



PREVALENCE OF CARDIOVASCULAR RISK FACTORS OF SAMPLE OF PEOPLE ATTENDING PRIMARY HEALTH CARE CENTERS IN ERBIL CITY

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Abstract

Background: Worldwide, cardiovascular illnesses continue to be the primary cause of early mortality, despite improvements in promoting cardiovascular health brought about by scientific studies over the past several decades.

Aim: This study's goal was to determine the prevalence of cardiovascular diseases and risk factors that may contribute to them in a sample of patients attended primary health care centers in Erbil city.

Subject and Methods: A cross-sectional study on a sample of 1000 participants who attended primary health care centers in Erbil city and had one or more risk factors for cardiovascular disease, using a self-developed questionnaire. Questions about cardiovascular disease and its risk factors addressed a variety of issues, including sociodemographic information, lifestyle profile, conditions related to heart disease, and dietary practices.

Results: The current study included 1000 participants (mean age, 50.1 ± 12.4 years) the oldest sample (42.5%) aged 56-65 years, (55.2%) female, and (30.4%) illiterate. The majority (86.5%) are married. The study revealed that (21.6%) were smokers, and (48.6%) of the participants started smoking between the ages of 20-29, and it was found that (76.2%) of the participants exercised less than once a week. Regarding the medical condition, the study showed that 62.4% of the participants had high blood pressure, 58.3% had diabetes, and 29.7% of them were treated with insulin. 44.6% of the participants took medication to lower the cholesterol level, and 41.9% of the participants were overweight.

Conclusions: A considerable percentage of the participants had high blood pressure, diabetes, were overweight, and had high cholesterol, making up the majority of those who had one or more risk factors. The study suggests that more research and studies should be conducted to include larger samples of people in the region to find out the causes and find appropriate solutions.

Keywords:(Prevalence; Primary health care centers; Cardiovascular Risk factors)

Introduction

Despite advancements in the promotion of cardiovascular health made possible by scientific research over the course of the past several decades, cardiovascular illness is present ranks as the primary cause of early mortality worldwide (Silverman, A. L., et al,2019)

Cardiovascular diseases, which includes conditions involving the cerebral, coronary, and peripheral arteries diseases, is more common in poor nations than it is in industrialized nations (Einarson, T.R., et al.,2018). A common form of cardiovascular disease, atherosclerosis, which is caused by deposits of cholesterol, calcium, or other substances in the inner layer of the artery and connective tissues, is the main cause of coronary artery blockage. Coronary artery disease affects the blood vessels that supply the heart with blood (Björkegren, J.L. and A.J. Lusis,2022). Approximately, 25% of patients pass away abruptly and without any warning, and critical disorders including vascular constriction and occlusion are brought on by long-term, abnormally high triglyceride and total cholesterol concentrations (Farnier, M., et al.,2021). The function of triglycerides is debatable, though, a protective factor is HDL, a positive relationship between TC level and risk of cardiovascular disease has been indicated in many populations, including young and old, males and females, and patients with or without cardiovascular disease (Garcia, M., et al.,2016). Lifestyle changes brought on by industrialization have changed people's diets and reduced their physical activity, which in turn leads to an increase in hyperlipidemia. A higher LDL-C level also increases the risk of atherosclerosis. LDL-C is the primary cholesterol in blood, according to current studies. When the LDL-C content is increased, it builds up in the inner milieu of the artery that supplies the brain and heart and finally causes damage (Bandyopadhyay, D., et al.,2018).

Although physical inactivity and sedentary behavior have been identified as two of the main adaptable risk factors for cardiovascular disease a sizable portion of the population in the United States and within the world still exhibits high levels of sedentary behavior and low levels of physical activity (Wisloff, U. and C.J. Lavie,2017). Making health promotion a priority has received a lot of attention lately, and in order to prevent chronic diseases, such as CVD, this entails encouraging physical activity and exercise training as well as boosting levels of cardiorespiratory fitness in the US and around the world (Fletcher et al., 2018).

