.07%). Most of the subjects in the study group reported that are non-smokers or tobacco users ($n = 19$; 63.3%). For the control group, a little higher proportion who also reported that are non-smokers or tobacco users ($n = 20$; 66.6%). For those who reported that they are smokers and/or tobacco users, less than a fifth in the study group reported that they smoke 21–30 cigarettes daily ($n = 5$; 16.7%), and a higher proportion of those in the control group who reported that they smoke 21-30 cigarettes daily ($n = 9$; 30.0%). All of smoker subjects reported that they smoke cigarettes. In terms of having chronic health conditions, more than a third of subjects in the study group reported that they have Hypertension ($n = 11$; 36.6%), followed by more than a quarter who reported that they have both Hypertension and Diabetes Mellitus ($n = 8$; 26.7%). For the control group, less than a half

reported that that they have Hypertension (n = 14; 46.5%), followed by more than a quarter who reported that they have both Hypertension and Diabetes Mellitus (n = 8; 26.7%). Ultimately, most of the subjects in the study group reported that don't experience heart attack or Cerebrovascular Accident (n =

19; 63.3%), followed by those who reported that they experienced heart attacks (n = 7; 23.3%). For the control group, most of the subjects reported that don't experience heart attack or Cerebrovascular Accident (n = 20; 66.7%), followed by those who reported that they experienced heart attacks (n = 8; 26.6%).

Table (2): Descriptive Statistics for the Values of the Subjects' Beliefs over Time

Groups	Mean	Std. Deviation	N
Study Pre-Test	2.3565	.13384	30
Control Pre-Test	2.5067	.14106	30
Study Post-Test-I	2.6680	.13084	30
Control Post-Test-I	2.4413	.16222	30
Study Post-Test-II	2.6427	.14169	30
Control Post-Test-II	2.5253	.16962	30

The values of subjects' beliefs of the study group almost increases over time in comparison with control group (Baseline = 2.3565 vs. 2.5067, post-Test-I = 2.6680 vs. 2.4413, post-Test-II =

2.6427 vs. 2.5253) respectively. Both sets of values improve; however, the study group shows greater decline.

Table (3): Multivariate Tests of the Within-subjects Beliefs Values

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Squared	Eta
Beliefs	Pillai's Trace	.844	26.955 ^a	5.000	25.000	.000	.844
	Wilks' Lambda	.156	26.955 ^a	5.000	25.000	.000	.844
	Hotelling's Trace	5.391	26.955 ^a	5.000	25.000	.000	.844
	Roy's Largest Root	5.391	26.955 ^a	5.000	25.000	.000	.844

The education program has a significant influence on the values of subjects' beliefs (F = 25.955, df = 25, p < .05).

Table (4): Tests of Within-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Beliefs	Sphericity Assumed	2.100	5	.420	25.180	.000	.465
	Greenhouse-Geisser	2.100	2.630	.799	25.180	.000	.465
	Huynh-Feldt	2.100	2.916	.720	25.180	.000	.465
	Lower-bound	2.100	1.000	2.100	25.180	.000	.465
Error(Beliefs)	Sphericity Assumed	2.419	145	.017			
	Greenhouse-Geisser	2.419	76.267	.032			
	Huynh-Feldt	2.419	84.566	.029			
	Lower-bound	2.419	29.000	.083			

There was a (a priori p = 0.001) significant difference (F (2.630, 76.267) = 25.180, p = 0.05) in beliefs over time. The omnibus effect (measure of association) for this analysis is .465,

which indicates that approximately 46% of the total variance in the beliefs values is accounted for by the variance in the administered health education.

Table (5): The Estimates of Beliefs Values between Study and Control Group

Beliefs	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Study Group Pre-Test	2.357	.024	2.307	2.406
Control Group Pre-Test	2.507	.026	2.454	2.559
Study Group Post-Test I	2.668	.024	2.619	2.717
Control Group Post-Test I	2.441	.030	2.381	2.502
Study Group Post-Test II	2.643	.026	2.590	2.696
Control Group Post-Test II	2.525	.031	2.462	2.589

The mean values of the beliefs increase in the study group over time (Mean = 2.357 vs. 2.507, 2.668 vs. 2.441, 2.643 vs. 2.525) respectively.

