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College of Medicine

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Evaluation of Lifestyle Characteristics Among Patients with Metabolic Syndrome in AL-Najaf 2022

A Thesis

Submitted to the Council of College of Medicine University of Kerbala as Partial Fulfillment of requirement for the degree of Higher Diploma in Family Medicine

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بسم الله الرحمن الرحيم

﴿الْحَمْدُ لِلَّهِ الَّذِي أَنْزَلَ عَلَى عَبْدِهِ الْكِتَابَ وَلَمْ يَجْعَلْ لَهُ عِوَجًا ١﴾

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Dedication

To my husband for his sincere love, contributions and inspiration all the time...

To my beloved family and my little kids...

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List of Abbreviations

AHA/NHLBI	American Heart Association /National Heart, Lung, and Blood Institute
ATP III	Adult Treatment Panel III
Apo	Apolipoprotein
BMI	Body mass index
CVD	Cardiovascular disease
DASH	Dietary Approach to Stop Hypertension diet
HDL	High-density lipoprotein
IDF	International Diabetes Federation
IGT	Impaired Glucose Tolerance
LDL	Low-density lipoprotein
MetS	Metabolic syndrome
MDA	Malondialdehyde
NIDDM	Non-Insulin Dependent Diabetes Mellitus
NCEP	National Centers for Environmental Prediction
ROS	Reactive Oxygen Species
TG	Triglycerides
WC	Waist circumference
WHO	world Health Organization

Abstract

Background:

A grouping of many metabolic risk factors, such as central obesity, hypertension, hyperglycemia, and dyslipidemia, known as the metabolic syndrome (MetS), can coexist in the same person. Globally, it is estimated that 25% of the adult population can be characterized as having MetS.

Objectives:

1. To evaluate the demographic and clinical characteristics of metabolic syndrome patients.

2. To assess the association of some lifestyle risk factors and the components of metabolic syndrome.

3. To assess gender differences regarding demographic, clinical, and lifestyle risk factors.

Method:

A cross-sectional study was carried out in The Specialist Center Of Endocrine Disease And Diabetes in Al- Alsader Medical City. Individuals were included in the current study, whose nationality was Iraqi and accepted to take part in this study. They were screened for metabolic syndrome criteria.

The diagnosis of metabolic syndrome was confirmed according to the recently (2009) revised International Diabetes Federation definition.

Each patient's data were collected through a 15-minute direct interview using a self-structured questionnaire[appendixA] designed especially for the study. The questionnaire included information about demographic, anthropometric measurements, biochemical tests, physical measurements, and lifestyle information.

Result:

This study found that Physical activity was irregular among the majority of the study participants (54.0%), smokers formed (38.0%) of the study participants, and Body-mass index of the study participants ranged from (22.3 kg/m2) to (42.8 kg/m2). Females had significantly higher BMI (34.9 ± 3.4 kg/m2) compared to males (30.3 ± 3.0 kg/m2). A multiple linear regression was calculated to predict MetS charecteristics based on smoking, BMI, and irregular physical activity. Smoking was a significant predictor with P-value < 0.001 for all MetS components.

Conclusions:

Patients with Metabolic syndrome are more commonly males, aged 50-69 years, of lower educational level, and urban residents. Males with metabolic syndrome had a higher systolic and diastolic Bp, additionally, they had higher serum cholesterol,triglycerides, and waist circumference than females.

A significant numbers of patients with metabolic syndrome had risky behaviors including smoking, irregular physical activity,and obesity. Smoking is regraded as predictor for metabolic syndrome components.

Chapter One

Introduction

The term "metabolic syndrome" (MetS) describes a grouping of many metabolic risk factors that co-occur in the same person, such as central obesity, hypertension, hyperglycemia, and dyslipidemia. It increases cardiovascular morbidity and mortality and has been related to various cancers, including breast, pancreatic, colon, and liver cancer[1].

MetS itself also caused a lot of controversy, clinical definitions and diagnostic criteria. The terms “syndrome X”, “pluri-metabolic syndrome”, “Reaven's syndrome”, “the deadly quartet”, “the awesome foursome”, “the metabolic syndrome” and many other terms were used[2].

The first formalized definition of the syndrome was proposed in 1998 by a consultation group on the definition of diabetes for the World Health Organization. Its roots can be traced back to the 1920s when Kylin, a Swedish physician, demonstrated the association of high blood pressure, high blood glucose, and gout are associated with metabolic abnormalities. The National Cholesterol Education Program Adult Treatment Panel III (ATP III) in 2001, the International Diabetes Federation (IDF), and the American Heart Association/National Heart, Lung, and Blood Institute (AHA/NHLBI) in 2005, all added more significant criteria after that[2].

