Sakarya Tıp Dergisi
Sakarya Med J

e-ISSN: 2146-409X
Publisher: Sakarya University

Vol. 15, No. 3, 227-238, 2025
DOI: http://doi.org/10.31832/smj.1688759

Research Article

The Effect of Adherence to Mediterranean Diet on Quality of Life in Patients with Coronary Artery Disease

Rıfat Bozkuş[1*], Gizem Helvacı[2], Serap Balaban Barta[3], Yunus Emre Özbebek[4]

[1] Department of Internal Medicine, Ankara Etlik City Hospital, Ankara, Türkiye, rifatbozkus@gmail.com, ror.org/01nk6sj42

[2] Faculty of Health Sciences, Department of Nutrition and Dietetics, Mehmet Akif Ersoy University, Burdur, Türkiye, gizemhelvaci_165@hotmail.com, ror.org/04xk0dc21

[3] Faculty of Health Sciences, Department of Nutrition and Dietetics, Gaziantep University, Gaziantep, Türkiye, dyt.balaban@gmail.com, ror.org/020vvc407

[4] Department of Cardiology, Ankara Etlik City Hospital, Ankara, Türkiye, dr.ozbebek@gmail.com, ror.org/01nk6sj42

[*] Corresponding Author

Received: 02.05.2025
Accepted: 08.07.2025
Available Online: 15.09.2025

Objective: The aim of this study was to evaluate the effect of Mediterranean diet adherence on quality of life in individuals with a history of coronary artery disease.

Materials and Methods: This cross-sectional study was conducted with the participation of 378 patients diagnosed with coronary artery disease between the ages of 18 and 65. Data were collected through face-to-face interviews using a questionnaire including questions on demographic characteristics, dietary habits, the Mediterranean Diet Adherence Scale (MEDAS), and the Cardiac Quality of Life Scale (HeartQoL). The IBM SPSS Statistics 26.0 program was used in the analysis of data.

Results: The mean HeartQoL score of the patients was 25.33±10.42, and the mean MEDAS score was 6.13±1.69. Diet quality was low in 62% of the participants. No significant effect of the level of adherence to the Mediterranean diet on blood pressure and lipid profile was detected ($p>0.05$). MEDAS score (B=3.04; 95% CI: 2.52–3.57; $p<0.001$) and hemoglobin A1c (HbA1c) level (B=–1.04; 95% CI: –1.68– –0.40; $p=0.002$) were found to be associated with HeartQoL score. Education level (B=0.23; 95% CI: 0.05–0.41; $p=0.013$) and waist circumference (B=–0.49; 95% CI: –0.08– –0.02; $p=0.002$) were found to be associated with MEDAS score.

Conclusion: Diet quality is generally low in coronary artery disease patients. High diet quality positively affects emotional and physical quality of life. On the other hand, high HbA1c levels negatively affect quality of life. Therefore, patients should be made aware of healthy nutrition, and the treatment process should include strategies to ensure glycemic control.

Keywords: Coronary artery disease, Mediterranean diet, Quality of life, Lifestyle, Glycemic control

1. INTRODUCTION

Coronary artery disease is a major health problem involving the development of atherosclerotic plaque and is among the leading causes of death worldwide. The plaque narrows the lumen of the artery and obstructs blood flow. If the plaque continues to grow in size, it leads to chest pain and the risk of heart attack.[1] Patients may experience symptoms such as shortness of breath, back pain, palpitations, and fatigue.[2] These symptoms significantly negatively affect both the psychological and physical health of the patients.[3,4] Lifestyle changes and medication are applied in the management of symptoms. Among these lifestyle changes, healthy eating, participation in regular physical activity, and smoking cessation are the most effective ones.[5]

The Mediterranean diet stands out as a potential gold standard in preventive medicine. This dietary model arises from a lifestyle specific to the Mediterranean region. It emphasizes moderation, frugality, seasonality, and tradition in food consumption.[6] The Mediterranean diet includes high amounts of fruits, vegetables, olive oil, and various herbs and spices, while red meat is limited. It has a metabolic and general health protective effect thanks to its antioxidant and anti-inflammatory components.[7] The Mediterranean diet is associated with cardioprotective effects. Positive effects on various cardiovascular risk factors, including lipid profile, blood pressure, and inflammatory markers, have been reported.[8]

Quality of life refers to the individual's perception of well-being in different areas of life. Health-related quality of life is the perception of well-being related to factors that are part of the

Cite as: Bozkuş R, Helvacı G, Balaban Barta S, Özbebek YE. The effect of adherence to mediterranean diet on quality of life in patients with coronary artery disease. *Sakarya Med J.* 2025;15(3):227-238. doi:10.31832/smj.1688759

individual's health (e.g., physical, mental, social, and functional health).[9] Individuals with coronary artery disease have difficulty in complying with treatment recommendations due to physical, psychological, and social problems caused by the disease. This situation negatively affects their life satisfaction and quality of life.[10] Assessment of health-related quality of life in coronary artery disease patients is important to measure the effectiveness of treatments and nutritional interventions.[11] The Mediterranean diet is known for its potential to reduce the risk of cardiovascular disease and disease burden. The best dietary model for heart patients is the Mediterranean diet due to its multifaceted health benefits. It is evidence-based recommended that patients adhere to this beneficial dietary pattern.[12,13]

In our study, we used a quality of life scale specific for coronary artery disease patients. We aimed to evaluate the effect of adherence to a Mediterranean diet on biochemical parameters and quality of life in patients. We hope to provide information to guide public health interventions aimed at reducing the burden of disease by determining the contribution of a sustainable and healthy diet in the effective management of coronary artery disease.