Cardiovascular Risk Factors

Cardiovascular risk factors are associated with an increased risk of cardiovascular disease, common cardiovascular risk factors include age, smoking, inactivity, abnormal fats and lipoproteins, obesity, high blood pressure, and diabetes. Knowledge of facts, information, or abilities that is learned from experience, education, perception, or theoretical acquisition is referred to as CVD knowledge, the phrase "CVD knowledge" describes a person's understanding of CVD and the potential risk factors that may contribute to the development of CVD. Making health decisions requires an understanding of CVD risk factors. (Hajar, 2017).

Variable Risk Factors for Cardiovascular Disease

Factors that affect the development of atherosclerosis and cardiovascular disease are known as risk factors. These behaviors are intensified, leading to a serious public health problem. Both varying and stable risk factors for CVD are possible.

Non-modifiable risk factors include age, sex, males over 45 years of age, women over 55 in menopause, and family history of positive traits of heredity..

Giving up unhealthy behaviors can have an impact on risk factors that are modifiable. Potential risk factors include smoking, insufficient exercise, high blood pressure, an increase in body weight (obesity), and a rise in blood fat levels (cholesterol, triglyceride). Variable risk factors must be addressed in order to reduce CVD morbidity and death. Clinical research has demonstrated that

possessing a number of risk factors raises one's chance of developing CVD and that the risk of myocardial infarction rises over time, making CVD a complicated illness (Francula-Zaninovic and Nola, 2018).

Smoking

By 2025, there are expected to be 1.6 billion smokers globally, and 10 million people will pass away from smoking-related illnesses annually, this is due to the fact that smoking poses a serious risk of both cardiac and non-cardiac death and morbidity. Smokers have a twofold increased risk of fatal cardiovascular events during a ten-year period, and passive smoking raises CVD risk (Banks et al., 2019, Gallucci et al., 2020).

Banning smoking at work, public places, and restaurants is essential in promoting personal attempts to quit smoking. Social programs are also included in the promotion of health by encouraging non-smoking. Public health interventions including smoking bans, tobacco surcharges, and informational campaigns are essential. To deter young people from smoking, schools should teach kids about healthy lifestyle options and deliver lectures on the risks of doing so. Start smoking or keep smoking. Additionally, it has been discovered that the higher pricing of all tobacco products is an excellent way to stop young people from smoking. (Hyland et al., 2012).

Physical inactivity

Physical activity is a crucial component of CVD prevention strategies for all age groups, a larger rise in CVD is anticipated as a result of young people's increased physical inactivity. Frequent exercise immediately affects the reduction of pre-existing vascular disorder while lowering other risk variables (such as body weight, cholesterol levels, blood sugar, and arterial pressure). Encouragement of exercise should start in early childhood as it slows the development of atherosclerosis, guards against oxidative stress, improves insulin sensitivity, lowers the risk of dangerous arrhythmias, and has a number of other advantages. As a result, it lowers overall and cardiovascular mortality (Nystoriak and Bhatnagar, 2018).

Regular exercise is crucial for both primary and secondary CVD prevention; however, in order to stratify the CVD risk prior to beginning the exercise and decide the exercise's intensity, which could lead to unintended cardiovascular events, it is also crucial (Tucker et al., 2022).

Blood Pressure

One of the primary causes of avoidable premature death globally is blood pressure, which is typically interpreted as a sustained blood pressure of 140/90 mmHg or greater and frequently used to refer to arterial hypertension. The most independent risk factor for cardiovascular disease is arterial hypertension. It is important to start primary prevention as early as possible. Every 10 mmHg and 20 mmHg increase in blood pressure caused a doubling of the CVD risk (Mills et al., 2020).

Encourage the following behaviors in kids to prevent AH: consuming less salt, engaging in regular physical activity, and avoiding obesity. Pharmacotherapy and a change in lifestyle can both lower blood pressure.