Table (6): Pairwise comparison of the Beliefs Values between Study and Control Groups

(I) Beliefs	(J) Beliefs	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	-.150*	.033	.002	-.257	-.043
	3	-.311*	.026	.000	-.396	-.227
	4	-.085	.040	.632	-.212	.043
	5	-.286*	.028	.000	-.375	-.197
	6	-.169*	.040	.004	-.298	-.039
2	1	.150*	.033	.002	.043	.257
	3	-.161*	.032	.000	-.264	-.059
	4	.065	.029	.453	-.026	.157
	5	-.136*	.033	.004	-.242	-.030
	6	-.019	.032	1.000	-.122	.084
3	1	.311*	.026	.000	.227	.396
	2	.161*	.032	.000	.059	.264
	4	.227*	.038	.000	.104	.349
	5	.025	.017	1.000	-.029	.079
	6	.143*	.037	.010	.023	.262
4	1	.085	.040	.632	-.043	.212
	2	-.065	.029	.453	-.157	.026
	3	-.227*	.038	.000	-.349	-.104
	5	-.201*	.040	.000	-.330	-.073
	6	-.084*	.019	.002	-.145	-.023
5	1	.286*	.028	.000	.197	.375
	2	.136*	.033	.004	.030	.242
	3	-.025	.017	1.000	-.079	.029
	4	.201*	.040	.000	.073	.330
	6	.117	.042	.134	-.016	.251
6	1	-.169*	.040	.004	-.039	.298

2	.019	.032	1.000	-.084	.122
3	-.143*	.037	.010	-.262	-.023
4	.084*	.019	.002	.023	.145
5	-.117	.042	.134	-.251	.016

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

There are significant differences in the values of beliefs over each time interval.

Table (7): Tests of Within-Subjects Effects of Subjects' Lifestyle

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Lifestyle	Sphericity Assumed	2.391	5	.478	11.344	.000	.281	
	Greenhouse-Geisser	2.391	1.466	1.630	11.344	.000	.281	
	Huynh-Feldt	2.391	1.525	1.568	11.344	.000	.281	
	Lower-bound	2.391	1.000	2.391	11.344	.002	.281	
Error(Lifestyle)	Sphericity Assumed	6.111	145	.042				
	Greenhouse-Geisser	6.111	42.522	.144				
	Huynh-Feldt	6.111	44.225	.138				
	Lower-bound	6.111	29.000	.211				

There was a (a priori $p = 0.005$) significant difference ($F(1.466, 42.522) = 11.344, p = 0.005$) in lifestyle over time. The omnibus effect (measure of association) for this analysis is .281, which indicates that approximately 28% of the total variance in subjects' lifestyle values is accounted for by the variance in the administered health education.

Table (8): Tests of Between-Subjects Effects for Subjects' Readiness to change unhealthy behavior

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Intercept	794.734	1	794.734	3.858E3	.000	.993	
Error	5.974	29	.206				

There is a statistically significant difference between subjects' readiness to change unhealthy behavior at ($p < .005$).

Table (9): The Estimates of Readiness to change unhealthy behavior Values between Study and Control Group

Lifestyle	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Study Group Pre-Test	1.996	.057	1.879	2.114
Control Group Pre-Test	2.026	.041	1.942	2.110
Study Group Post-Test I	2.252	.052	2.146	2.358
Control Group Post-Test I	2.063	.044	1.973	2.153
Study Group Post-Test II	2.270	.047	2.174	2.367
Control Group Post-Test II	2.000	.045	1.908	2.092

The mean values of the readiness to change unhealthy behavior increase in the study group over time (Mean = 1.996 vs. 2.026, 2.252 vs. 2.063, 2.270 vs. 2.000) respectively.

Table (10): Pairwise comparison of the Lifestyle Values between Study and Control Groups

(I) Lifestyle	(J) Lifestyle	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	-.030	.067	1.000	-.242	.183
	3	-.256*	.034	.000	-.365	-.146
	4	-.067	.072	1.000	-.296	.163
	5	-.274*	.027	.000	-.361	-.188
	6	-.004	.069	1.000	-.223	.215
2	1	.030	.067	1.000	-.183	.242
	3	-.226*	.066	.029	-.438	-.014
	4	-.037	.026	1.000	-.119	.045
	5	-.244*	.057	.003	-.427	-.062
	6	.026	.020	1.000	-.037	.089
3	1	.256*	.034	.000	.146	.365
	2	.226*	.066	.029	.014	.438
	4	.189	.069	.152	-.031	.409
	5	-.019	.021	1.000	-.087	.050
	6	.252*	.066	.010	.041	.463
4	1	.067	.072	1.000	-.163	.296
	2	.037	.026	1.000	-.045	.119
	3	-.189	.069	.152	-.409	.031
	5	-.207*	.062	.035	-.406	-.009
	6	.063	.024	.187	-.013	.139
5	1	.274*	.027	.000	.188	.361
	2	.244*	.057	.003	.062	.427
	3	.019	.021	1.000	-.050	.087
	4	.207*	.062	.035	.009	.406
	6	.270*	.058	.001	.085	.456
6	1	.004	.069	1.000	-.215	.223
	2	-.026	.020	1.000	-.089	.037
	3	-.252*	.066	.010	-.463	-.041
	4	-.063	.024	.187	-.139	.013
	5	-.270*	.058	.001	-.456	-.085

a. Adjustment for multiple comparisons: Bonferroni., Based on estimated marginal means*, The mean difference is significant at the .05 level.