Three aberrant results out of five would be required to diagnose someone with the metabolic syndrome, according to a 2009 conference of many key organizations to try and harmonize the criteria. Waist measurement would still be a valuable initial screening tool[2].

Following that, both the WHO and NHLBI began reevaluating their definition of the metabolic syndrome in order to create a new declaration with the goal of having a single, universally accepted set of diagnostic criteria[2].

These organizations each have their own set of clinical definitions and diagnostic standards. All of these criteria accept that obesity, hypertension, dyslipidemia, and abnormalities of glucose metabolism are all aspects of the metabolic syndrome[3].

The modified National Cholesterol Education Programme Adult Treatment Panel III (M ATP III 2005) and the International Diabetes Federation 2005 criteria (IDF 2005) are currently the two definitions that are most frequently used. These definitions provided straightforward criteria for the detection of the metabolic syndrome that

could be easily used even in developing countries. The recently (2009) revised International Diabetes Federation definition may be more suitable in diagnosis of metabolic syndrome in Iraq[3].

Whether the increased mortality from coronary artery disease in type 2 Diabetes Mellitus is caused by higher levels of known cardiovascular risk factors alongside type 2 Diabetes Mellitus or the greater clustering of these risk factors given the known associations between Impaired Glucose Tolerance, a precursor to type 2 Diabetes Mellitus.

Numerous ethnic groups, including European Americans, African Americans, Mexican Americans, Asian Indians, Chinese, Australians, Aborigines, Polynesians, and Micronesians, have a high prevalence of the Metabolic Syndrome, according to epidemiological research[4].

Three chronic diseases type 2 Diabetes Mellitus, hypertension, and coronary artery disease have been linked to the etiology and natural history of insulin resistance and hyperinsulinemia. However, the association between circulating insulin concentration and hypertension and coronary artery disease (CAD) varies between ethnic groups and research, as our studies from the Pacific and India have shown[4].

The prothrombotic and proinflammatory states, as well as atherogenic dyslipidemia, high blood pressure, and raised plasma glucose, were the most commonly acknowledged and accepted risk factors for the MetS in these criteria[5].

The primary risk factors for MetS include high blood pressure, dyslipidemia (increased triglycerides and reduced HDL cholesterol), elevated fasting glucose, inactivity, and excessive calorie consumption, which leads to central obesity and insulin resistance[6].

Table (1): Diagnostic Criteria for Metabolic Syndrome:[3]

Risk factors	**International Diabetes Federation (IDF) 2005**	**modified Adult Treatment Panel III (M ATP III) 2005**	**revised International Diabetes Federation (R IDF) 2009**
Obesity/abdominal obesity	Waist circumference ≥94 cm (male), ≥80 cm (female)	Waist circumference ≥102 cm (males), ≥88 cm (females)	Waist circumference ≥94 cm (male), ≥80 cm(female)
Blood pressure	Systolic Bp ≥130 or diastolic ≥85 mmHg	Systolic Bp ≥130 or diastolic ≥85 mmHg	Systolic Bp ≥130 or diastolic ≥85 mmHg
Fasting Plasma glucose	≥ 100 mg/dL (5.6 mmol/L)	≥ 100 mg/dL (5.6 mmol/L	≥ 100 mg/dL (5.6 mmol/L)
Raised Triglycerides	≥ 150 mg/dL	≥ 150 mg/dL	≥ 150 mg/dL
Reduced HDL cholesterol	< 40 mg/dL (males) < 50 mg/dL (females)	< 40 mg/dL (males) < 50 mg/dL (females)	< 40 mg/dL (males) < 50 mg/dL (females)
Metabolic syndrome – definition	Abdominal obesity (Prerequisite) plus two or more risk factors	At least any three risk factors	At least any three risk factors

According to studies, 25% of adult people worldwide are thought to have MetS. The incidence of metabolic syndrome is expanding quickly in both the developed and developing worlds due to the worldwide obesity epidemic and obesity, which are both important components of MetS[7].

MetS affects 10% to 40% of individuals globally, and it is becoming more common in Iraq each year. The prevalence of MetS (according to the harmonized definition) was 39.4% in 2015, which is higher than the global estimate of 25%. This finding is consistent with other local studies conducted in Iraq, including those conducted in Erbil City (30.6%, ATP IV criteria), a hospital outpatient sample (30-75 years) in Baghdad (42%, IDF criteria), and among outpatients (25-85 years) in Baghdad (37.8%, ATP III criteria). However, this study found no discernible differences between rural and urban areas[8].

