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Research Article

Impact of DASH System on the Diet Pattern of Patients after Recovery from Myocardial Infarction

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Abstract:

Background: One of the top three causes of death and morbidity is cardiovascular disease Myocardial infarction is a clinical illness defined by quickly growing severe myocardial ischemia. It is the most frequent health problem in the world and the main cause of mortality.

Objectives: The study aims to assess the dietary pattern of food intake frequency for patients with post-myocardial infarction.

Methods: The quasi-experimental design has been carried out to determine the impact of the Dietary Approaches to Stop Hypertension system on patients with post-myocardial infarction, in the Al-Diwaniyah Teaching Hospital's cardiac outpatient clinic for the period from 17th April 2023 to 3rd May, 2024. Nonprobability (purposive) sample of (60) patients were selected who recovering from myocardial infarction at AL Diwaniyah Teaching Hospital. The study instrument comprised of (3) parts: **part I**: demographic details of the patient, which included seven items. **Part II:** Data on clinical characteristics, consisting of (3) items and **Part III:** Evaluation of diet frequency consisting of (8) items.

Results: The study results showed that most of the food groups were (less than the Recommended Daily Servings) in pre-test, then became (Equal to the Recommended Daily Servings) in post-test in the study group. While most of the food groups were (Less than the Recommended Daily Servings) in pre-test and post-test in the control group. Also, there were statistically significant differences between the study and control groups in the post-test measurements regarding the evaluation of the dietary pattern of food intake frequency.

Conclusions: The DASH system was effective in improving the dietary pattern of patients after recovery from myocardial infarction. And in assessing food intake frequency and the dietary pattern. There were statistically significant differences between the study and the control group on the post-test measures.

Keywords: Dietary Approaches; Dietary Assessment; Dietary Pattern; Healthy Diet; Hypertension; Myocardial Infarction.

Introduction:

In the world, one of the top three causes of death and morbidity is cardiovascular disease (CVD). The frequency of chronic illnesses has increased along with life expectancy, and the mortality rate from heart disease has exceeded the 25% mark in the late 20th century. By 2025, it is predicted to reach between 35-60%. Furthermore, non-communicable illnesses have emerged as the primary cause of death in addition to changes in lifestyle (**1**). Myocardial Infarction (MI) is the most prevalent kind of CVDs. It results from coronary artery blockage and myocardial ischemia, and it is a leading cause of death for patients with CVD **(2).** In Iraq, Yemen, Egypt, Lebanon, and Jordan, there is a relatively high mortality rate from CVDs especially acute MI. The age standard of cardiovascular death rate is are due to cardiovascular diseases (3). more than twofold in comparison with the United States. According to mortality estimates, approximately 25%-40% of deaths in these countries There are several causes and risk factors attributed to the manifestations and progression of CVDs, these relate to both modifiable and non-modifiable risk factors. Non-modifiable risk factors relate to inherited syndromes, and genetic components, they cannot be controlled (4). Modifiable risk factors often have to do with lifestyle choices and actions, such as eating poorly, not exercising, smoking, and drinking alcohol. The evidence shows that approximately 80% of CVDs can be attributed to these modifiable behavioral risk factors. Consequently, to address the growing burden of CVDs, the most logical intervention is the development of preventive strategies to control CVDs with modifiable risk factors (5). The development and prevention of CVDs, the leading cause of death globally, are significantly influenced by diet. Although, the majority of conventional epidemiology research has concentrated on specific foods or nutrients, the increasing number of dietary program research has

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made it possible to consider the intricacy and synergy of nutrients and foods consumption (6). Dietary Approaches to Stop Hypertension (DASH) diet originated in 1990. Several studies were funded in 1992 by the National Institute of Health for the United Kingdom to see whether particular dietary treatments may help reduce hypertension and cardiovascular diseases (7). DASH is regarded as a dietary pattern that emphasizes plant-based protein over animal protein and is high in fruits, vegetables, whole grains, and low-fat dairy products. Originally designed to help persons with hypertension control their blood pressure, DASH is now more commonly advised for populations at high risk of cardiovascular diseases. There are well-established advantages of the DASH diet for lowering blood pressure and body weight, but no long-term clinical trials have evaluated the diet's impact on mortality or the risk of subsequent cardiovascular events **(8).** DASH diet is an example of a very healthy eating pattern. It is low in saturated fat and higher in fiber, potassium, calcium, and magnesium, and it has a reduced consumption of refined carbohydrates. It is also said to be able to control and improve a number of CVD risk factors, including dyslipidemia, hypertension, and glucose intolerance **(9).**

The study aims to:-

1) Assess the dietary pattern of food intake frequency for patients with post myocardial infarction.
2) Determine the impact of the DASH system on patients' dietary patterns after recovery from myocardial infarction.