There are significant differences in the values of lifestyle in three times.

Table (11): Descriptive Statistics for the Values of the Subjects' General Health over Time

Group	Mean	Std. Deviation	N
GH Study Pre	46.6944	5.61041	30
GH Control Pre	46.6667	6.57170	30
GH Study Post	46.0833	4.72115	30
GH Control Post-I	46.8611	5.83306	30
GH Study Post-II	46.9028	4.84763	30
GH Control Post-II	47.1389	5.61233	30

The values of subjects' lifestyle of the study group increased in the Post-Test II in comparison with control group (Baseline = 46.6944 vs. 46.6667, Post-Test-I = 46.0833 vs. 46.8611, Post-Test-II = 46.9028 vs. 47.1389) respectively.

Table (12): Multivariate Tests of the Within-subjects' General Health Values

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Squared	Eta
General Health	Pillai's Trace	.060	.318 ^a	5.000	25.000	.898	.060
	Wilks' Lambda	.940	.318 ^a	5.000	25.000	.898	.060
	Hotelling's Trace	.064	.318 ^a	5.000	25.000	.898	.060
	Roy's Largest Root	.064	.318 ^a	5.000	25.000	.898	.060

a. Exact statistic

b. Design: Intercept Within Subjects Design: General Health

The education program has no significant influence on the values of subjects' general health ($F = .318, df = 25, p > .05$).

Table (13): Mauchly's Test of Sphericity of Subjects' General Health

Within Subjects Effect	Mauchly's W	Approx. Square	Chi-df	Sig.	Epsilon ^a		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
General Health	.052	80.094	14	.000	.411	.443	.200

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b. Design: Intercept Within Subjects Design: General Health

The Mauchly's Test of Sphericity is significant ($p < .005$), which indicates that these data violate the sphericity assumption of the univariate approach to repeated-measures ANOVA.

Table (14): Tests of Within-Subjects Effects of Subjects' General Health

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
General Health	Sphericity Assumed	19.125	5	3.825	.129	.986	.004
	Greenhouse-Geisser	19.125	2.056	9.301	.129	.884	.004
	Huynh-Feldt	19.125	2.215	8.634	.129	.898	.004
	Lower-bound	19.125	1.000	19.125	.129	.722	.004
Error (General Health)	Sphericity Assumed	4300.695	145	29.660			
	Greenhouse-Geisser	4300.695	59.629	72.125			
	Huynh-Feldt	4300.695	64.239	66.948			

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
General Health	Sphericity Assumed	19.125	5	3.825	.129	.986	.004	
	Greenhouse-Geisser	19.125	2.056	9.301	.129	.884	.004	
	Huynh-Feldt	19.125	2.215	8.634	.129	.898	.004	
	Lower-bound	19.125	1.000	19.125	.129	.722	.004	
Error (General Health)	Sphericity Assumed	4300.695	145	29.660				
	Greenhouse-Geisser	4300.695	59.629	72.125				
	Huynh-Feldt	4300.695	64.239	66.948				
	Lower-bound	4300.695	29.000	148.300				

There was no (priori $p > 0.05$) significant difference ($F(2.056, 59.629) = .129, p = .884$) in lifestyle over time.

Table (15): Tests of Between-Subjects Effects for Subjects' General Health

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	392972.825	1	392972.825	1.043E4	.000	.997
Error	1092.597	29	37.676			

There is a statistically significant difference between subjects' general health status at ($p < .005$).

Table (16): The Estimates of General Health Values between Study and Control Group

General Health	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Study Group Pre-Test	46.694	1.024	44.599	48.789
Control Group Pre-Test	46.667	1.200	44.213	49.121
Study Group Post-Test I	46.083	.862	44.320	47.846
Control Group Post-Test I	46.861	1.065	44.683	49.039
Study Group Post-Test II	46.903	.885	45.093	48.713
Control Group Post-Test II	47.139	1.025	45.043	49.235

The mean values of the general health status increase in the study group over time (Mean = 46.694 vs. 46.667, 46.083 vs. 46.861, 46.903 vs. 47.139) respectively. Both groups exhibit improvement in the mean of the general health over time.