In addition, noncommunicable diseases (NCDs), which include 27% cardiovascular diseases and 4% diabetes, are estimated to account for 55% of all deaths in Iraq in 2016. This could mean that MetS risk behavior/s (sedentary lifestyle, stress, and diet changes) have permeated both rural and urban areas[8].

Prevalence of metabolic syndrome fluctuated by country and time of study. This amount was 2.2–44% in Turkish, 16–41% in Saudi-Arabia, 14–63 in Pakistan, 26–33 in Qatar, 9–36 in Kuwait, 22–50 in Emirate, 6–42 in Iran, and up to 23 in Yemen[9].

National population-based surveys should be carried out on a regular basis in order to prevent and control MetS. Iraq and a Middle Eastern country with an upper middle class lack population-based statistics on the frequency and contributing causes of MetS[8].

Sociodemographic, health status, and risk-taking behavior-related factors are all linked to the occurrence of MetS. Female gender, older age, higher education, lesser education, higher income, and urban residency are sociodemographic characteristics that may be linked to MetS. Higher body mass index, overall overweight or obesity, aberrant waist-to-hip ratio, and other health status factors may be linked to MetS[8].

Physical inactivity, low leisure-time physical activity, sedentary behavior, physical inactivity combined with inadequate fruit and vegetable intake, low intake of fruits and dairy foods, and inadequate fruit and/or vegetable consumption are health risk behavior/s variables linked to MetS. Additionally, frequent smoking, current smoking, and former smoking are linked to a higher risk of MetS[8].

Along with physical activity, smoking, stress, and body mass index (BMI), other lifestyle factors that may be substantially linked to the development of MetS include

food. Finding a means to reduce these problems is essential, and while early discovery is crucial to the process, usually diagnosis is only attainable until issues have already started[8].

Smoking has also been linked to MetS risk factors. An elevated risk of MetS has been linked to general cigarette use in previous research, most likely as a result of how it affects blood pressure, blood lipid levels, and waist circumference. Smoking's direct adverse impact on insulin resistance may potentially be used to control these metabolic problems[8].

Individuals with metabolic syndrome (MetS) have a fivefold increased risk of type 2 diabetes and a twofold increased risk of cardiovascular disease. The metabolic syndrome refers to the risk for cardiovascular disease and type 2 diabetes mellitus, which occur together more frequently than by chance alone. In low- and middle-income nations, the prevalence of MetS is rising due to the change in diet, increased urbanization, and decreased physical activity[9].

Adipocytes create bioactive chemicals called adipocytokines or adipokines, according to research. Adipokine synthesis is dysregulated as a result of adipocyte accumulation, which aids in the emergence of metabolic syndrome. Due to the diversity of resident cell types in adipose tissue, the list of these dysregulated adipokines and cytokines is continuously expanding[10].

Currently, it is unclear how adipose accumulation causes dysregulation, although some hypothesize that it is at least partially caused by the systemic oxidative stress brought on by obesity. The oxidation of fatty acids in the mitochondria and peroxisomes, which can result in reactive oxygen species (ROS) in oxidation processes, is one theory for how obesity causes oxidative stress [10].

Obesity, especially visceral obesity, is associated with metabolic disturbances, such as insulin resistance and dyslipidemia [10].

When overt clinical symptoms or gross anatomical abnormalities are absent or difficult to detect, biomarkers for various pathological illnesses are used to aid in diagnosis and therapy; furthermore, biomarkers can determine who in a group is more prone to develop an illness based on a "genotype" than a known history[10].

A key tactic for the prevention and management of MetS is dietary modification. Consuming vegetables and fruits has been connected with a lower chance of developing MetS, according to various studies that have examined the impact of dietary patterns and single items on the condition in recent decades. Magnesium, vitamin C, potassium, and vitamin A are mostly found in fruits and vegetables, which may reduce the chance of developing chronic, life-threatening disorders[11].

In epidemiologic research, there are numerous ways to look at the connections between dietary consumption, food groupings, and MetS. Previously, it was suggested that consuming particular foods or nutrients might not provide a thorough understanding of diet-disease linkages and might even be less predictive of the risk of developing chronic diseases[11].

Numerous studies on dietary habits have revealed that following a sensible, DASH diet (Dietary Approach to Stop Hypertension), or Mediterranean diet is linked to a decreased risk of MetS. In contrast, poor eating patterns (i.e., the Western diet) were positively related with MetS, according to a meta-analysis conducted in 2017 by Rodrguez-Monforte M et al[12].

Because people do not consume isolated nutrients but rather meals made up of a variety of foods with multiple nutrients, the traditional approach to evaluating the link between diet and disease, which focuses on highly correlated nutrients separately, may not be appropriate for taking into account cumulative synergistic or interactive effects on the circulating levels, metabolism, bioavailability, and excretion of nutrients[12].