Blood pressure lowering lifestyle practices include:

- Consuming less salt (around 5g per day) in food.
- A decrease in alcohol consumption (10–30g/day).
- A Mediterranean diet (higher intake of omega 3 fatty acids).
- An increase in exercise.
- Quitting smoking.
- Control of body weight. (Bergler-Klein, 2019).

Eating Habits

Diet is known to increase the chance of developing cardiovascular disease, and the Seven Countries Study was one of the first clinical studies to show this relationship. It has been shown that a poor diet, especially those rich in saturated fats, is associated with the development of ischemic heart disease. The foundation of CVD prevention is good diet. Dietary choices impact body weight, blood pressure, blood sugar, and fat levels. Some chronic diseases are less likely to develop when people eat well. It is believed that the Mediterranean diet satisfies every healthy dietary advice (Thomas et al., 2017).

Obesity

Obesity is becoming more common everywhere, but it is especially prevalent in developed nations. It makes a considerable difference in the rise in CVD morbidity. Obesity is a result of an inactive lifestyle and poor eating habits. Obesity and CVD mortality are linked. Overall mortality and body mass index (BMI), obesity, and notably abdominal thickness are correlated linearly. According to Yoo (Yoo, 2017), the BMI range with the lowest death rate is 20 to 25 kg/m².

Obesity has the following effects:

1. An elevated level of insulin resistance.
2. Systemic inflammation that is more severe and a prothrombotic impact.
3. Dyslipidemia.
4. Albuminuria.
5. Cardiovascular system issue (Khan et al., 2018).

Diet, exercise, and lifestyle modifications are the foundation of obesity treatment. In terms of long-term treatment, these techniques are frequently ineffective (Wadden et al., 2020).

Lipids

Hypertriglyceridemia is another condition that increases the chance of developing a CVD. Despite being a significant independent CVD risk factor, hypercholesterolemia has a diminished impact on CVD. Other potential causes of hypertriglyceridemia include obesity, diabetes mellitus, alcohol consumption, diets high in simple carbohydrates, and medications. (Ma et al., 2022, Gabriela and Anca Pantea, 2021).

Aims of the study: This study's goal was to determine the prevalence of cardiovascular diseases and risk factors that may contribute to them in a sample of patients attended primary health care centers in Erbil city.

Subjects and methods

Study design: A cross-sectional study was conducted on a sample of 1,000 patients.

Study setting: The Erbil Health Directorate is associated with the 29 primary health care centers where the current study was conducted.

Population and sampling

Population: The main target population is all people from 18 to 65 years old, who are from Erbil city.

Sampling: Participants were drawn from primary health care centers in Erbil.

Inclusion criteria: 1. To be between the ages of 18 and 65. 2. and patients who have one or more risk factors for coronary heart disease.

Exclusion criteria: Participants who had difficulty engaging in moderate-intensity physical activity, talking, or who had psychiatric or terminal conditions (such as cancer and heart failure).

Sample size: According to the requirements of the current research, the researchers selected a sample of 1,000 people who attended the primary healthcare centers.

Procedures: After the researchers completed a self-administered questionnaire, they collected information from the participants about demographics, socioeconomic status, medical history, health behaviors, and other risk factors, such as high blood pressure, diabetes, and obesity. The questionnaire also included measurements of waist circumference, blood pressure, and body mass index (BMI, kg. / m²).

If a participant's fasting glucose level was greater than 126 mg/dL, they were considered to have diabetes or be on glucose-lowering therapy. People with high blood pressure are those who have a history of high blood pressure. The subject was seated during a blood pressure check in the right arm. Total cholesterol was defined as higher than 201 mg/dL.

Data collection:

The pilot study and questionnaire design were conducted from July 2021 to September 2021, and in October 2021 we collected and analyzed data up to May 2023. Potential participants were invited with detailed instructions on study objectives and procedures, and basic data of the participants such as demographic information, health history, anthropometric, and physiological information were collected. Vitals related to cardiovascular health as part of the assessment.