2. METHOD AND MATERIALS

2.1. Study design and participants

This cross-sectional study was conducted among patients with coronary artery disease visiting the outpatient clinic of Ankara Etlik City Hospital. G-power analysis was used to determine the sample size. The margin of error, power, and effect size were determined as 0.05, 0.95, and 0.5, respectively, and it was found that at least 176 people should be included in the study. To achieve more reliable results, the inclusion of a larger patient sample was planned, and the study was ultimately completed with 378 participants. Patients aged 18 to 65 years, diagnosed with coronary artery disease at least one year ago, followed up and were stable due to coronary artery disease, without any mental problem that prevented them from answering the questions, and who volunteered to participate in the study were included in the study. Patients with structural heart disease, hospitalization due to heart disease in the past six months, advanced cancer, chronic liver disease, and chronic kidney disease were excluded from the study.

2.2. Data collection tools and procedure

Data collection was conducted between January and February 2025 through face-to-face interviews by physician researchers trained in the study protocol. Each interview lasted approximately 20–30 minutes. The questionnaire included questions about demographic characteristics, nutritional habits, adherence to the Mediterranean diet scale, and cardiac quality of life scale. Furthermore, anthropometric measurements and biochemical findings of the patients were recorded in the questionnaire form.

2.3. Anthropometric measurements

Height, waist circumference, and hip circumference were measured with the help of an inflexible tape measure. Height was measured without shoes, with the head in an upright position and standing in the Frankfurt plane (ear canal and the lower border of the eye socket in the same line, gaze parallel to the ground). Waist circumference was measured while the individual was standing with the abdomen in a relaxed position, arms on both sides, feet side by side, and face to face with the researcher. Hip circumference was measured by the researcher standing on the side of the individual and from the widest part of the hip without compressing the tissue with the tape measure parallel to the ground. Body mass index (BMI) was calculated as weight in kilograms divided by height in meters squared (kg/m^2).[14]

2.4. Blood pressure and biochemical results

Blood pressure values obtained as a result of manual measurement from both arms were recorded by the physician, provided that no food, tea, coffee, or cigarettes were consumed in the last half hour and the patient rested for 10 minutes during the survey. The mean arterial pressure was calculated with the formula (SBP + (2XDBP))/3 using the recorded systolic (SBP) and diastolic blood pressure (DBP) values. Biochemical findings of the last month were obtained from the medical files of the patients. Fasting blood glucose, HbA1C, triglyceride, total cholesterol, HDL cholesterol, LDL cholesterol, hemoglobin, hematocrit, ALT, AST, BUN, creatinine, sodium, and potassium values were recorded in the questionnaire form.

2.5. Mediterranean Diet Adherence Scale (MEDAS)

The scale provides a rapid assessment of adherence to the Mediterranean diet. It was developed by Schröder et al., and a Turkish validity and reliability study was conducted by Pehlivanoğlu et al.[15,16] The questionnaire consists of 14 questions and asks about the type of main fat used in meals, the amount of olive oil consumed daily, fruit and vegetable portions, margarine-butter, and red meat amount. Furthermore, it asks the amount of wine, pulses, fish-seafood, desserts, and dried nuts consumed on a weekly basis and whether white meat is preferred more than red meat. A score of 1 or 0 is obtained for each question asked according to the amount of consumption. A total score of 7 and above indicates an acceptable level of compliance with the Mediterranean diet, and a score of 9 and above indicates that individuals have strict compliance with the Mediterranean diet.[16]

2.6. Heart Quality of Life Scale for Coronary Artery Patients (HearthQoL)

The scale was developed to measure quality of life in individuals with ischemic heart disease.[17] A Turkish validity and reliability study was conducted by Duğan and Bektaş in 2020. It consists of 14 items and two sub-dimensions (physical and emotional characteristics). Each item is scored out of 0 to 3. The scale can be applied to individuals aged 18 years and over in clinical and community-based studies. The total scale score that can be obtained ranges from 0 to 52, and high scores indicate that there is no dysfunction and quality of life is high.[18]

2.7. Statistical analysis

The IBM SPSS (Statistical Package for Social Sciences) 26.0 package program was used to evaluate the data. Mean, standard deviation, number, and percentage values were used for descriptive statistics. Continuous variables were compared by a one-way ANOVA test, and categorical variables were compared by a Pearson chi-square test. Categorical variables were compared using the chi-square test with post-hoc pairwise comparisons; significant differences were indicated by different superscript letters (x, y, z). Continuous variables were analyzed using one-way ANOVA with Bonferroni post-hoc test; significant differences were indicated by different superscript letters (a, b, c). Individuals were divided into tertiles according to HeartQoL score, and a one-way ANOVA test was used to evaluate the differences between tertiles. Individuals with a HeartQoL score of ≤20.07 were included in the T1 group, individuals with a HeartQoL score of 20.07 < HeartQoL ≤ 31.0 were included in the T2 group, and individuals with a HeartQoL score of >31.0 were included in the T3 group. Pearson correlation analysis and a heat map were used to assess the relationship between two continuous quantitative variables. Multiple linear regression models were used to determine the factors affecting the HeartQoL and MEDAS scales. For all tests, $p<0.05$ was considered statistically significant.

2.8. Ethical approval

The study was conducted in accordance with the guidelines specified in the Helsinki Declaration. Ethical permission was obtained from the Ankara Etlik City Hospital Scientific Research Evaluation and Ethics Committee to conduct the research (No:11.12.2024/AEŞH-BADEK-2024-1234). All participants provided written informed consent before participation. Patient anonymity was preserved by removing all identifiable personal information from the collected data and manuscript. Original consent forms are retained by the authors and are available for review upon journal request.

3. RESULTS

Table 1 presents the demographic characteristics, dietary habits, and scale scores of the patients according to the quality of life scale tertiles. The mean age of the individuals was 58.35±6.68 years, and they had cardiovascular disease for a mean of 4.34±4.76 years. According to post-hoc analysis, patients in the third tertile were significantly younger (p=0.001). The duration of cardiovascular disease in patients in the second tertile is higher than in the third tertile (p=0.045). A higher male ratio was observed in conjunction with an increase in the quality of life tertile (p<0.001). Within the third tertile, the percentage of people who are married is higher than the percentage of people in the first tertile (p= 0.010). The percentages of patients who exercise regularly, who regularly consume 3 main meals, and patients without another chronic disease were significantly higher in the third tertile (p<0.05), as indicated by the post-hoc comparisons in the table (different superscript letters). The mean HeartQoL score was 25.33±10.42, and the mean MEDAS score was 6.13±1.69. As the quality of life increased, MEDAS scores also increased significantly (p<0.001), as demonstrated by the post-hoc comparisons.