Methods and Material:

Study Design: The quasi-experimental design has been carried out to determine the impact of the DASH system on patients with post myocardial infarction, with the application of pre and post- test approaches for the study and control group in assessing their dietary habits by adherence and compliance to healthy diet. which has been achieved for the period from 17th January 2023, to 3rd May, 2024.

Study Setting: The study was conducted in the cardiac outpatient clinics of the Al-Diwaniyah teaching hospital with approval from Al-Diwaniyah Health Directorate.

Study Sample: Sixty patients were chosen as a non-probability (purposive) sample, at Al-Diwaniyah teaching hospital, patients who underwent cardiac outpatient clinics and had medical records were those who had recovered from myocardial infarction for at least four weeks. The patients were allocated into two groups, the study group and the control group, each with thirty patients.

Inclusion criteria:

- Patients who are in stable condition.
- Sex: Both males and females.
- Patients who agreed to participate in the study.
- Patients who are free from psychiatric illness.
- Age is greater than or equal to 30 years, less than or equal to 70 years.

Exclusion criteria:

- Patients who do not read and write
- Patients who refused to participate in the program.

Instrument Construction: For the present study, a questionnaire was designed and developed by the researcher, the questionnaire was constructed by reviewing previous literature and related studies for myocardial Infarction and the DASH diet. The study instrument comprised of (3) parts:-

Part I: (Socio-demographic characteristics data): It has seven items that are connected to sociodemographic traits, such as age, gender, residential area, marital status, socio- economic status, educational level, and occupational status.

Part II: (Clinical characteristics data): this part is concerned with data obtained from myocardial Infarction patients by observation and interview. The data consist of (3) items: Medical history, Family medical history of myocardial Infarction, and The recovery period from myocardial infarction.

Part III: (Dietary assessment of food intake frequency): The instrument used for dietary assessment developed by (DASH Guideline National Heart, Lung, and Blood Institute, 2017), (Rastogi, et al, 2004). Food intake frequency was used to obtain a measure of dietary intake for each participant in the study and control group (pre and post program) by asking each patient to recall what they ate in the last 24 hours at the main servings and in between servings (snacks), This instrument consists of (8) food groups (Grains and grain products, 6 lists of foods, Vegetables, 12 lists of foods, Fruits, 10 lists of foods, Milk and milk products, 3 lists of foods, Meats and eggs, it consists of 4 list of food, Legumes, it consists of 5 list of food, Fats and oils, 4 lists of foods, and Sweets, 3 lists of foods).

Data Collection: The data collection was carried out through the interview and intervention technique for the study and control groups (pre and post program), the participants in the study group were exposed to the DASH system. Dietary assessment for each participant in the study and control groups to obtain a measure of dietary intake was carried out by a daily servings scale (1 servings, 2 servings, 3 servings, 4 servings, 5 and more, None), then computed total daily servings and compared with recommended daily servings (RDS) according to (DASH Guideline National Heart, Lung, and Blood Institute, 2017), comparison scale (Equal to RDS, Less than RDS, More than RDS). To obtain a measure of serving size, using household measures such as (cups, different sizes of dishes, tablespoon, and teaspoon). The data were collected for the study sample in the period from 2nd June 2023, to 9th November 2023**.**

Statistical Data Analysis: The study data were analyzed using the statistical data analysis methodologies listed below using Microsoft Excel 2016 and the statistical package for social sciences (SPSS) version (26). Tables with frequencies and percentages are used in descriptive data analysis; inferential data analysis uses this method, which entails accepting or rejecting the statistical hypothesis, comprises: The Chi-Squared test was

used to measure the degree of association between the study variables based on their type and to assess the independence distribution of the observed frequencies. Furthermore, the significant *P-value* for this study's comparison is ≤ 0.05.