Digital scales were used to weigh the subjects when they were in minimum clothing and without shoes, and the results were accurate to within 100 grams. Using a tape measure and standing without shoes, height was determined with the shoulder in its natural posture. Weight in kilograms divided by the square of height in meters was used to determine body mass index. Overweight people were defined as having a BMI of 25.0-29.9 kg/m², whereas obese people had a BMI of 30 kg/m².

The midpoint between the iliac crest and the lower border of the ribs was used to estimate waist circumference in a horizontal plane. As for measuring blood pressure, after at least five minutes of relaxation, blood pressure was checked on the right arm while the patient was sitting using a conventional mercury pressure manometer. Systolic and diastolic blood pressure were calculated from the onset of the first sound (phase 1) until its demise (phase 5). A systolic blood pressure of 140 mmHg or higher and/or a diastolic blood pressure of 90 mmHg or higher are indicators of hypertension.

Pilot study: The questionnaire; After researching different studies and theses in different countries, a questionnaire was prepared. In accordance with our goals, we decided to include two sections for the first part of our study. The first section includes the demographic characteristics of the respondents or participants in the study such as (age, gender, occupation, economic level or monthly income, marital status, and place of residence such as rural and urban), and the next section includes general questions related to the health and behavioral status of the participants, for example; Information on smoking, history of high blood pressure, history of diabetes, obesity, history of high cholesterol, physical activity, diet, family history, and exercise.

Statistical methods: All data analyzes were performed by SPSS (version 25), all participants' data were analyzed at baseline, and mean \pm Standard Deviation, chi-square, or number and percentage were used to describe the data.

Results:

Table 1: Sociodemographic characteristic of participants. (study group).

Variable		Freq. (n=1000)	%
Gender	Male	448	44.8
	Female	552	55.2
Age. (years) (Group)	18-25	53	5.3
	26-35	83	8.3
	36- 45	166	16.6
	46- 55	273	27.3
	56-65	425	42.5
Education level	Illiterate	304	30.4
	Writing and Reading	50	5.0

Variable		Freq. (n=1000)	%
	Primary	186	18.6
	Secondary	188	18.8
	Institute	172	17.2
	College	100	10.0
Place of residence	Urban	876	87.6
	Rural	124	12.4
Marital status	Single	95	9.5
	Married	865	86.5
	Divorced	16	1.6
	Widowed	24	2.4
Income	Enough	756	75.6
	Not Enough	216	21.6
	Exceeds for Daily	28	2.8
Occupation	House Wife/Unemployed	460	46.0
	Unskilled Worker	116	11.6
	Skilled Manual Worker	201	20.1
	Non-Manual	36	3.6
	High Rank Occupation	79	7.9
	Retired	108	10.8
No. of people living in your household (Groups). Crowding index	1 person	12	1.2
	2 -3	204	20.4
	4 -5	432	43.2
	6 -7	264	26.4
	8 -9	64	6.4
	10+	24	2.4

The sociodemographic characteristics of the 1000 participants in the current study are shown in Table 1 (mean age, 50.1 ± 12.4 years). The majority of the sample (42.5%) was between the ages of 56 and 65, while 27.3% were between 46 and 55. (55.2%) were female, and (30.4%) were illiterate. The majority (87.6%) were urban residence. The majority (86.5%) were married, and the occupation of (46.0%) were house wife(unemployed).

Table 2: Lifestyle of participants (n=1000)

Variable		Freq	%
Do you smoke any tobacco product?	Yes	216	21.6
	No	784	78.4
How old are you when started smoking? (Group)	10- 19	75	34.7
	20 – 29	105	48.6
	30 – 39	26	12.0
	40 – 49	8	3.7
	50+	2	0.9
How many years you have been smoking? (Groups)	1- 5	18	8.3
	6 – 10	8	3.7
	11 – 15	8	3.7
	16 – 20	26	12.0
	21 – 25	32	14.8
26+	124	57.4	
Have you made an effort to quit smoking in the last 12 months?	Yes	196	90.7
	No	20	9.3
Did someone smoke in your home over the last 30 days?	Yes	78	36.1
	No	138	63.9
Do you walk or do other moderate activity for 30 minutes a day, or 150 minutes a week?	Yes	840	84.0
	No	160	16.0
Exercise	Sedentary. Once a week or less	762	76.2
	Moderate. once a week	152	15.2
	Moderate. 2-3 times a week	58	5.8
	Moderate. 4-5 times a week	20	2.0
	Moderate. 5 or more times a week	8	0.8