Table (17): Pairwise comparison of the General Health Values between Study and Control Groups

(I) General Health	(J) General Health	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	.028	1.760	1.000	-5.600	5.655
	3	.611	.918	1.000	-2.324	3.547
	4	-.167	1.789	1.000	-5.888	5.554
	5	-.208	.917	1.000	-3.142	2.726
	6	-.444	1.687	1.000	-5.841	4.953
2	1	-.028	1.760	1.000	-5.655	5.600
	3	.583	1.656	1.000	-4.713	5.879

	4	-.194	.932	1.000	-3.174	2.785
	5	-.236	1.672	1.000	-5.584	5.112
	6	-.472	1.181	1.000	-4.248	3.304
3	1	-.611	.918	1.000	-3.547	2.324
	2	-.583	1.656	1.000	-5.879	4.713
	4	-.778	1.600	1.000	-5.894	4.339
	5	-.819	.686	1.000	-3.013	1.374
	6	-1.056	1.540	1.000	-5.981	3.870
4	1	.167	1.789	1.000	-5.554	5.888
	2	.194	.932	1.000	-2.785	3.174
	3	.778	1.600	1.000	-4.339	5.894
	5	-.042	1.625	1.000	-5.238	5.155
	6	-.278	.711	1.000	-2.553	1.998
5	1	.208	.917	1.000	-2.726	3.142
	2	.236	1.672	1.000	-5.112	5.584
	3	.819	.686	1.000	-1.374	3.013
	4	.042	1.625	1.000	-5.155	5.238
	6	-.236	1.576	1.000	-5.277	4.804
6	1	.444	1.687	1.000	-4.953	5.841
	2	.472	1.181	1.000	-3.304	4.248
	3	1.056	1.540	1.000	-3.870	5.981
	4	.278	.711	1.000	-1.998	2.553
	5	.236	1.576	1.000	-4.804	5.277

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

There are no significant differences in the values of the general health at any time.

IV. DISCUSSION

Socio-Demographic Characteristics:

The Mean age for subjects in the study group is 71.63 ± 5.1 in comparison with 72.8 ± 5.85 for the control group. Most of study participants; both in the study and the control group, were in the 70-74 years-old age. This could be attributed to that the consequent wars and hard economic situations that Iraq has been experiencing, led to a change in population's moral values to the extent that people leave their older adult relatives in older adults' care homes. Moreover, the consequent wars and terroristic attacks that Iraq has been facing targeted the majority of young adults who can provide the care for older adult relatives. This finding is supported by a subsequent one which stated that most of the subjects in the study group reported that they never been visited by family members, relatives, and friends.

Less than a fifth of subjects both in the study and the control groups are unable to read and write. This can be attributed to the fact that those people were born in the 1940s, where the education sector in Iraq was not as developed as present time and

there was a little governmental emphasis and poor awareness of the population about the importance of education.

Most of the subjects, in both the study and the control groups reported that they are non-smokers or tobacco users. This is attributed to that the care home management has a policy that prohibit using the Hookah "Water Pipe" where those subjects prefer to hang out around the Hookah, and that a half of subjects were females who rarely be smokers in the Iraqi society. Moreover, those who reported that they smoke cigarettes constitute the minority.

In terms of having chronic health conditions, most of subjects who reported that they have such conditions reported that they have Hypertension. This could be anticipated for individuals in this age due to senescence and biological changes that include the decreased elasticity of the blood vessels walls. Ultimately, most of the subjects; both in the study and the control groups reported that they never experience heart attack or Cerebrovascular Accident (CVA). This finding may referred to that most participants in both groups enjoy a moderate level of health status related to CVDs.

Discussion Result of Repeated Measures ANOVA Analysis:

Results represent the Repeated Measures ANOVA for the values of the subjects' beliefs about cardiovascular disease.

The findings of these tables demonstrated that the values of subjects' beliefs about cardiovascular disease of the study group

almost increase over time in comparison with control group captured through; this implies that the education program has a significant influence on the values of subjects', the significant difference in subjects' beliefs over time.

The influence of the educational program in changing the subjects' beliefs about cardiovascular disease is accounted approximately 46%, and there were significant differences in the values of beliefs over each time interval. This indicates that the educational program was satisfactorily helpful in bringing a positive change of subjects' beliefs about cardiovascular disease. These results can support evidence about important effectiveness on value beliefs change in many studies in such these studies related to screening programs for older adults that need to effectiveness on health beliefs to influence increase participation. For example, Korean American women have very low rates to engage in healthy behaviors of mammography of breast cancer screening. Nursing research indicates that this low rate is due to a higher level of perceived barriers and lower levels of perceived seriousness and benefits among older Korean American women⁽⁵⁾.

In addition, a quasi-case study, 120 patients (60 study and 60 control), registered under the health centers in Fasa City, Fars Province, Iran were selected in 2014. The purpose of this study was to investigate the effect of a prevention program based on HBM upon osteoporosis among women to measure nutrition and walking performance for prevention of osteoporosis before, immediately after the intervention. Bone mineral density (BMD) was recorded at the lumbar spine, femur before, and after intervention. Immediately and after the intervention, the case group showed an effectiveness of knowledge, nutrition and walking performance on bone mass by HBM in study group compare with control. Hence, these models can act as a framework for designing and implementing educational interventions for the osteoporosis prevention⁽⁶⁾.