As a result, developing nutrient patterns to evaluate the combined impact of nutrients might be a suitable alternative way for evaluating the impacts of food on illnesses[12].

The nutrition pattern approach combines many nutrients and may offer more information about underlying processes, interactions, and synergistic effects of nutrients. Numerous studies have found a negative correlation between MetS and specific nutrients, such as vitamin D, calcium, vitamin c, carotene, and potassium[13].

There haven't been many studies in Iraq that have looked at the connection between MetS and eating habits. Another study found a greater risk of MetS in both males and females for a nutritional pattern defined predominantly by dietary maltose, glucose,

carbohydrate, sucrose, protein, starch, and fructose. However, no research investigating the link between nutritional patterns and MetS have been published in the literature as of yet[14].

For the therapeutic care of the illness, it may be important to change one's lifestyle and reduce the elements that constitute MetS. Therapy for weight loss and management, however, only seemed to be effective in the short term. On the other hand, clinical and public health programs were effective in bringing down blood pressure and cholesterol levels throughout whole communities[15].

The harmful consequences of MetS brought on by the obesity pandemic may be combated by controlling the metabolic components. Therefore, it is crucial to research how lifestyle variables affect the elements of MetS in individuals with a range of body mass indexes (BMIs), which is a marker of obesity [15].

Regarding alcohol use, some research revealed that light to moderate consumption reduced the risk of metabolic syndrome while excessive consumption raised the risk, while other research revealed a favorable correlation between current alcohol consumption and MetS[15].

Making clear that the MetS is not a replacement for a comprehensive risk assessment when evaluating an individual's absolute risk for the purpose of starting preventative medication treatment is crucial[16].

The metabolic syndrome, on the other hand, is that portion of overall risk that may be linked to underlying metabolic issues including obesity and aberrant body fat distribution[16].

Although the existence of the metabolic syndrome may affect the medication treatments that are chosen, its presence fundamentally indicates that therapeutic practice has to stress lifestyle control[16].

The material offered here is meant to give patients, researchers, physicians, policy makers, and other stakeholders a useful framework for understanding and putting into practice the best methods for lifestyle modification to enhance cardiometabolic health in people with MetS.

This study's objective is to assess the main risk factor for metabolic syndrome in Iraqi society, provide a summary of the existing scientific data, and provide suggestions for its prevention and treatment.

OBJECTIVES:

1.To evaluate the demographic and clinical charecteristics of metabolic syndrome patients.

2. . To assess the association between lifestyle risk factors and the components of metabolic syndrome.

3.To assess gender differences regarding demographic, clinical and lifeslyle risk factors.

Chapter Two

patients and Methods

Study design:

A cross sectional study.

Study setting:

The current study has been done in Alsader Medical City, which contains Al-Najaf Center for Diabetes and Endocrine. It is the only specialized center, which provides preventive measures, complementary treatments, and a basic laboratory setup to analyze blood samples for biochemical tests.

Najaf is one of the 18 provinces of Iraq, which is located in central and southern Iraq. The total population is 1,400,000. This city has 9 hospitals.

It should be noted that Najaf is a holy city and one of Iraq's major cities. Thousands of people visit it every day, and the diabetic center there is one of the country's biggest, accepting patients from all Iraqi cities. As a result, our study's participants may be considered to be a representative of the Iraqi population.

Study period:

Data was collected over a 6 months period starting from 1st of march 2022.The resercher was collecting sample into 2-3 days/week , at average 3-4 hours/day.

Data Collection:

Each patient's data were collected through a 15-minuts direct interview using a self-structured questionnaire[appendix A] that designed espescially for the purpose of study. All cases completed a detailed questionnaire that included information about demographic, anthropometric measurements, biochemical tests, Physical measurements and lifestyle informations.

The demographic information included age, gender, residense, occupation, marital status and educational level. The anthropometric measurements included weight ,height ,waist circumference and body mass index.The biochemical tests were a fasting blood sugar, total cholesterol, high density lipoprotein, and triglyceride. Physical measurements included systolic and diastolic blood pressure and finally types of physical activity and smoking.

Study variables:

Demographic variables:

The level of education is categorized as illiterate, primary (grade 1 to 6), intermediate (grade 7–9), and high school (≥10 grade), On the basis of occupation related data, participants were categorized into employed, self-employed (running their own business or farming), household work, and unemployed (student, non-paid worker, or retired)[3].

Physical inactivity assessed based on the International Physical Activity Questionnaire (IPAQ). This questionnair assesses the intensity and frequency of weekly physical activity, which categorized to routin daily task, regular physical activity, irregular physical activity. This questionnaire can be answered affirmatively (yes) or negatively (no)[7,12].