Table 2: It shows that (21.6%) were smokers, (48.6%) of the participants started smoking while they were between the ages of 20-29. Regarding the quit of smoking, majority of (90.7%) tried to

stop smoking. As for the question about walking, (84.0) % of the participants answered that they walk for at least 150 minutes every week. It was found that (76.2%) of the participants exercised less than once a week.

Table 3: Medical condition associated with cardio vascular diseases(n=1000)

Variable		Freq.	%
Have you ever had your blood pressure checked by a medical professional?	Yes	622	62.2
	No	378	37.8
Do you have HTN?	Yes	624	62.4
	No	376	37.6
If yes, how long did you have HTN? (Group)	1- 5	180	28.8
	6 – 10	232	37.2
	11 – 15	120	19.2
	16 – 20	66	10.6
	21+	26	4.2
Have you taken any antihypertensive medication?	Yes	596	59.6
	No	404	40.4
Are you taken any herbal or traditional remedy to raised BP?	Yes	34	3.4
	No	966	96.6
Do you have regular follow up HTN?	Yes	599	59.9
	No	401	40.1
Have your blood sugar levels ever been checked?	Yes	573	57.3
	No	427	42.7
Do you have diabetes?	Yes	583	58.3
	No	417	41.7
Duration of diabetes mellitus? (group)	1- 5	127	21.8
	6 – 10	201	34.5
	11 – 15	123	21.1
	16 – 20	76	13.0
	21+	56	9.6
Rx regimen	None	434	43.4
	Oral Hypoglycemic Drugs	147	14.7
	Insulin	297	29.7
	Both	104	10.4
	Diet Only	4	0.4
	Diet and Drugs	14	1.4
Do you have regular follow up DM?	Yes	552	55.2
	No	448	44.8
How often you measure your sugar?	None	434	43.4
	Daily	283	28.3
	Weekly	216	21.6
	Monthly	63	6.3
	Yearly	4	0.4
How often you measure your HbA1c?	None	402	40.2
	Every 3 Months	510	51.0
	Every 6 Months	82	8.2
	Every Year	6	0.6
Are you taken any herbal or traditional remedy to raised sugar?	Yes	30	3.0
	No	970	97.0
Have you any health problem due to your diabetes?	Yes	437	43.7
	No	563	56.3
Have you ever had a doctor or other healthcare professional check your cholesterol?	Yes	454	45.4
	No	546	54.6
Have you taken any medication to raise your cholesterol level?	Yes	446	44.6
	No	554	55.4
Are you taken any herbal or traditional remedy to raise your cholesterol?	Yes	16	3.6
	No	430	96.4
BMI	<18.5. under weight	10	1.0
	18.5 – 24.9. normal weight	373	37.3

	25 -29.9. over weight	419	41.9
	30 -34.9. obesity class 1	137	13.7
	35 – 39.9. obesity class 2	46	4.6
	>40 excessive obesity	15	1.5

Table 3: Regarding the medical condition, the study showed that 62.4% of the participants suffer from high blood pressure, and 59.6% of them take antihypertensive drugs, followed by diabetes, 58.3% suffer from diabetes, and 29.7% of them are treated with insulin. According to the result, 28.3% of them measured their sugar daily, and regarding the HbA1c test, the result showed that 51.0% of the participants measured their sugar every three months. According to the results of the study, 43.7% of diabetics suffer from health problems. 44.6% of the participants took medication to lower the cholesterol level. The result of the study found that 41.9% of the participants were overweight.