Results represent the Repeated Measures ANOVA for the values of the subjects' readiness to engage in a healthy behavior related to CVD. Findings demonstrated that the values of the subjects' readiness to engage in a healthy behavior related to cardiovascular health of the study groups are almost increase over time in comparison with control groups. The education program has a significant influence on the values of subjects' readiness to engage in a healthy behavior related to cardiovascular health there was significant difference subjects in subjects' readiness to engage in a healthy behavior related to cardiovascular health over time. The influence of the educational program in enhancing the subjects' readiness to engage in a healthy behavior related to cardiovascular health is accounted approximately 86% and there are significant differences in the values of subjects' readiness to change unhealthy behaviors. This indicates that the educational program was satisfactorily helpful in a positive change of subjects' subjects' readiness to engage in a healthy behavior related to cardiovascular health.

Readiness is a central component of the TTM and the HBM. HBM grew out of research on disease prevention, initially focusing more on factors affecting people without diagnosed conditions like cardiovascular risk prevention⁽⁷⁾.

This results can support evidence by similar results were found in a study of current head and neck and lung cancer patients; the study referred to those with higher perceptions of

smoking-related risks were more readiness to have quit smoking in life style after their cancer diagnosis than patients with lower perceptions of risk⁽⁸⁾.

In more evidence support by Mochari, and others (2010) when evaluated whether effectiveness of a special intervention (SI) to improve diet versus a control intervention (CI) differs by readiness to reduce dietary saturated fat based on the transtheoretical model stages of change among family members of hospitalized CVD patients⁽⁹⁾.

The purpose of this study was to evaluate the effectiveness of the stages of readiness to change-based diet intervention that incorporated motivational interviewing-type counseling on the intake of saturated fat, and other key nutrients, among family members of hospitalized CVD patients. The result showed was the effectiveness of an intervention to lower saturated fat varies by baseline stage of change among family members of hospitalized CVD patients. Baseline saturated fat and cholesterol intakes were lower among those in maintenance stage vs. others (9.9% vs. 11.2% kcals; $p < .0001$) and (112.2 vs. 129.7 mg/1000kcal; $p = .0003$) respectively.

The results represent the Repeated Measures ANOVA for the values of the subjects' rate of change lifestyle related to cardiovascular health.

The findings of these tables demonstrated that the values of subjects' change lifestyle related to cardiovascular health of the study group almost increases over time in comparison with control group.

The education program has a significant influence on the values of subjects' change lifestyle related to cardiovascular health; the significant difference in subjects' change lifestyle related to cardiovascular health was over time.

The influence of the educational program in enhancing the subjects' change lifestyle related to cardiovascular health is accounted approximately 28% . This indicates that the educational program was satisfactorily helpful in a positive change of subjects' change lifestyle related to cardiovascular health.

Health behavior is often used synonymously with lifestyle, and aspects of lifestyle such as smoking, dietary and exercise habits are strongly related to health, life expectancy and CVD. Lifestyle intervention, comprising systematic education in techniques to change health behaviour, is essential for implementing changes in lifestyle and is an important element in preventing heart disease and cardiac rehabilitation.⁽¹⁰⁾

Oli and others (2014), Conducted to qualitative study aimed to deepen understanding of the community perspective on cardiovascular health from the patients' group viewpoint and lifestyle, by ask respondents about their perception and experiences with CVD, particularly regarding causation and preventability⁽¹¹⁾.

There findings suggest the need to develop and implement different health education programs to address the lack of awareness and existing misconceptions regarding the importance of cardiovascular health. Exploring perceived susceptibility toward cardiometabolic diseases, understanding the perceived barriers and potential benefits of behavior modification, and assessing preparedness for interventions will require subsequent study among different sociodemographic groups within the general population.

The study represent the Repeated Measures ANOVA for the values of the subjects' general health status related to cardiovascular health. The findings of these tables demonstrated that the values of subjects' general health status related to cardiovascular health of the almost increases in both study and control group over time, but differences in values are not significant subjects' of general health and between study and control groups .

Unfortunately the influence of the educational program in enhancing the subjects' general health status related to cardiovascular health is no significant influence on the values of subjects' general health status Tables (5.2), and there are no significant differences in the values of the general health status over each time interval. This indicates that the educational program was less helpful in a positive change but both groups exhibited the improvement of means subjects' general health status related to cardiovascular health . Not only when correct beliefs or elevated the readiness to change behaviors in clients by intervention program, we can getting a significant improve the general health status or health life style. Because general health status involved overall dimensions of health, therefor there are several other factors can play important role as a barrier determinants effects on facilitates elevating the general health clients after interventions. The general health status connecting with other various determinate factors, which may include economic status, psychosocial such family visited conditions during and after intervention, continues context supportive and other factors.

Socioeconomic status has been linked with both health status and health behavior, with less affluent individuals' consistently experiencing higher morbidity and mortality⁽¹²⁾.