- **Definitions of physical activity and its variables[12]:**

Routin daily task: when physical activity range between light and moderate level of occupational and household activities.

Regular physical activity: when physical activity performed regularly at least once a week for at least 30 minutes/day.

Irregular physical activity: when these activities were practiced less than once a week or less than 75 minutes/week.

- **Definitions of tobacco smoking and its variables[13]:**

Currently smoking: a person who has smoked over the past 28 days and has smoked over 100 cigarettes throughout their lifetime.

Ex-smoking: a person who has never smoked in the past 28 days but has smoked over 100 cigarettes throughout their lifetime.

Non smoker: a person who doesn't currently smoke and has never smoked over 100 cigarettes throughout their life.

Anthropometric variables:

The body height is the measurement of the angle between the vertex at the top of the head and the base of the feet. The subjects stood straight up against a stadiometer and it was measured to the closest 0.1 cm in bare feet. The responders had to bring their feet together and step backwards until the bottom of the upright stadiometer was contacted by their heels. Their head did not need to contact the stadiometer, but their buttocks and upper back were touching it when they were standing.. he head of the respondent has to be in the horizontal Frankfort plane. In order to properly align their heads, the responders had to elevate or lower their chin until it was in the Frankfort horizontal plane, which was the highest point on their head[34,49].

Similarly, a weighing machine of marubeni company was used to measure weight to the nearest 0.1 kilograms (kg). Participants were classified as underweight (<18.5 kg/m2), normal (18.5–24.9 kg/m2), overweight (25–29.9 kg/m2), or obese (> 30 kg/m2) based on their body mass index[35].

Using a plastic, non-stretchable measuring anthropometric tape from the horizontal plane at the umbilical level, the waist circumference (WC) was measured once in centimeters. The participant was measured while standing straight, with the abdomen relaxed, the arms at the side, the feet together, and the person's weight evenly distributed over both legs. Participants were instructed not to hold their breath or grip their stomach while being measured; instead, they were to breathe naturally and softly. If a participant's waist measured more than 88 cm for a woman and more than 102 cm for a man, their waist circumference was considered raised[34,35].

An aneroid sphygmomanometer was used by the health professional to measure blood pressure in the left arm while the patient was seated, to the closest 2 mmHg. Systolic blood pressure (SBP), diastolic blood pressure (DBP), and/or a history of using antihypertensive medication during the previous two weeks were all considered to be indicators of hypertension[34].

Biochemical variables:

In the lab, 2 ml of blood were collected to test the fasting lipid profile and fasting blood sugar levels. High total cholesterol (>200 mg/dl), high triglycerides (>150 mg/dl), high low-density lipoprotein (>130 mg/dl), low high-density lipoprotein (40

mg/dl in men and 50 mg/dl in women), and/or usage of antilipidemic medications were all considered to be signs of dyslipidemia[36,45].

Study population:

Purposive sample of 100 Iraqi individuals, 54 male and 46 female, aged more than 18 years, visiting outpaitient clinic of Al-Najaf Center for Diabetes and Endocrine in AL-Najaf-Ashraf province/Iraq included in this study, who fit metabolic syndrome criteria.

Inclusion criteria:

Individuals were included in the current study, who aged more than 18 years and met metabolic syndrome criteria according to the recently (2009) revised International Diabetes Federation definition, according to which it is necessary to present three of the five risk factors (WC ≥94 cm in men and ≥80 in women; TG ≥ 150 mg/dL (1.7 mmol/L); HDL-c < 40 mg/dL (1.0 mmol/L) in men and <50 mg/dL (1.3 mmol/L) in women; systolic blood pressure ≥ 130 and diastolic ≥ 85 mmHg); fasting glucose ≥ 100 mg/dL)[34].

Exclusion criteria:

Individuals who were diagnosed with Type 1 DM, physical disabilities, severe chronic illness requiring bed rest, active liver injury, mental disability, and pregnant women were excluded.

Ethical approval:

The current study was approved by the Iraqi Ministry of Higher Education and Scientific Research [appendix B]. After Kerbala Medical College Ethical Committee approved the study protocol, a written official letter was obtained from the University of Kerbala-Collage of Medicine to Alsader Medical City from which other official official documents were sent to the specialized center of endocrine and diabetic in AL-Najaf city. Each patient's verbal agreement was obtained before starting to collect information. The questionnaire was anonymous and personal information was collected with serial identification numbers without an identity Complete confidentiality was ensured and all the collected data will be used for research purposes only.