Results:

Table (1) revealed that the majority of sample were in the same age group (45-54) years old (36.7%) in study group and (40%) in control group. Regarding gender, (63.3%) were males in both groups. In addition, (73.3%) of the study group and (66.7%) of the control group live in urban residential areas.

About marital status the results in table (1) indicated that (80% and 73.3%) of the two groups respectively were married. Regarding socio-economic status, the study group (satisfied to some extent; unsatisfied) had equal results (37.7%), were the control group equal to half (46,7) of them had unsatisfied response. Additionally, the results indicated that (36.7%) of the study group have primary school educational level, while for the control group the results indicated that (33.3%) of them are read and write. Regarding the occupational status, the results show that (40%) of the study groups are retired, while (36.7%) of the control group are housewives. The final result in this table was, as follows; 50% of study group were not smoking and the other 50% of them were smoker divided in cigarettes only (43.3%), and cigarettes and narghile smoking (6.7%) while in the control group 83.3% of them are non-smoker and 16.7% of them are smoking cigarettes only.

Table (1): Distribution for both Groups according to socio-demographic characteristics:

Socio-demographic Characteristic		Study Group n=30		Control Group n=30	
		F	%	F	%
Age (year)	35 – 44	5	16.7	5	16.7
	45 – 54	11	36.7	12	40
	55 – 64	6	20	6	20
	65 +	8	26.7	7	23.3
	Mean ±SD	55.1 ± 9.43		54.73 ± 8.94	
Gender	Male	19	63.3	19	63.3
	Female	11	36.7	11	36.7
Residential Area	Rural	8	26.7	10	33.3
	Urban	22	73.3	20	66.7
Marital Status	Single	0	0	3	10
	Married	24	80	22	73.3
	Divorced	0	0	1	3.3
	Widow	6	20	4	13.3
Socio-economic Status	Satisfied	8	26.7	4	13.3
	Satisfied to Some Extent	11	36.7	12	40
	Unsatisfied	11	36.7	14	46.7
Educational Level	Read and Write	6	20	10	33.3
	Primary School	11	36.7	10	33.3
	Intermediate School	5	16.7	2	6.7
	Secondary School	2	6.7	1	3.3
	Diploma	3	10	5	16.7
	Graduate	3	10	2	6.7
Occupational Status	Government Employed	9	30	8	26.7
	Self Employed	3	10	6	20
	Unemployed	0	0	2	6.7
	Retired	12	40	3	10
	House wife	6	20	11	36.7

F=frequency, %= percentage

Table (2) illustrates the clinical data of study sample. The study results of medical history (hypertension and diabetes), indicated that all the participants (study and control groups), in the study (100%) had hypertension; with diabetes in 50% of them. Regarding family medical history, those with such history represented (50% and 46.7%) of the study and control groups, respectively. Concerning recovery period from myocardial infarction, the results of study group showed that 50% had (8-9 weeks interval); in the control group (36.7%) had two period of recovery (6-7 weeks and 8-9 weeks) intervals respectively.

Table (2): Distribution for both groups according to clinical data:

Clinical Data				Study Group n=30		Control Group n=30	
				F	%	F	%
Medical History	Hypertension	Yes		30	100	30	100
		No		0	0	0	0
	Diabetes	Yes	Type 1	2	6.7	2	6.7
			Type 2	13	43.3	13	43.3
			Total	15	50	15	50
		No		15	50	15	50
Family Medical History		Yes	First Degree	15	50.0	14	46.7
			Second Degree	8	26.7	7	23.3
			Total	23	76.7	21	70
		No		7	23.3	9	30
Recovery Period from Myocardial Infarction			4-5w	0	0	2	6.7
			6-7w	8	26.7	11	36.7
			8-9w	15	50.0	11	36.7
			10-13w	7	23.3	6	20

F=frequency, %= percentage

Table (3): Shows the dietary assessment of the study sample responses at the pre and post-tests for the study group. This table indicates that most of the food groups were (Less than RDS**)** at the pre-test**,** then it became (Equal to RDS) at post-test regarding (grains & grain products, vegetables, fruits, milk & milk products and legumes). While the food groups were (More than RDS**)** at the pre-test**,** then it became (Equal to RDS) at the post-test regarding (Fats & Oils and Sweets).