Table 2 presents the anthropometric measurements, biochemical findings, and HearthQoL scores of the patients according to MEDAS classification. Body mass index, waist, and hip circumference were higher in patients with low adherence to the Mediterranean diet (p<0.05). While the level of adherence to the Mediterranean diet did not affect blood pressure, it affected hemoglobin and BUN values among biochemical findings. Hemoglobin values of patients with low adherence to the Mediterranean diet were statistically significantly lower than those with high adherence (p=0.012). BUN values of those with low adherence to the Mediterranean diet were statistically significantly higher than those with high adherence (p=0.045). As the level of adherence to the Mediterranean diet increased, the total score and sub-dimensions (emotional and physical quality of life) of the cardiac quality of life scale increased (p<0.001).

Table 3 presents the correlation analyses of the HeartQoL score, MEDAS score, anthropometric measurements, and biochemical findings of the patients. HeartQoL score and MEDAS score are positively correlated (r=0.554; p<0.001). There is a negative correlation between HeartQoL score and age, BMI and waist circumference (p<0.001). HeartQoL score is positively correlated with hemoglobin and hematocrit values among biochemical findings, while it is negatively correlated with HbA1c (p<0.05). While there is a negative correlation between MEDAS score and age, BMI, and waist circumference, a positive correlation has been found between hemoglobin and hematocrit values (p<0.05).

Figure 1 illustrates the results of multiple regression analysis showing the factors affecting patients' quality of life and adherence to the Mediterranean diet. According to the model, gender (B= -4.18, 95% CI: -6.96- -1.40, p=0.003), MEDAS score (B= 3.04, 95% CI: 2.52-3.57, p<0.001) and HbA1c level (B= -1.04, 95% CL: -1.68- -0.40, p=0.002) are associated with HeartQoL score after adjusting confounding factor. Education level (B= 0.23, 95% Cl: 0.05-0.41, p=0.013), HeartQoL score (B= 0.09, 95% CI: 0.07-0.010, p<0.001) and waist circumference (B= -0.49, 95% CL: -0.08- -0.02, p=0.002) are associated with MEDAS score after adjusting confounding factor.

Table 1.

Distribution of demographic characteristics, nutritional habits and scale scores of patients according to HeartQoL tertiles

		Total	Tertile			
			T1 [a] (n=125)	**T2 [b] (n=133)**	**T3 [c] (n=120)**	***p value***
Demographic Characteristics						
Age (year)		58.35±6.68	59.28±6.60	59.16±6.26	56.50±6.89	0.001* [a,b-c]
Duration of CVD (year)		4.34±4.76	4.32±4.41	5.05±5.59	3.56±3.95	0.045* [b-c]
Gender	**Female**	106 (28.0)	60 (48.0)	33 (24.8)	13 (10.8)	<0.001*
	Male	272 (72.0)	65 (52.0)	100 (75.2)	107 (89.2)	
Marital Status	**Single**	54 (14.3)	7 (21.6)	17 (12.8)	10 (8.3)	
	Married	324 (85.7)	98 (78.4)	116 (87.2)	110 (91.7)	0.010*
Education Status	**Literate**	51 (13.5)	30 (24.0)	15 (11.3)	6 (5.0)	
	Primary school	164 (43.4)	58 (46.4)	60 (45.1)	46 (38.3)	
	Middle school	110 (29.1)	26 (20.8)	35 (26.3)	49 (40.8)	<0.001*
	High school	37 (9.8)	8 (6.4)	16 (12.0)	13 (10.8)	
	University	16 (4.3)	3 (2.4)	7 (5.3)	6 (5.0)	
Place of Residence		49 (13.0)	20 (16.0)	19 (14.3)	10 (8.3)	
Village/District		329 (87.0)	105 (84.0)	114 (85.7)	110 (91.7)	0.173
	Province					
Smoking	**Yes**	93 (24.6)	31 (24.8)	26 (19.5)	36 (30.0)	
	No	131 (34.7)	60 (48.0)	40 (30.1)	31 (25.8)	<0.001*
	Quitting	154 (40.7)	34 (27.2)	67 (50.4)	53 (44.2)	
Alcohol	**Yes**	15 (4.0)	1 (0.8)	7 (5.3)	7 (5.8)	
	No	363 (96.0)	124 (99.2)	126 (94.7)	113 (94.2)	0.083
Presence of Chronic Disease	**Yes**	306 (81.0)	107 (85.6)	111 (83.5)	88 (73.3)	
	No	72 (19.0)	18 (14.4)	22 (16.5)	32 (26.7)	0.033*
Exercise status	**Yes**	55 (14.6)	10 (8.0)	18 (13.5)	27 (22.5)	0.005*
	≤2 days a week	16 (29.1)	2 (20.0)	7 (38.9)	7 (25.9)	0.504
	>2 days a week	39 (70.9)	8 (80.0)	11 (61.1)	20 (74.1)	
	No	323 (85.4)	115 (92.0)	115 (86.5)	93 (77.5)	
Nutritional Habits						
Meal	**2**	65 (17.2)	29 (23.2)	27 (20.3)	9 (7.5)	
	3	313 (82.8)	96 (76.8)	106 (79.7)	111 (92.5)	0.002*
Meal Skipping	**Yes**	65 (17.2)	29 (23.2)	65 (17.2)	29 (23.2)	0.002*
	No	313 (82.8)	96 (76.8)	313 (82.8)	96 (76.8)	
Water Consumption	**≤ 5 glasses**	17 (4.5)	7 (5.6)	5 (3.8)	5 (4.2)	0.428
	5-10 glasses	252 (66.7)	82 (65.6)	96 (72.2)	74 (61.7)	
	>10 glasses	109 (28.8)	36 (28.8)	32 (24.1)	41 (34.2)	
Cooking fat preference	**Butter**	4 (1.1)	2 (1.6)	1 (0.8)	1 (0.8)	<0.001*
	Sunflower oil	291 (77.0)	111 (88.8)	111 (83.5)	69 (57.5)	
	Olive oil	84 (22.0)	12 (9.6)	21 (15.8)	50 (41.7)	
Eating speed	**Slow**	9 (2.4)	6 (4.8)	1 (0.8)	2 (1.7)	0.203
	Moderate	129 (34.1)	45 (36.0)	42 (31.6)	42 (35.0)	
	Fast	240 (63.5)	74 (59.2)	90 (67.7)	76 (63.3)	
Salt consumption Preference	**Salt-free**	11 (2.9)	6 (4.8)	4 (3.0)	1 (0.8)	0.481
	Lightly salted	354 (93.7)	115 (92.0)	124 (93.2)	115 (95.8)	
	Salty	13 (3.4)	4 (3.2)	5 (3.8)	4 (3.3)	
Adding salt without tasting	**Yes**	6 (1.6)	2 (1.6)	2 (1.5)	2 (1.7)	0.995
	No	372 (98.4)	123 (98.4)	131 (98.5)	118 (98.3)	
Scale scores						
HeartQoL		25.33±10.42	13.07±4.63	26.18±3.23	37.16±3.19	<0.001* [a-b-c]
MEDAS		6.13±1.69	5.10±1.24	5.95±1.36	7.40±1.62	<0.001* [a-b-c]