Table 4: Previous history of cardiovascular accident(n=1000)

Variable		Freq.	%
Have you heart attacks (angina, or MI)	Yes	186	18.6
	No	814	81.4
Have you ever been hospitalized in cardiology department?	Yes	158	15.8
	No	842	84.2
Have you made a coronarography?	Yes	104	10.4
	No	896	89.6
Have you made CABG?	Yes	82	8.2
	No	918	91.8
Are you on aspirin?	Yes	618	61.8
	No	382	38.2
Are you on Beta blocker?	Yes	611	61.1
	No	389	38.9
Are you on statin?	Yes	472	47.2
	No	528	52.8

Table 4: about the previous medical history of the participants the study found that 61.8% of them are on aspirin drugs, followed by 61.1% participants are taken beta blocker drugs, and 47.2% of them on statin.

Table 5: Food pattern of participants(n=1000)

Variable		Freq.	%
How frequently do you typically consume fried food?	Once or less per week	770	77.0
	1-2 times a week	214	21.4
	3-6 times a week	12	1.2
	Daily	4	0.4
How many servings of starchy foods—bread, pasta, rice, potatoes are there in a day?	None	56	5.6
	One serving per day	900	90.0
	2 servings per day	35	3.5
	3 servings per day	9	0.9
	4 or more meals per day	0	0.0
How many portions of sweet foods, such as cake, cookies, and chocolate do you eat each day?	None	402	40.2
	1-2 Serving Servings	592	59.2
	More than two servings	6	0.6
How much sugar do you put in your hot drinks each day?	None	533	53.3
	1-3	457	45.7
	4-6	10	1.0
How frequently do you typically eat fish?	Rarely	919	91.9

	1-2 times a week	77	7.7
	3-6 times a week	4	0.4
	Daily	0	0.0
How many servings of fruit do you typically consume each day?	None	29	2.9
	1-3 pieces	857	85.7
	4 or more pieces per day	114	11.4
How much coffee do you consume each day?	None	695	69.5
	1-2 cups daily	287	28.7
	3-4 cups	18	1.8
How much water do you drink?	500 ml	8	0.8
	501-1.25 liters	367	36.7
	more than 1.25 liters	625	62.5
How many vegetables servings?	None	26	2.6
	1-2 servings per day	776	77.6
	3-4 servings per day	190	19.0
	5 cups or more	8	0.8

Table 5: In terms of food pattern, Table 5 showed that 77.0% of the participants ate fried food less than once a week, followed by 90.0% of them who ate one meal per day of bread, pasta, rice, potatoes and starchy foods, and those who ate sweet foods in the amount of one serving To two shares they were 59.2%, therefore, 62.5% of them admitted that they drank more than 1.25 liters of water.

Table 6: Socio demographics characteristic of participants for scale data

Descriptive Statistics			
Variable	N	Mean	Standard Deviation
Age in years	1000	50.41	12.362
How many years you have been smoking?	216	27.82	12.439
Duration of HTN?	624	9.83	6.750
Duration of Diabetes?	583	11.40	7.197
Weight- kg	1000	75.74	12.125
Height- cm	1000	1.6718	.05226
Waist- cm	1000	90.56	6.711
Systolic-mmHg	1000	131.77	10.784
Diastolic- mmHg	1000	84.41	4.805
BMI	1000	27.1022	4.23685

The table 6: shows the mean age of participants was 54.41+ 12.36, followed by weight were 75.74+12.13, and 90.7+6.71 for waist, also about Body Mass Index 27.10+ 4.24 issued.

Discussion

The leading cause of death worldwide is cardiovascular disease (Khesroh, A.A., et al., 2017). Particularly in the Middle East, cardiovascular disease is a serious health concern (Aljefree, N. and F. Ahmed, 2015; Kalaf, H., et al., 2016). The current study's findings included a high mean waist circumference, a high level of physical inactivity, an increase in weight, and a commitment by the majority of participants to eating foods related to the diseases they have. Additionally, it showed a large prevalence of two important risk factors, specifically diabetes and high blood pressure. Although one or more risk indicators were adopted for the selection of research participants, many of them were not aware that they were at high risk.