Table (3): Assessment of the dietary pattern of food intake frequency at pre and post-test measurements (Study Group N=30):

No.	Food Group	Period	Dietary Assessment		
			Equal to RDS F (%)	Less than RDS F (%)	More than RDS F(%)
1	Grains & Grain Products	Pre-test	2(6.7)	28(93.3)	0(0)
		Post-test	27(90)	1(33.3)	2(6.7)
2	Vegetables	Pre-test	3(10)	26(86.6)	1(33.4)
		Post-test	25(83.3)	0(0)	5(16.7)
3	Fruits	Pre-test	5(16.6)	9(30)	16(53.4)
		Post-test	22(73.3)	2(6.7)	6(20)
4	Milk & Milk Products	Pre-test	1(33.3)	18(60)	11(36.7)
		Post-test	24(80)	3(10)	3(10)
5	Legumes	Pre-test	12(40)	7(23.3)	11(36.7)
		Post-test	19(63.3)	4(13.3)	7(23.7)
6	Fats & Oils	Pre-test	2(6.7)	4(13.3)	24(80)
		Post-test	29(96.7)	1(3.3)	0(0)
7	Sweets	Pre-test	12(40)	0(0)	18(60)
		Post-test	26(86.7)	0(0)	4(13.3)

F=frequency, %= percentage; RDS=Recommended Daily Servings

The dietary assessment in the pre-test and post-tests for the control group. This table indicates that most of the food groups were (Less than RDS) regarding (grains & grain products, vegetables, milk & milk products) and (More than RDS) regarding (fats, legumes and sweets) in the pre-test andpost-test as shown in Table (4)

Table (4): Assessment of the dietary pattern of food intake frequency at pre and post measurements (Control Group N=30):

No.	Food Group	Period	Dietary Assessment		
			Equal to RDS F (%)	Less than RDS F (%)	More than RDS F (%)
1	Grains & Grain Products	Pre-test	2(6.7)	23(66.7)	5(16.6)
		Post-test	1(3.3)	20(66.7)	9(30)
2	Vegetables	Pre-test	3(10)	21(70)	6(20)
		Post-test	3(10)	23(76.7)	4(13.3)
3	Fruits	Pre-test	4(13.3)	0(0)	26(86.7)
		Post-test	4(13.3)	0(0)	26(86.7)
4	Milk & Milk Products	Pre-test	2(6.7)	27(90)	1(3.3)
		Post-test	4(13.3)	23(76.7)	3(10)
5	Legumes	Pre-test	9(30)	4(13.3)	17(56.7)
		Post-test	11(36.6)	1(3.3)	18(60)
6	Fats & Oils	Pre-test	0(0)	3(10)	27(90)
		Post-test	0(0)	4(13.3)	26(86.7)
7	Sweets	Pre-test	2(6.7)	0(0)	28(93.3)
		Post-test	5(16.6)	0(0)	25(83.3)

F=frequency, %= percentage; RDS=Recommended Daily Servings

While there were statistically significant differences between the study and control group at post-test measurements regarding dietary pattern assessment of food intake frequency (Grains & Grain Products, Vegetables, Fruits, Milk & Milk Products, Legumes, Fats & Oils and Sweets) at *P. value <0.05*. as shown in Table (5)

Table (5): Comparison between study and control group according to dietary pattern assessment of food frequency intake at post measurements (N=60):

No.	Food Group	Group	Dietary Assessment			Statistical Measurements		
			Equal to RDS F (%)	Less than RDS F (%)	More than RDS F (%)	X^2 value	D.f	*P*
1	Grains & Grain Products	Study	27(90)	1(33.3)	2(6.7)	14.732	4	0.001
		Control	1(3.3)	20(66.7)	9(30)			
2	Vegetables	Study	25(83.3)	0(0)	5(16.7)	13.929	2	.0010
		Control	3(10)	23(76.7)	4(13.3)			
3	Fruits	Study	22(73.3)	2(6.7)	6(20)	18.462	2	.0010
		Control	4(13.3)	0(0)	26(86.7)			
4	Milk & Milk Products	Study	24(80)	3(10)	3(10)	31.186	4	.0010
		Control	4(13.3)	23(76.7)	3(10)			
5	Legumes	Study	19(63.3)	4(13.3)	7(23.7)	11.579	4	0.021
		Control	11(36.6)	1(3.3)	18(60)			
6	Fats & Oils	Study	29(96.7)	1(3.3)	0(0)	9.459	1	.0020
		Control	0(0)	4(13.3)	26(86.7)			
7	Sweets	Study	26(86.7)	0(0)	4(13.3)	9.231	1	.0020
		Control	5(16.6)	0(0)	25(83.3)			

F=frequency, %= percentage; RDS=Recommended Daily Servings; X^2= Chi square; D.f= Degree of freedom; P.= p. value.