Many studies not getting significant differences in dimensions of the overall health status outcomes. In study of randomized controlled trial with a post-intervention follow-up objective to evaluate the effectiveness of motivational interviewing intervention on weight loss, physical activity and other cardiovascular disease risk factors. By using inferential analysis (MANOVAs assessing satisfactory randomization) to the intervention groups and univariate follow-up analyses to establish whether any significant differences were present. Results intervention led to that the significant differences finding in improvements and maintenance in walking and cholesterol level, however, no significant differences of maintenance in other health status-related outcomes such as blood pressure, weight loss and BMI; in addition, this was not improved in the case for all subgroups⁽¹³⁾.

In more supporting evidences' by Koelewijn-van Loon et al., (2006) when conducted study was a cluster-randomized controlled trial through examined 615 patients who were eligible for cardiovascular risk management to determine if lifestyle can improved at a short term through an intervention program to involve patients in cardiovascular risk management by the practice nurse⁽¹⁴⁾.

The study results referrers that intervention seems to have improved in both groups but no relevant significant differences between the groups were found. The patients' improved in their risk perception, anxiety and satisfaction with the communication in shared decision-making. However, there are no additional effect of the intervention program on overall healthier lifestyle.

Discussion result of the Association Among Variables of Study:

Table (6.1) found that there was a significant association between subjects' marital status and their readiness to change his unhealthy behavior into healthy behavior in the study group. This due to that almost residents' have similar health status (widows) and many participants have a high blood pressure or/ and experienced heart attack or stroke rather than some health information about many health subjects related to cardiovascular disease.

In pre-test phase the positive significant association between subjects of age, material status and their readiness to change their unhealthy behavior. Most of older adults in geriatric homes were in the age group of 70-74 because the geriatric home accepted just of 65 age and over. In addition, there are negative significant associations between the number of smoked cigarettes, smoking type and subjects' lifestyle. The subjects of smoking is considers one of the major challenges for promotion of unhealthy lifestyle change is tobacco use.

Rimer et al, (1990) reporting the findings of a random survey of American Association of Retired Persons members conducted to learn more about older smokers, their smoking, health characteristics, their quitting motivations, experiences and the role of physicians' advice to quit tobacco use. Data was obtained from 339 current smoker who aged 50 to 102. Only 39 percent reported that they had been advised to stop smoking by their physicians in the previous year and after giving them a strong recommendation to quit and by providing appropriate interventions by physicians.

This is grasped among study variable for control group when exhibits positive association between smoking status and their lifestyle group, rather than there are negative significant associations between subjects' level of education, the number of smoked cigarettes, and their general health status. Health education is one of social characteristics that most commonly affect health of older. In particular, poverty and lower educational level can affect healthy aging because these factors are associated with earlier onset of disease and mortality⁽¹⁵⁾ Tobacco use behavior is considered one of the difficult and complex is unhealthy behavior when change. It need to be other factors help to quit tobacco use as the provided alternatives, effective social and psychological support environment, focused on susceptibility more than other perception and other diminutions that enhancing smoking secession process.

Mostly smoker was exhibited cigarettes as a type of smoking, this due to many reasons such as they do not need to be prepared, inexpensive against water pipe and geriatric home laws which restricting use water pipe.

However, the study group reported existence negative significant associations between the numbers of smoked cigarettes and subjects of readiness to change unhealthy behavior's for control group in post-Test I respectively, which is also represented in the negative significant associations between numbers of smoked cigarettes with rate of lifestyle change in the study variables respectively.

In the theory of Transtheoretical model of stage to change unhealthy behaviors, action is only one of six stages. Typically, not all modifications of behavior count as action in this model. In most applications, people have to attain a criterion that scientists

and professionals agree is sufficient to reduce risks for disease. In smoking, for example, the field used to count reduction in number of cigarettes or switching to low tar and nicotine cigarettes as action. Now, the consensus is clear only total abstinence counts as action, as these other changes do not necessarily lead to quitting and do not lower risks associated with smoking to zero⁽¹⁶⁾.

Survey study conducted to detect which factors are associated with successful smoking cessation in Korean adults. The study results revealed that the cessation success and failure rates were 45.5% and 54.5%, respectively. Smoking cessation was associated with many socioeconomic and other factors such as older age, marriage, higher income, smoking larger amounts of cigarettes, use of willpower, alcohol abstinence, chronic disease history, better mental health and use better stress management, and higher levels of quality of life (QoL), after controlling for multiple variables. Second-hand smoke exposure at home and using nicotine replacement therapy were associated with a lower likelihood of smoking cessation (Kim, 2014).

In addition, the study found in post-Test among study variables for control group that negative significant associations between subjects' level of education, the number of smoked cigarettes and their general health status respectively in (Table 7.2), also there are negative significant association between level of education and general health status in post-Test. These findings may be attributed to that the health status scale involved overall dimensions of health such as bodily pain, social function and perception to health, its need more time interventions and effect to getting effectiveness desire.