The average age of the participants in the current study was (50.41 ± 12.4) years, and the percentage of female participants (55.2%) was more than the percentage of male participants (44.8%), and the

percentage of participants from the group (56-65) years was the highest in terms of number and age compared to categories by (42.5%). These findings were in line with those of a cross-sectional study conducted in Saudi Arabia by Al-Ghamri, R. According to the results of the current study, individuals with the lowest levels of education (30.4%) are most likely to be illiterate, and these results are identical to the results of a study conducted by Al-Ghamri in Saudi Arabia, where nearly a third of the participants were uneducated (illiterate) (Al-Ghamri, RA , et al., 2019).

The current study found that most of the participants lived in urban areas (87.6%), with a small minority living in rural areas (12.4%). This percentage was higher than in a study conducted in India by Mukhopadhyay (Mukhopadhyay, S., et al., 2021). The current study showed that the average height of the participants in the study was (1.67) cm, followed by the weight of 76 kg, and the circumference of the waist (91) cm, compared to the study of Al-Ghamri, in which the average height of the participants was 155.3 cm, and the average weight of the participants was (76.4) kg, and their waist circumference was (101.6 cm). The average systolic blood pressure of the participants in the current study was (132) mm Hg and the diastolic blood pressure was (84) mm Hg, compared to the Al-Ghamri study, which showed that the average systolic blood pressure was (139.7). mm Hg, and the mean diastolic blood pressure was (71.9) mm Hg (Al-Ghamri, RA, et al., 2019). The study also showed that the married people represent the majority (86.5%), followed by the unmarried (9.5%), and a very small percentage of the divorced (1.6%). These results are identical to the results of a study conducted in Iran by Rajati (Rajati, F, et al., 2019).

Our study revealed that nearly half of the female participants do not work or are housewives, and that only a quarter of the female participants are employees or workers. Those who work to (14.1%) (Al-Ghamri, R.A., et al., 2019).

Regarding the lifestyle of the participants, the results of our study indicated that 21.6% of them smoked or used tobacco, and most of the participants (78.4%) had never smoked tobacco, and the highest percentage of those who started smoking was between the ages of 20-29 years among the other groups (48.6%). In contrast to Al-Ghamri's study, 75% of their sample started smoking at the age of 19 or younger (Ghamri, R.A., et al., 2019; Loukili, H., et al., 2022). With regard to the period they spent smoking, it was found that (57.4%) of the participants in our study spent 26 years or more smoking cigarettes, and this percentage is greater than the results of a cross-sectional study conducted by Mukhopadhyay in India, where it was (53.3%) (Mukhopadhyay, S., et al., 2021), and the percentage of our study was greater than the result of a study conducted by Khattab et al. in ten countries of the Mediterranean and North Africa region, which amounted to (15.3%), and the smoking rates among women Very low compared to men, due to cultural and social values in the Eastern Mediterranean region and Arab countries (Khattab, A., et al., 2012).

The average waist circumference in our study was 90.56 ± 6.7 cm. This is good stuff because a higher average waist circumference raises concerns because older people are more likely to develop cardiovascular disease, and this finding was larger than the results of a study conducted by Sheikh Ali, where the average waist circumference was low (68%) (Alsheikh-Ali, A.A. , et al., 2014), and these results can point to patients' poor eating habits or a lack of exercise possibilities. In our study, more than three-quarters of the participants stated that they practiced walking, and it was noted that the percentage of people with low physical activity was (76.2%), and these results are higher than the results of the Loukili et al. The percentage of participants who practiced walking was (14.57%), and the percentage of participants who practiced moderate physical activity was (30.47%), and our study's findings on inactivity were higher than those of Mukhopadhyay et al's study, which had a score of 30%. (Mukhopadhyay, S., et al., 2021) ,these seemingly attributable to the fact that women are responsible for raising children and experiencing obesity. A study of 163,556 people in 38 nations found that 32.8% of them were physically and the prevalence among Arab countries was 43.7%, (Kahan, D., 2015). Also, the results of our study were higher than those of a cross-sectional

study. conducted in Saudi Arabia on 4758 participants, which had a low prevalence of activity (66.6%) (Mabry RM et al., 2010, Al-Zalabani, A.H., et al., 2015). In our study we assessed a wide range of risk factors, as recommended by the European Society of Cardiology.