Discussion:

Myocardial ischemia and coronary artery blockage result in MI, the most prevalent form of CVDs. Myocardial infarction is a leading cause of death for people with heart disease, despite better clinical treatment, greater awareness among the public, and widespread application of health advances (1). Therefore, the goal of current study was to assess the dietary pattern of food intake frequency for patients with post-myocardial infarction.

Patients' Socio-demographic Characteristics: Current results agreed with those of previous studies of Abdul-Ameer and Khuder (10), who found that 36.7% of patients with MI were within the age groups (40-49) and (50-59) years. in the study and control groups, respectively. Concerning gender, (63.3%) of study sample were males and (36.7%) were females, in both groups. This result agreed with the result of Hussein and Widad (9), who found that the majority of study sample were males. Concerning marital status, current results were similar to a previous study by Khasal and Atiyah (11), who found that the majority of study subjects are married. Regarding residential areas, current results agreed with the results of a previous study of Aldaggistany (12), and Kittan and Rajha (13) whose findings suggested that more participants are living in cities than in rural areas.

In socio-economic status, the study group (satisfied to some extent; unsatisfied) had equal results (37.7%), whereas the control group equal to (46.7%) of them had unsatisfied responses. The outcome of Herliani's (2) earlier investigation was in line with these findings, and Kittan and Rajha (13), who found that a high proportion of study groups has insufficient monthly income.

Concerning educational level, current results matched with the results of a previous study of Khasal and Atiyah (11), who found that the majority of study subjects can read & write and primary school graduates. In respect to the occupational status, current results showed that (40%) of the study group were retired, while (36.7%) of the control group were housewives. These results were consistent with the results of a previous study by Zaitsu (14), who found that a high proportion of the study groups were retired.

Clinical characteristics related to myocardial infarction patients from the study sample: Concerning medical history, current results were consistent with the results of a previous study of Abdul-hussain (15), who found that the majority of the study samples had an increase in blood pressure (the risky stage of hypertension). These results are also in agreement with the results of a previous study of Kittan and Rajha (13), who indicated that the majority of study participants' were suffering from diabetes. Regarding the family medical history, these results were in matching with the results of a previous study of Kadhim (16), also Sharif and Samir (17), who showed that more than half of the people in the study group and the control group have first-degree relatives who suffer from MI. Regarding the recovery period from myocardial infarction, the results of current study showed that in the study group, 50% had (8-9 weeks interval); in the control group (36.7%) had two period of recovery (6-7 weeks and 8-9 weeks) intervals, respectively. These results were consistent with the results of a previous study of Atrous (18), who indicated that the recovery period (2-3 months) is the best among MI patients who received the dietary program than patients who received dietary care in the hospital.

Dietary assessment of food intake frequency at pre- and post-test measurements: The outcomes of Novaković (19) support current findings, and Rastogi (20), who found that when compared to standard care at six months, adherence to dietary guidelines also improved the consumption of fruits, vegetables, grains, and legumes in a population of patients with MI at the pre-test and post-test, while the control group did not follow dietary recommendations regarding (Grains & Grain Products, Vegetables, Fruits, Milk & Milk
Products and Legumes).
Results presented in Table (5) were consistent with the results of a previous study of Jayawardena (21) who found that using the Chi-squared test, a significant difference was reported between the study and control groups at post-test measures of the appropriate daily intake of grains, vegetables, fruits, nuts, seeds, and legumes.
According to the researcher, applying a diet pattern rich in fruits, vegetables, fish, chicken, olive oil, legumes, and nuts to the study group has been shown to be a significant preventive factor against some disorders, such as AMI. The DASH diet plan has been recommended by several US health organizations as an effective nutritional strategy for the prevention and management of elevated blood pressure and CVDs. The protective effects of healthy dietary patterns on MI appear to be due to the sum of small dietary changes rather than the restriction of any single nutrient.
group members were done in small teams or face-to-face individual meetings.

Limitation of study:
Long duration for data collection. Also interviewing participants at the post-test was not easy, therefore, meetings for these group members were done in small teams or face-to-face individual meetings.