Pilot study

Before starting to collect information, the pilot study was carried out for 2 weeks. The pilot study included 10 patients, who attended the diabetes center in AL-Sader Medical City, Najaf/Iraq. All cases completed a detailed questionnaire that included information about age, gender, occupation, residence, province, marital state, and educational level for all subjects, in addition, weight, height and BMI were measured, which was done to:

1-Find any difficulty in collecting data for the participant and test their understanting of questions to apply any modifications needed.

2-Biochemical tests availability, accessibility, and affordability.

3-Test patient knowledge and attitude toward their diet component to avoid any recall bias in the result, as a result of that we neglect diet details because it is too complex for our patients to concise.

Statical analyses:

The data of the current study was entered into Microsoft excel sheet 2016 at the time of data collection and there were analyzed through the Statical Package for the Social Sciences (SPSS version 24). Categorical data were presented as frequencies and percentages, whereas continuous data as the mean and standard deviation in appropriate tables and figures. The Chi-square test and Fisher exact test were used to test homogeneity. Independent T-tests were used to find out the possible association between the related variables of the current study. Linear regression analyses were done for predicting significant lifestyle factors for MS components. The statical association is considered significant when the p-value is equal to or less than 0.05.

Chapter Three

Results

This study included a total of (100) patients diagnosed with metabolic syndrome, age of the participants ranged from 35 to 72 years with a mean age of (54.98 ± 7.78) years and a median age of 55 years. Age groups distribution of the study participants is illustrated in figure (1).

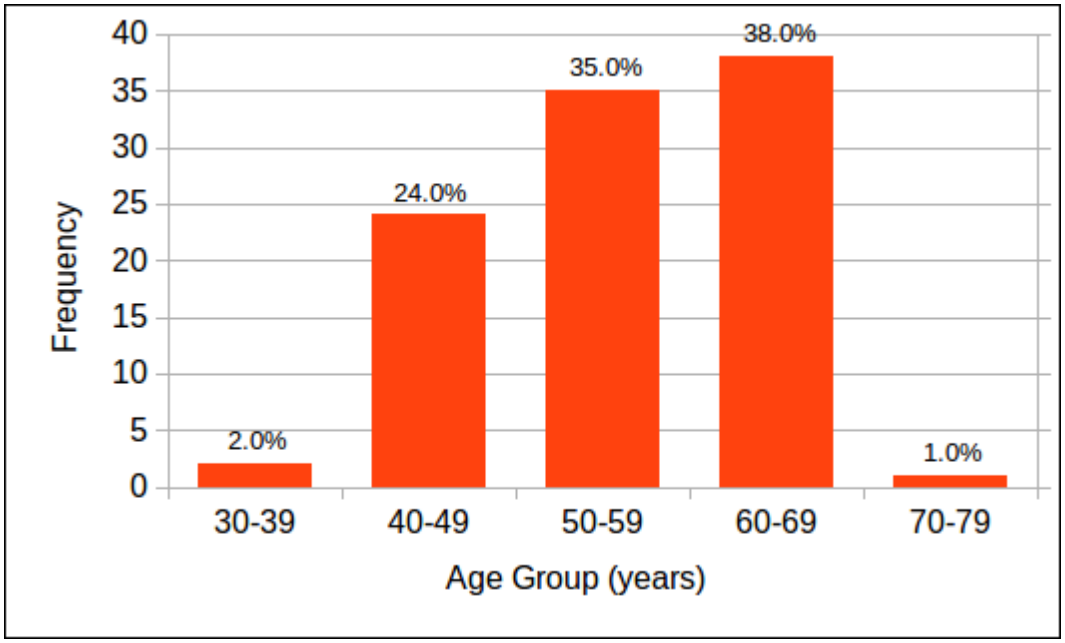

Figure (1): Age group distribution among study patients (n=100)

Males comprised the higher proportion of patients (54 patients, 54%) while females comprised the remaining (46%) of the patients (figure 2).