One-way ANOVA and Chi-square analysis were used. Significance level, p<0.05 T1: HeartQoL ≤20.07; T2: 20.07 < HeartQoL ≤31.0; T3: HeartQoL >31.0

One-way ANOVA and Chi-square analysis were used. Significance level, p<0.05 T1: HeartQoL ≤20.07; T2: 20.07 < HeartQoL ≤31.0; T3: HeartQoL >31.0

CVD: Cardiovascular disease, MEDAS: Mediterranean Diet Adherence Screener, HeartQoL: Heart Quality of Life Scale

Table 2.

Anthropometric measurements, biochemical findings and HeartQoL scores of patients according to the MEDAS classification

	Total	<7 [a] (n=236)	7-8 [b] (n=102)	≥9 [c] (n=40)	*p value*
Anthropometric measurement					
BMI (kg/m²)	29.38±3.60	29.88±3.60	28.38±3.52	28.98±3.20	0.001* [a-b]
Waist circumference (cm)	99.11±6.29	100.0±5.98	97.74±7.03	97.40±5.12	0.002* [a-b,c]
Hip circumference (cm)	107.18±7.58	108.48±7.68	105.25±7.21	104.53±6.20	<0.001* [a-b,c]
WHR	0.93±0.04	0.92±0.04	0.93±0.04	0.93±0.03	0.246
Blood Pressure					
SBP (mm Hg)	130.78±16.07	132.06±17.14	128.46±13.68	128.70±14.56	0.117
DBP (mm Hg)	76.03±7.47	76.11±7.67	75.92±5.96	75.88±9.63	0.969
Arterial Pressure	94.27±9.18	94.77±9.72	93.43±6.91	93.48±10.85	0.407
Biochemical analysis					
FPG (mg/dl)	117.49±47.71	114.83±44.42	122.70±51.58	119.88±55.66	0.360
HbA1c (%)	6.18±1.31	6.12±1.27	6.22±1.35	6.43±1.40	0.368
Triglycerides (mg/dL)	171.74±118.41	164.35±94.83	190.47±165.85	167.63±94.05	0.172
Total cholesterol (mg/dL)	165.71±47.44	166.57±46.70	164.15±45.05	164.68±57.86	0.902
HDL (mg/dL)	42.73±10.97	43.07±11.17	41.55±10.18	43.73±11.78	0.420
LDL (mg/dL)	100.39±39.77	101.38±40.18	98.38±38.77	99.63±40.64	0.811
Hemoglobin (g/dL)	14.31±1.65	14.12±1.74	14.55±1.43	14.80±1.42	0.012* [a-c]
Hematocrit (%)	43.97±4.31	43.61±4.61	44.39±5.59	45.01±4.01	0.086
ALT (U/L)	23.74±18.10	22.94±12.94	25.94±27.91	22.80±11.07	0.356
AST (U/L)	20.99±10.14	20.28±7.14	22.29±14.96	21.28±10.01	0.279
BUN (mg/dL)	32.59±10.19	33.11±10.46	32.87±9.82	28.81±8.83	0.045* [a-c]
Creatinine (mg/dL)	1.06±3.11	1.15±3.94	0.91±0.20	0.90±0.16	0.762
Sodium (mEq/L)	140.20±2.53	140.28±2.60	140.0±2.44	140.23±2.41	0.651
Potassium (mEq/L)	6.04±2.47	6.41±3.0	4.49±3.0	7.75±2.1	0.725
CRP	3.61±6.34	3.60±5.41	3.75±8.30	3.26±5.84	0.918
HeartQoL	25.33±10.42	21.24±9.16	30.34±9.01	36.70±5.75	<0.001* [a-b-c]
EmotionalQoL	8.62±2.98	7.67±2.93	9.82±2.5	11.13±1.52	<0.001* [a-b-c]
PhysicalQoL	16.69±7.94	13.54±6.81	20.47±7.15	25.58±4.45	<0.001* [a-b-c]

One-way ANOVA was used. Significance level, p<0.05

BMI: Body mass index, SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, FBP: Fasting Plasma Glucose, HbA1c: glycated hemoglobin, HeartQoL: Heart Quality of Life Scale, EmotionalQoL: Emotional Quality of Life Scale, PhysicalQoL: Physical Quality of Life Scale

Table 3.