Conclusions:
Based on the findings of current investigation, the investigator can draw the following conclusions:
The DASH system is effective in improving patients' dietary pattern after recovery from myocardial infarction. There were statistically significant differences between the study and control groups at post-test measurements regarding dietary pattern assessment of food intake frequency at *P* value <0.05.

Recommendations:
The research has recommended the following actions based on its findings, discussion, and conclusions:-
Including the DASH system in the treatment protocol for patients after recovery from MI.
Providing the patient with a booklet or guideline sheet that includes the instructions for the DASH system after recovery and being discharged from cardiac care unit.

Authors' Declaration:
We confirm that all tables and figures in the manuscript belong to the current study. Besides, the figures and images, which do not belong to the current study, have been given permission for re-publication attached to the manuscript; also we declare that the above research got the approval from the Medical Research Ethics Committee of AL-Diwaniyah health directorate According to the code number (15) on the date (28/5/2023).
Conflict of interest: None.
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Authors' Contributions:
Study conception & design: (Sabri Shather Hadi. Literature search: (Khalida Mohammed Khudur). Data acquisition: (Sabri Shather Hadi). Data analysis & interpretation:(Sabri Shather Hadi). Manuscript preparation: (Khalida Mohammed Khudur). Manuscript editing & review: (Khalida Mohammed Khudur

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تأثير نظام داش على النمط الغذائي للمرضى بعد الشفاء من احتشاء عضلة القلب.

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خلفية البحث: أحد الأسباب الثلاثة الأولى للوفاة وانتشار المرض هو أمراض القلب والأوعية الدموية. احتشاء عضلة القلب هو مرض سريري يتم تعريفه بنقص تروية عضلة القلب الشديد. تعتبر المشكلة الصحية الأكثر شيوعًا في العالم والسبب الرئيسي للوفاة.
الهدف من هذه الدراسة: تهدف الدراسة إلى تقييم النمط الغذائي لتكرار تناول الطعام للمرضى بعد احتشاء عضلة القلب.
منهجية البحث: تم تنفيذ تصميم شبه التجريبي لتحديد تأثير نظام داش على المرضى بعد احتشاء عضلة القلب ، في العيادة الخارجية للقلب في مستشفى الديوانية التعليمي للفترة من 17 يناير 2023 إلى 3 مايو 2024. تم اختيار عينة احتمالية (غرضية) مكونة من (60) مريضا تعافوا من احتشاء عضلة القلب في مستشفى الديوانية التعليمي، وتم تقسيم العينة الى مجموعتين كل مجموعة تتكون من (30) كمجموعة دراسة و سيطرة . تكونت أداة الدراسة من (3) أجزاء: الجزء الأول: الخصائص الديموغرافية للمريض والمكون من (7) فقرات. الجزء الثاني: بيانات الخصائص السريرية ويتكون من (3) عناصر والجزء الثالث التقييم الغذائي لتكرار تناول الطعام ويتكون من (8) عناصر.
النتائج: أظهرت نتائج الدراسة أن معظم المجموعات الغذائية كانت (أقل من الحصص اليومية الموصى بها) في الاختبار القبلي، ثم أصبحت (تساوي الحصص اليومية الموصى بها) في الاختبار البعدي بالنسبة لمجموعة الدراسة. بينما كانت معظم المجموعات الغذائية (أقل من الحصص اليومية الموصى بها)) في الاختبار القبلي والبعدي بالنسبة لمجموعة السيطرة؛ كما كانت هناك فروق ذات دلالة إحصائية بين مجموعة الدراسة ومجموعة السيطرة في قياسات ما بعد الاختبار فيما يتعلق بتقييم النمط الغذائي لتكرار تناول الطعام.
الاستنتاجات: نظام داش كان فعالا في تحسين النمط الغذائي للمرضى بعد الشفاء من احتشاء عضلة القلب، وكانت هناك فروق ذات دلالة إحصائية بين مجموعة الدراسة ومجموعة السيطرة في القياسات البعدية فيما يتعلق بتقييم النمط الغذائي لتكرار تناول الطعام عند قيمة.
الكلمات المفتاحية: النظام الغذائي لوقف ارتفاع ضغط الدم ، التقييم الغذائي، النمط الغذائي، الغذاء الصحي، احتشاء عضلة القلب.