Results showed there are negative significant association between gender and readiness to change unhealthy behaviors. These exhibited significant differences and showed that, the mean of readiness to change unhealthy behavior for men is higher than that of women respectively.

In supportive the results finding related to level of education health experience in men when Goggin and Morrow (2001), study specific behaviors of older adults which showed that the older adult men tend to be more readiness to engage in healthy behaviors such as physical activity than older women⁽¹⁷⁾.

Post-Test (I) showed that there was positive significant association between visiting of family members, relatives, friends and subjects' beliefs about cardiovascular disease (Table 7.2). These may impels to important of visiting family, relative, friends as psychosocial factors in enhancing health beliefs toward more healthy perceptions and change unhealthy lifestyle.

In more evidence support about relationship between social support and health beliefs in cross-sectional predictive study it was conducted to examine factors, direct and indirect affecting adherence to therapeutic regimens as a behavioral change among sample of (321) Thais with hypertension.

Perceived self-efficacy, social support and provider communication had a direct positive effect on their adherence to therapeutic regimens. Health belief and social support were found to have an indirect factors effect on adherence to therapeutic regimens via perceived self-efficacy. Finally, study was recommended that care providers, including nurses should recognize factors influencing adherence to therapeutic regimens. This includes social support with health belief, provider communication and perceived self-efficacy⁽¹⁸⁾.

Moreover, there is a positive significant association between subjects' beliefs about cardiovascular disease and their readiness to change their unhealthy behavior. When theory of beliefs work up to remove misperception about subjects of beliefs related to CVDs to change behaviors, this usually work in synchronous after constructing and during change behavior's process.

A common direction in research involving the HBM is to determine its usefulness in combination with other models and frameworks. For instance, HBM constructs have been combined with the transtheoretical model's (TTM) component of staging outcome behavior.

In more support evidence about positive important relationship between health beliefs and readiness to engage in healthy behaviors when Saywell et al, (2003) found that a more intensive intervention is needed for women who are not considering mammograms (classified by the TTM as "precontemplators") than for women who are considering being screened. Research also indicates that women who are contemplating being screened have an increased perception of threats and benefits to action, compared to precontemplators. Similarly, women in contemplation have fewer barriers to action than women in precontemplation stage⁽¹⁹⁾.

V. CONCLUSIONS

The mean of age participants was 70-74 years old, and there are more than a third of subjects in the study group reported that they have hypertension.

The intervention education program has effectiveness to increase of values of subjects of health beliefs related to cardiovascular disease risk perceptions approximately 46%, readiness to change unhealthy behaviors was accounted approximately 82%, and healthy lifestyle after intervention was accounted approximately 28% overtime.

The general health status values was increased improvement in post-test (II), however the education program had not recorded a significant influence on the values of subjects' general health over time.

The study confirm that the mean of readiness to change unhealthy behavior for men was higher than that of women (men 2.4667 vs. women 2.3222) respectively.

The study in post-test (I) confirm that can reduce the number of smoked cigarettes by elevate stage readiness to change unhealthy behaviors.

Level of education can contribute in change or decrease unhealthy behaviors.

VI. RECOMMENDATIONS

The study recommend that the Health beliefs relate to cardiovascular disease (CVD) and transtheoretical model (TTM) as an important components to remove or misconceptions about subjects related to CVDs prevention and motivation clients toward change unhealthy behaviors.

The study recommend about important of implement such this health programs at different age and in different places.

General health status is broad concept and involve all diminutions of health therefor we need to study and improvement other factors such as social support or financial status when implementing health programs to get the anticipating effectiveness outcomes.

Older adults who low-level of education and suffering from many health conditions related to aging therefor they need to specific learning strategies when developing and implementing health education programs and use appropriate technique when collecting data.

The also study recommend that the important of implement screening strategies for different age in community to assess the overall health beliefs related to cardiovascular to and determine what unhealthy behaviors prevalence and what the appropriate method or programs can be we should be design and implement to improve lifestyle.