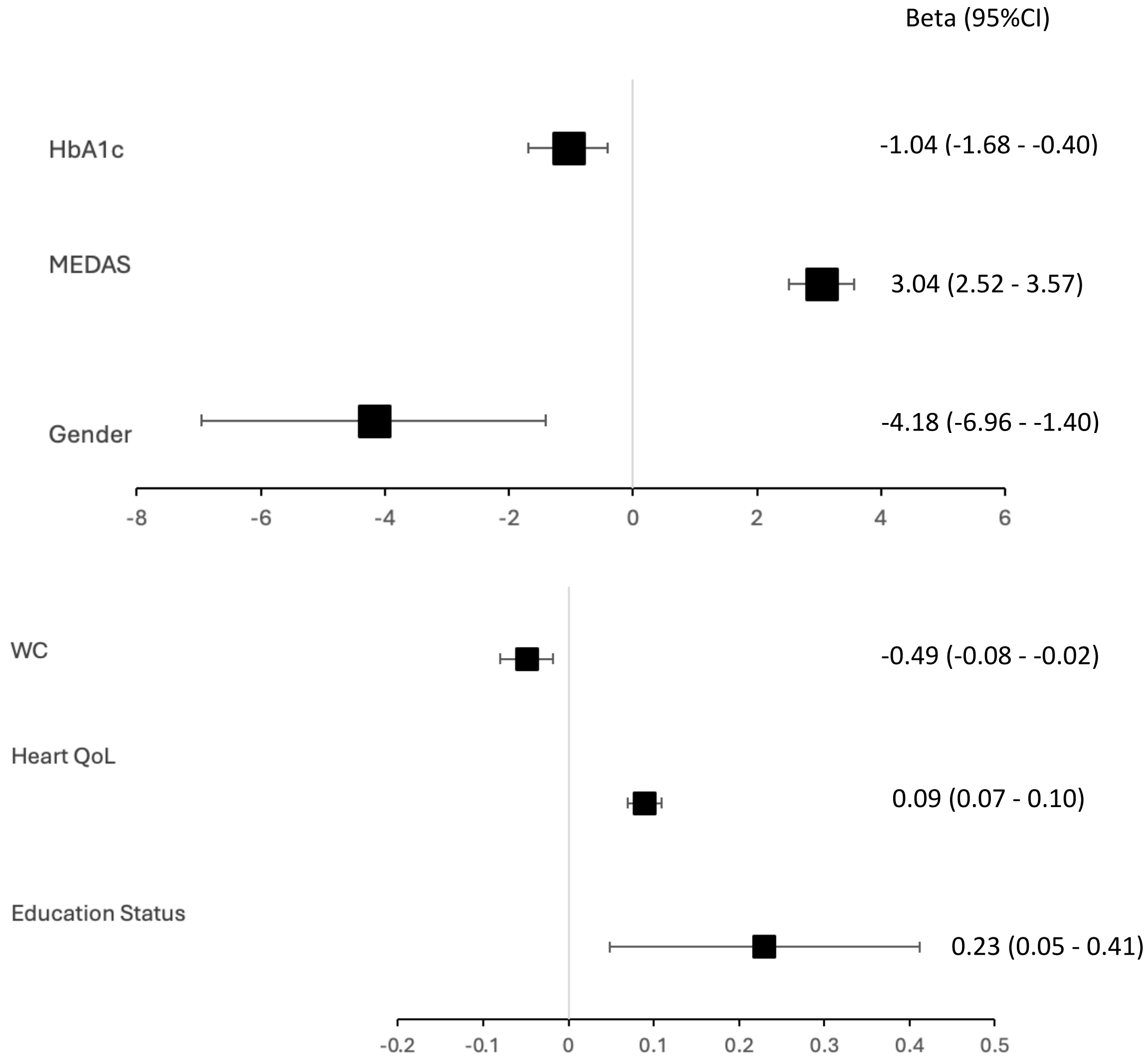
Correlation analysis of HeartQoL, MEDAS, anthropometric measurements and biochemical findings

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 HeartQoL	1.00																
2 MEDAS	0.554**	1.00															
3 Age	-0.181**	-0.180**	1.00														
4 Duration of CVD (y)	-0.090	-0.050	0.247**	1.00													
5 BMI (kg/m²)	-0.237**	-0.120*	0.181**	0.085	1.00												
6 WC (cm)	-0.153**	-0.173**	0.136**	0.087	0.635**	1.00											
7 WHR	0.230**	0.090	-0.043	-0.023	-0.235**	0.222**	1.00										
8 SBP (mm Hg)	-0.090	-0.084	0.111*	0.160**	0.102*	0.094	0.029	1.00									
9 DBP (mm Hg)	-0.040	0.003	0.001	0.101*	0.033	0.029	-0.011	0.576**	1.00								
10 FPG (mg/dl)	-0.078	0.037	0.027	-0.014	-0.045	0.003	0.035	0.055	0.025	1.00							
11 HbA1c (%)	-0.107*	0.048	0.075	0.037	0.054	0.053	0.046	0.128*	0.073	0.694**	1.00						
12 Triglycerides (mg/dL)	-0.031	0.025	-0.170**	-0.015	-0.015	0.064	0.029	-0.003	-0.002	0.133**	0.100	1.00					
13 Cholesterol (mg/dL)	-0.060	-0.012	-0.052	0.074	0.038	0.090	-0.065	0.059	0.039	-0.001	-0.021	0.407**	1.00				
14 HDL (mg/dL)	-0.057	-0.006	0.225**	0.149**	0.166**	0.040	-0.213**	-0.001	-0.034	-0.076	-0.011	-0.316**	0.219**	1.00			
15 LDL (mg/dL)	-0.046	-0.014	-0.064	0.068	0.002	0.046	-0.050	0.042	0.040	-0.009	-0.061	0.228**	0.938**	0.130*	1.00		
16 Hemoglobin (g/dL)	0.263**	0.146*	-0.249**	-0.024	-0.289**	-0.084	0.205**	-0.018	0.080	-0.027	-0.062	0.161*	0.127*	-0.149**	0.131*	1.00	
17 Hematocrit (%)	0.212**	0.102*	-0.204**	0.005	-0.272**	-0.061	0.200**	-0.021	0.060	-0.045	-0.060	0.135**	0.122*	-0.129*	0.131*	0.950**	1.00