With regard to cardiovascular diseases and risk factors for the participants, the study concluded that (62.4%) have high blood pressure and that (37.2%) of them suffer from high blood pressure for a period of 6-10 years, and more than half of them use antihypertensive treatment, and the vast majority of them answered that they do not take herbs Or traditional medication, our study revealed that the prevalence of hypertension was (62.4%), which is high compared to the study by Loukili which was (42.69%) (Loukili, H., et al., 2020), and higher than a cross-sectional study and a national survey conducted in the states The United Kingdom and the United Kingdom, which were (29.6%) and (30%) respectively (Onyemelukwe, GC, et al., 2017), and the presence of this percentage of people with high blood pressure is attributed to difficult economic conditions, psychological instability, the presence of wars and conflicts, and eating Unhealthy (fast food).With regard to diabetes, the study proved that (58.3%) of the participants had diabetes, and (34.5%) of them had been suffering from the disease for 6-10 consecutive years, and it was found that most of the patients, by (29.7%), used insulin injections, and (14.7% of them used oral diabetes-reducing medications and a small percentage of them used diet. While a 2015 WHO report from the Middle East region estimated the prevalence of diabetes to be between 3.5% and 30%, this percentage is higher than the result of A study conducted in Saudi Arabia on 2355 people and the result was (29.3%) (WHO,2018).

As for the number of times the sugar is measured, a percentage (28.3%) of them confirmed that they measure their blood sugar daily, and a little less than this percentage (21.6%) confirmed that they measure their sugar weekly. Regarding the HbA1c measurement, the results showed that more than half of the patients had their HbA1c measured every three months.. And a small percentage of them (8.2%) measure it every six months, and these results were inconsistent with the results of two studies conducted by Hager et al and their results were consecutive (Hager, K., et al.,2023). Diabetic patient's perseverance in measuring diabetes and measuring HbA1c prevents exacerbation of the disease, reduces complications, regulates doses, and obtains good health results.

As a follow-up to risk factor cases, the current study revealed that (44.6%) of the participants proved to have high cholesterol and use medication to treat high cholesterol, and this percentage is lower compared to the result of the ACE study (Cardiovascular epidemiology) in the United Arab Emirates, where its prevalence was 74% (Radaideh, G., et al.2017).

Food has an essential role in promoting human health, and the lack of fruits and vegetables may contribute to many diseases. The current study's participants consumed a high percentage of fruits and vegetables (97.1% and 97.4%, respectively), with 85.7% eating one to three portions of fruit per day and 77.6% eating two servings of vegetables per day. These findings were better than previous research because According to a study in the LIMIC World Health Survey from (2002–2003), only 78% of people reported eating fruit and vegetables(Hall, J.N., et al., 2009), and was identical to the results of a study by Loukili et al. regarding the intake of three servings of fruit per day However, the results of our study differed with the result of Loukili et al.'s study on a paragraph about eating vegetables with more than three servings of vegetables per day, while the current study found that the largest percentage was for participants who ate two meals per day (Loukili, H., et al., 2020).

Conclusion.

The current study's findings revealed that there were relatively few smokers among the cross-sectional study's participants, and the participants' daily consumption of healthy food, especially fruits and vegetables, was good. However, the rate of obesity in the abdominal region (waist circumference above 88) and overweight.

The study concluded that patients with cardiovascular diseases can make multiple adjustments in their lifestyle through exercise and following dietary guidelines, and the need to follow a healthy balanced diet free of trans fats and reduce salt and sugar in preparing their daily food.

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