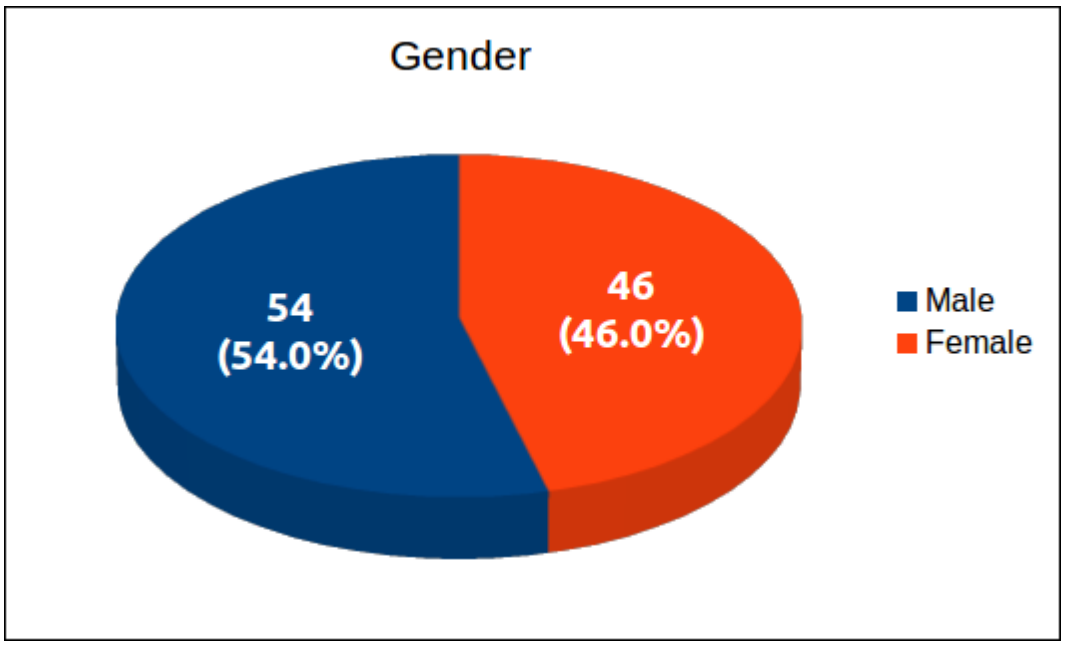

Figure (2): Gender distribution of the study patients (n=100)

Demographic characteristics of the study participants are summarized in table (2), which revealed that majority of participants (95%) were married, about half of them were of male gender, and almost all of them were living in urban areas. More than two-third of the participants (72%) had primary education, with almost equal proportions between males and females (47.2% vs. 52.8%, respectively). Largest proportion of males had free job, while largest proportion of females were housewives.

Table (2): Demographic characteristics of the study participants

Characteristics		**Gender**		**Total**
		Male	**Female**	
Marital Status	Single	0(0%)	1 (100%)	1 (1.0%)
	Married	52 (54.7%)	43 (45.3%)	95 (95.0%)
	Divorced	1 (50.0%)	1 (50.0%)	2 (2.0%)
	Widow/Widower	1 (50.0%)	1 (50.0%)	2 (2.0%)
Residence	Urban	53 (53.5%)	46 (46.5%)	99 (99.0%)
	Rural	1 (100%)	0(0%)	1 (1.0%)
Education	Illiterate	12 (75.0%)	4 (25.0%)	16 (16.0%)
	Primary	34 (47.2%)	38 (52.8%)	72 (72.0%)
	Secondary	4 (80.0%)	1 (20.0%)	5 (5.0%)

	College and higher	4 (57.1%)	3 (42.9%)	7 (7.0%)
Occupation	Housewife	0(0%)	42 (100%)	42 (42.0%)
	Free Job	47 (97.9%)	1 (2.1%)	48 (48.0%)
	Employee	4 (66.7%)	2 (33.3%)	6 (6.0%)
	Retired	3 (75.0%)	1 (25.0%)	4 (4.0%)

Clinical characteristics among study participants are detailed in table (3), which revealed the mean and stander deviation of metabolic syndrome components as following: Systolic BP (155.5 ± 11.6), Diastolic BP (94.8 ± 11.6), FBS (255.6 ± 68.9), Serum Cholesterol(221.8 ± 35.6), Triglycerides (210.3 ± 34.4), Waist circumference (108.0 ± 6.8)

Table (3): Clinical characteristics of the study participants (n=100)

Heading		**Frequency**
Hypertension		100
Systolic BP	Mean ± SD	155.5 ± 11.6
Diastolic BP	Mean ± SD	94.8 ± 11.6
Diabetes		98
FBS	Mean ± SD	255.6 ± 68.9
Serum Cholesterol	Mean ± SD	221.8 ± 35.6
Triglycerides	Mean ± SD	210.3 ± 34.4
Waist circumference	Mean ± SD	108.0 ± 6.8

Significant differences to male were observed regarding systolic blood pressure, diastolic blood pressure, serum cholesterol, triglyceride and waist circumference, with P-values of (<0.001, <0.001, 0.050, 0.016 and <0.001, respectively), as detailed in table (4).