BMI, body mass index, WC, waist circumference, WHR, waist-hip ratio, HeartQoL: Heart Quality of Life Scale, MEDAS: Mediterranean Diet Adherence Screener, SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, FBP: Fasting Plasma Glucose, HbA1c: glycated hemoglobin
*p<0,05; **p<0,01

Figure 1.

Evaluation of factors affecting HeartQoL and MEDAS with multiple linear regression models



Adjusted by age, gender, marital status, education status, residence place, and CVD duration.
HbA1c: glycated hemoglobin, MEDAS: Mediterranean Diet Adherence Screener, CVD: cardiovascular disease, HeartQoL: Heart Quality of Life Scale, WC: Waist circumference

4. DISCUSSION

Coronary artery disease is a serious problem, especially affecting adults over 35 years of age.[19] Research is ongoing to determine the most suitable treatment to prevent the development and progression of the disease. Treatment recommendations are largely based on the results of research to identify risk factors and protective factors.[20] This study investigated the effect of the Mediterranean diet, known as a protective factor, on the quality of life of adult coronary artery disease patients. Although MEDAS scores positively affected the scores of the quality of life scale, the majority of patients (62%) had low diet quality. The low diet quality of patients diagnosed with coronary artery disease has been confirmed in previous studies.[21,22] Patients are generally accustomed to a Western-style diet with high amounts of sugar, fat, and processed foods. [23] Their adaptation to the Mediterranean diet may not be easy, as it requires a lifestyle change. However, their adherence to a healthy diet can be improved by providing education and support. It has been reported that adherence to the Mediterranean diet is high even after the intervention is discontinued in patients who follow a Mediterranean diet for a period of time with dietitian guidance.[24]

In this study, adherence to the Mediterranean diet positively affected the quality of life of the patients. Many previous studies have reported that Mediterranean diet components improve quality of life in patients with chronic diseases and healthy individuals with physical and mental health benefits.[25,26,27,28] The ability of the Mediterranean diet to modulate inflammation mediates the fight against chronic diseases and improves quality of life.[29] Another factor affecting the quality of life of patients, according to our study, is HbA1c level. Lower HbA1c levels are associated with higher quality of life. Diabetes was present in 34% of individuals with coronary artery disease, which could have influenced the findings. Nonetheless, while HbA1c is an important indicator of blood sugar control, high HbA1c levels have been associated with more severe disease and complications in patients who have non-diabetic coronary artery disease.[30] Consistent with our findings, a meta-analysis reported that glycemic control positively affects quality of life.[31] Furthermore, it is argued that glucose monitoring and glucose regulation in healthy individuals as well as patients may contribute to overall well-being.[32]

A diet rich in vegetables, fruits, olive oil, and legumes and limited in red meat is known to positively affect metabolic health and increase general well-being in heart patients.[7] Based on our results, adherence to the Mediterranean diet did not affect the blood pressure and lipid profile of the patients. However, previous studies have reported a vasoprotective effect of Mediterranean diet components on blood pressure and an association with an improved lipid profile.[33,34] The medications used by the patients may have prevented the detection of this effect of the Mediterranean diet. As an illustration, for lipid profiles, the potential advantages of the Mediterranean Diet may be obscured by statins, which are recognized to effectively reduce LDL cholesterol levels.[35,36] Based on our findings, hemoglobin values were higher in patients with high compliance with the Mediterranean diet. It has been previously reported that the Mediterranean diet increases iron absorption and retention.[37] Oleic acid, polyphenols, and vitamin C are dietary components that increase iron bioavailability.[38,39,40]

This study emphasizes the importance of a Mediterranean-style diet as a mediator of quality of life in coronary artery disease patients. However, it has some limitations. It does not explain causality because it has a cross-sectional design. Studies with longitudinal designs should be conducted to determine the direction of causality of the results. Being a single-center study limits the generalizability of the findings but increases the homogeneity of the sample. Especially due to the fact that all participants lived in the same geographical area, they are likely to have similar food accessibility. An additional weakness of the study is that there was no collection of data regarding the usage of medications. Antihypertensive, statin, and antidiabetic medicines can all have a direct impact on biochemical indicators like blood pressure, lipid profile, and HbA1c levels, as well as patient quality of life. This deficiency restricts the evaluation of dietary effects and hinders the management of possible confounding variables. Moreover, although the validated MEDAS scale was employed to evaluate adherence to the Mediterranean diet, a comprehensive analysis of dietary intake at the item level, concentrating on specific food components such as olive oil, seafood, legumes, and processed meats, was not conducted. This limits our capacity to identify which diet components most affect cardiovascular results and quality of life. Finally, the study contained self-reported outcomes, which could result in recollection and social desirability bias. However, collecting the data by face-to-face interviews by trained health professionals increased the accuracy of the information.

5. CONCLUSION

According to our results, adherence to a Mediterranean diet is associated with emotional and physical quality of life in coronary artery disease patients. Improvements in lipid profile and blood pressure regulation did not mediate this relationship. Further studies are needed to evaluate mediating factors. HbA1c levels negatively affected quality of life. Glycemic control seems to be important for patients. Therefore, we recommend that glucose monitoring and control strategies be included in patients' treatment plans. Furthermore, patients should be made aware of the importance of a healthy diet to control disease progression and improve quality of life. In future studies, a more detailed assessment of dietary intake and analysis of individual nutrients will aid in determining which Mediterranean diet components have a greater impact on quality of life and contribute to the development of targeted nutritional recommendations in patients with coronary artery disease.