REFERENCES

- [1] Loscalzo, J.; S. Fauci, S.; A., Kasper, L. D.; et al.: Harrison's Cardiovascular Medicine. By The McGraw-Hill Companies United States Copyright; 2010, Pp.19-332.
- [2] World Health Organization (WHO): Fact sheet N°310 on The top 10 causes of death(Updated May 2014) Retrieved from <http://www.who.int/mediacentre/factsheets/fs310/en/#content>
- [3] World Heart Federation (WHF). Media Backgrounder: Glossary of cardiovascular disease terms. Melbourne, Australia; 2014, P. 1 Retrieved from http://www.world-heart-federation.org/fileadmin/user_upload/Congress/WCC2014/BACKGROUN DER_-_CVD_Glossary-_FINAL.pdf
- [4] Labarthe, R. Darwin.: Epidemiology and Prevention of Cardiovascular Disease, A global challenge. Jones and Bartlett Publishers, LLC.; United States of America.; 2011, Pp. 3-312
- [5] Eun, Y.; Lee, E. J.; Kim, M. J.; & Fogg, L.: Breast cancer screening beliefs among older Korean American women. Journal of Gerontological Nursing, 35; 2009, Pp. 40–50.
- [6] Jeihooni, Khani.; Hidarnia, A.; Kaveh, M. H.; & Hajizadeh, E.: The effect of a prevention program based on health belief model on osteoporosis. J Res Health Sci. Winter;15(1); 2015, Pp. 47-53 Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/25821026>
- [7] Rosenstock, I.: Historical Origins of the Health Belief Model. Health Education Monographs, ed2; 1974, Pp.328–335.
- [8] Schnoll, R. A., Malstrom, M., James, C., Rothman, R. L., Miller, S. M., Ridge, J. A., et al.: Correlates of tobacco use among smokers and recent quitters diagnosed with cancer. Patient Education and Counseling, 46; 2002, Pp. 137-145.
- [9] Mochari, Heidi.; Terry, B. Mary.; Mosca, Lori.: Does Stage of Change Modify the Effectiveness of an Educational Intervention to Improve Diet among Family Members of Hospitalized Cardiovascular Disease Patients?. Columbia University Medical Center, New York, NY 10032. 2012. Retrieved from

- <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2909115/pdf/nihms219324.pdf>
- [10] Gaede P.; Vedel P.; Larsen N.; Jensen G.V.H.; Parving H.-H.; & Pedersen O.: Multifactorial intervention and cardiovascular disease in patients with type2 diabetes. New England Journal of Medicine. 348(5), 2003, Pp.383–393.
- [11] Oli, Natalia.; Vaidya, Abhinav.; Subedi, Madhusudan, & et. al.: Experiences and perceptions about cause and prevention of cardiovascular disease among people with cardiometabolic conditions: findings of in-depth interviews from a peri-urban Nepalese community. Gothenburg, Sweden; 2014, Pp. 1-10. Retrieved from <http://his.divaportal.org/smash/get/diva2:845432/FULLTEXT01.pdf>
- [12] Packard, C.J.; Ford I.; Robertson, M.; PROSPER Study Group. (2005). Plasma lipoproteins and apolipoproteins as predictors of cardiovascular risk and treatment benefit in the PROspective Study of Pravastatin in the Elderly at Risk (PROSPER). Circulation. Vol. 112, No.20; 2005, Pp. 3058-3065.
- [13] Pencina, M. J.; D'Agostino, R. B.; Sr., Larson, M. G.; Massaro, J. M.; & Vasan, R. S.: Predicting the 30-year risk of cardiovascular disease: the framingham heart study. Circulation, 119(24); 2009, Pp.3078-3084.
- [14] Marije, S.; Koelewijn-van Loon; Trudy, A.; van. der.; Weijden, A.; & et al.: improving lifestyle and risk perception through patient involvement in nurse-led cardiovascular risk management: A cluster-randomized Controlled trial in Netherlands. 2009, Pp.35-41. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/19944713>
- [15] Crimmins, E. M.; Kim, J. K.; & Seeman, T. E.: Poverty and biological risk: The earlier "aging" of the poor. Journal of Gerontology Series: A Biological Sciences and Medical Sciences, 64(A), 2009, Pp.286–292.
- [16] Dimsdale, J. E.: Psychological stress and cardiovascular disease. Journal of the American College of Cardiology (JACC). 51(13).. doi: 10.1016/j.jacc.2007.12.024; (2008), Pp. 1237-1246 Retrieved from file:///C:/Users/dell/Downloads/12024.pdf
- [17] Goggin, L. Noreen.; & Morrow, R. James.: physical Activity Behaviors of older adults. Journal of aging and physical activity, e9; 2001, Pp. 58-66. Retrieved from <https://www.humankinetics.com/AcuCustom/Sitename/Documents/DocumentItem/1529.pdf>
- [18] Pinprapapan, Ekkarat.; Panuthai, Sirirat.; Vannarit, Taweeluk.; Srisuphan, Wichit.: Casual Model of Adherence to Therapeutic Regimens among Thais with Hypertension Pacific Rim Int J Nurs Res; 2013, Pp. 276-277 Retrieved from file:///C:/Users/dell/Downloads/8781-23551-1-PB.pdf
- [19] Saywell, R. M., Jr.; Victoria L. Champion.; Terrell, W. Zollinger.; Maraj, M.; Celette, Sugg Skinner.; & Kathleen, A. Zoppi.: The Cost Effectiveness of 5 Interventions to Increase Mammography Adherence in a Managed Care Population." The American Journal of Managed Care, e 9; 2003, Pp.33–44.

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