Article Information Form

Authors' Contribution

R.B, G.H., S.B and Y.E.Ö. designed the study. R.B and Y.E.Ö. collected the data. G.H. participated the manuscript writing. S.B. performed the statistical analysis. R.B., G.H, S.B. and Y.E.Ö. reviewed and edited the manuscript, approved the final version and agreed on the submission of the manuscript.

The Declaration of Conflict of Interest/ Common Interest

No conflict of interest or common interest has been declared by authors.

The Declaration of Ethics Committee Approval

The study was conducted in accordance with the guidelines specified in the Helsinki Declaration. Ethical permission was obtained from the Ankara Etlik City Hospital Scientific Research Evaluation and Ethics Committee to conduct the research (No:11.12.2024/AEŞH-BADEK-2024-1234).

Artificial Intelligence Statement

No artificial intelligence tools were used while writing this article.

Copyright Statement

REFERENCES

1. Komilovich EBZ. Coronary Artery Disease. *Eur J Mod Med Pract.* 2023;3(12), 81-87.
2. Miller CLA. review of symptoms of coronary artery disease in women. *J Adv Nurs.* 2002;39(1):17-23. doi:10.1046/j.1365-2648.2002.02237.x
3. Khawaja IS, Westermeyer JJ, Gajwani P, Feinstein RE. Depression and coronary artery disease: the association, mechanisms, and therapeutic implications. *Psychiatry (Edgmont).* 2009 Jan;6(1):38-51.
4. Tenenbaum A, Motro M, Fisman EZ, et al. Functional capacity impairment in patients with coronary artery disease: Prevalence, risk factors and prognosis. *Cardiology.* 2003;100(4):207-15. doi:10.1159/000074814
5. Yang YL, Leu HB, Yin WH, et al. Adherence to healthy lifestyle improved clinical outcomes in coronary artery disease patients after coronary intervention. *J Chin Med Assoc.* 2021 Jun 1;84(6):596-605. doi:10.1097/JCMA.0000000000000536
6. Gantenbein KV, Kanaka-Gantenbein C. Mediterranean diet as an antioxidant: The impact on metabolic health and overall wellbeing. *Nutrients.* 2021;13(6):1951. doi:10.3390/nu13061951
7. Kushkestani M, Moghadassi M, Sidossis L. Mediterranean lifestyle: More than a diet, A way of living (and thriving). *Endocrine, Metabolic & Immune Disorders-Drug Targets.* 2024;24(15):1785-1793. doi:10.2174/0118715303279769240215105510
8. Tuttolomondo A, Simonetta I, Daidone M, Mogavero A, Ortello A, Pinto A. Metabolic and vascular effect of the Mediterranean diet. *International Journal of Molecular Sciences*, 2019;20(19):4716. doi:10.3390/ijms20194716.
9. Cai T, Verze P, Bjerklund Johansen TE. The quality of life definition: Where are we going? *Uro.* 2021;1(1):14-22. doi:10.3390/uro1010003
10. Unsar S, Sut N, Durna Z. Health-related quality of life in patients with coronary artery disease. *Journal of Cardiovascular Nursing*. 2007;22(6):501-507. doi:10.1097/01.JCN.0000297382.91131.8d
11. Sajobi TT, Wang M, Awosoga O, et al. APPROACH Investigators. Trajectories of health-related quality of life in coronary

artery disease. *Circ Cardiovasc Qual Outcomes.* 2018 Mar;11(3):e003661. doi:10.1161/CIRCOUTCOMES.117.003661

12. Trichopoulou A, Bamia C, Trichopoulos D. Mediterranean diet and survival among patients with coronary heart disease in Greece. *Archives of Internal Medicine*. 2005;165(8):929-935. doi:10.1001/archinte.165.8.929
13. Widmer, R. J., Flammer, A. J., Lerman, L. O., Lerman, A. The Mediterranean diet, its components, and cardiovascular disease. *The American Journal of Medicine.* 2015;128(3):229-238. doi:10.1016/j.amjmed.2014.10.014
14. Pekcan AG. Beslenme durumunun saptanması. In: Baysal A, Aksoy M, Besler HT, Bozkurt N, Keçecioğlu S, Mercanlıgil SM, ve ark., editörler. *Diyet El Kitabı.* 7. baskı. Ankara, Türkiye: Hatiboğlu Yayınevi; 2013:67-142.
15. Schröder H, Fitó M, Estruch R, et al. A short screener is valid for assessing Mediterranean diet adherence among older Spanish men and women. *The Journal of Nutrition.* 2011;141(6):1140-1145. doi:10.3945/jn.110.135566
16. Pehlivanoğlu EFÖ, Balcıoğlu H, Ünlüoğlu İ. Akdeniz diyeti bağlılık ölçeği'nin Türkçe'ye uyarlanması geçerlilik ve güvenilirliği. *Osmangazi Tıp Dergisi.* 2020;42(2):160-164. doi:10.20515/otd.504188
17. Oldridge N, Höfer S, McGee H, Conroy R, Doyle F, Saner H, HeartQoL Project Investigators). The HeartQoL: Part II. Validation of a new core health-related quality of life questionnaire for patients with ischemic heart disease. *European Journal of Preventive Cardiology.* 2014;21(1):98-106. doi:10.1177/20474873124505
18. Duğan Ö, Bektaş H. Koroner arter hastalarında kalp yaşam kalitesi ölçeği'nin Türkçeye uyarlama çalışması. *Turk J Cardiovasc Nurs.* 2020;11(25):71-81. doi:10.5543/khd.2020.38278
19. Albadrani AM, Al-Ajlan SS, Alharbi ASE, Alharbi AS, Alharbi SMR. Public Awareness of coronary artery disease risk factors in Qassim, Saudi Arabia: A cross-sectional study. International Journal of Medicine in Developing Countries, 2020;4(3):593. doi:10.24911/IJMDC.51-1572217065
20. Jia S, Liu Y, Yuan J. Evidence in guidelines for treatment of coronary artery disease. *Coronary Artery Disease: Therapeutics and Drug Discovery*. 2020:37-73. doi:10.1007/978-981-15-2517-9_2
21. Ozturk U, Ozturk O, Toksoz P. Dietary quality after diagnosis of coronary heart disease. *Int Cardiovasc Res J.* 2016;10(2):72. doi:10.17795/icrj-10(2)72
22. Ma Y, Li W, Olendzki BC, et al. Dietary quality 1 year after diagnosis of coronary heart disease. *J Am Diet Assoc.* 2008 Feb;108(2):240-346; discussion 246-247. doi:10.1016/j.jada.2007.10.047
23. Oikonomou E, Psaltopoulou T, Georgiopoulos G, et al. Western dietary pattern is associated with severe coronary artery disease. *Angiology.* 2018 Apr;69(4):339-346. doi:10.1177/0003319717721603
24. Mayr HL, Tierney AC, Kucianski T, Thomas CJ, Itsiopoulos C. Australian patients with coronary heart disease achieve high adherence to 6-month Mediterranean diet intervention: Preliminary results of the AUSMED Heart Trial. *Nutrition.* 2019;61:21-31. doi:10.1016/j.nut.2018.10.027
25. Henríquez Sánchez P, Ruano C, De Irala J, Ruiz-Canela M, Martínez-González MA, Sánchez-Villegas A. Adherence to the Mediterranean diet and quality of life in the SUN Project. *European Journal of Clinical Nutrition.* 2012;66(3):360-368.
26. Galilea-Zabalza I, Buil-Cosiales P, Salas-Salvadó J, Toledo E, Ortega-Azorín C, Díez-Espino J. PREDIMED-PLUS Study Investigators. Mediterranean diet and quality of life: Baseline cross-sectional analysis of the PREDIMED-PLUS trial. *PloS One.* 2018;13(6):e0198974. doi:10.1371/journal.pone.0198974
27. Bonaccio M, Di Castelnuovo A, Bonanni A, et al. Adherence to a Mediterranean diet is associated with a better health-related quality of life: A possible role of high dietary antioxidant content. *BMJ*

Open. 2013;3(8):e003003. doi:10.1136/bmjopen-2013-003003

28. Godos J, Guglielmetti M, Ferraris C, et al. Mediterranean diet and quality of life in adults: A systematic review. *Nutrients.* 2025 Feb5;17(3):577. doi:10.3390/nu17030577
29. Tsigalou C, Konstantinidis T, Paraschaki A, Stavropoulou E, Voidarou C, Bezirtzoglou E. Mediterranean diet as a tool to combat inflammation and chronic diseases. An overview. *Biomedicines.* 2020;8(7):201. doi:10.3390/biomedicines8070201
30. Abd El-Rahman YH. Hemoglobin A1c in non-diabetic NSTEMI patients as a predictor of severity of coronary artery disease. *Benha Med J.* 2024. doi:10.21608/bmfj.2024.327152.2225
31. Cunningham AT, Crittendon DR, White N, Mills GD, Diaz V, LaNoue MD. The effect of diabetes self-management education on HbA1c and quality of life in African Americans: A systematic review and meta-analysis. *BMC Health Services Research*. 2018;18:113. doi:10.1186/s12913-018-3186-7
32. Holzer R, BlochW, Brinkmann C. Continuous glucose monitoring in healthy adults possible applications in health care, wellness, and sports. *Sensors*. 2022;22(5):2030. doi:10.3390/s22052030
33. De Pergola G, D’Alessandro A. Influence of Mediterranean diet on blood pressure. *Nutrients.* 2018;10(11):1700. doi:10.3390/nu10111700
34. Peñalvo JL, Oliva B, Sotos-Prieto M, et al. Greater adherence to a Mediterranean dietary pattern is associated with improved plasma lipid profile: The Aragon Health Workers Study cohort. *Rev Esp Cardiol (Engl Ed).* 2015;68(4):290-297. doi:10.1016/j.rec.2014.09.019
35. Handayani DR, Septiadi E, Inayati I, et al. The duration of Mediterranean diet affects the levels of the lipid profile in dyslipidemia patients. *ACTA Medical Health Sciences.* 2022;1(2):64-70. doi:10.35990/amhs.v1n2.p64-70
36. Hong SJ, Lee YJ, Lee SJ. Hong BK, et al. Treat-to-target or high-intensity statin in patients with coronary artery disease: A randomized clinical trial. *Jama*. 2023;329(13):1078-1087. doi:10.1001/jama.2023.2487
37. Mesías M, Seiquer I, Muñoz-Hoyos A, Galdó G, Navarro MP. The beneficial effect of Mediterranean dietary patterns on dietary iron utilization in male adolescents aged 11–14 years. *International Journal of Food Sciences and Nutrition*. 2009;60(sup7):355-368. doi:10.1080/09637480903170641
38. Banerjee A, Dey T, Majumder R, et al. Oleic acid prevents erythrocyte death by preserving haemoglobin and erythrocyte membrane proteins. *Free Radical Biology and Medicine*. 2023;202:17-33. doi:10.1016/j.freeradbiomed.2023.03.019
39. Xu T, Zhang X, Liu Y, et al. Effects of dietary polyphenol supplementation on iron status and erythropoiesis: A systematic review and meta-analysis of randomized controlled trials. *Am J Clin Nutr*. 2021 Aug 2;114(2):780-93. doi:10.1093/ajcn/nqab068
40. Lane DJ, Richardson DR. The active role of vitamin C in mammalian iron metabolism: Much more than just enhanced iron absorption! *Free Radical Biology and Medicine.* 2014;75:69-83. doi:10.1016/j.freeradbiomed.2014.07.007