Table (4): Comparison between males and females regarding clinical characteristics

Variable	Mean ± SD		P-value
	Male (n=54)	Female (n=46)	
Systolic BP	**160.1 ± 11.4**	**150.2 ± 9.5**	**< 0.001***
Diastolic BP	**101.1 ± 10.8**	**87.5 ± 7.5**	**< 0.001***
FBS	**262.1 ± 77.8**	**247.9 ± 56.7**	**0.305**
Serum Cholesterol	**228.1 ± 39.7**	**214.5 ± 28.8**	**0.050***
Triglycerides	**217.9 ± 33.5**	**201.4 ± 33.7**	**0.016**
Waist circumference	**111.9 ± 4.9**	**103.3 ± 5.7**	**< 0.001***

*** Significant at P ≤ 0.05**

Regarding smoking history, smokers formed (38.0%) of the study participants, while ex-smokers formed (8.0%). The remaining (54.0%) were non-smokers (Table 5).

Table (5): Smoking history of the study participants

Smoking	Frequency	Percentage (%)
Smoker	**38**	**38.0%**
Non-smoker	**54**	**54.0%**
Ex-smoker	**8**	**8.0%**
Total	**100**	**100%**

Physical activity was irregular among the majority of the study participants (54.0%), regular among (12.0%), routine daily tasks (34.0%), as detailed in table (6).

Table (6): Physical activity of the study participants

Physical Activity	Frequency	Percentage (%)
Regular activity	**12**	**12.0%**
Routine daily tasks	**34**	**34.0%**
Irregular activity	**54**	**54.0%**
Total	**100**	**100%**

Body-mass index of the study participants ranged from (22.3 kg/m^2) to (42.8 kg/m^2), with a mean BMI of (32.4 ± 3.9 kg/m^2) and a median of (32.2 kg/m^2). Females had significantly higher BMI (34.9 ± 3.4 kg/m^2) compared to males (30.3 ± 3.0 kg/m^2), Student's t-test = 7.2, P-value < 0.001. Figure (3) illustrates BMI classes of the study participants.

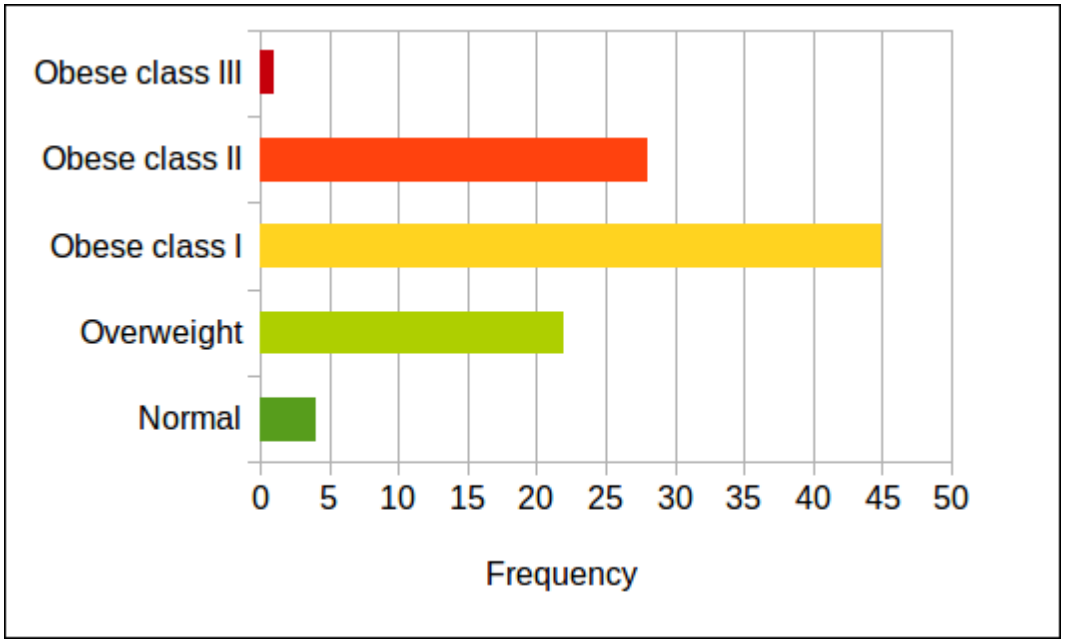

Figure (3): Body-mass index classes of the study participants (n=100)

Comparison between males and females regarding BMI classes had revealed significant association, with P-value of 0.001,BMI of ≥ 30 was (74.0%) of the study participants, which formed (59.3%) of male participants and (91.3%)female participants; consequently, BMI of 25 - 30 was (22.0%) of the study participants, which formed (33.3%)of male participants and (8.7%) of female participants.

BMI of < 25 formed(4.0%) of the study participants,all of them were of male gender, as detailed in table (7)..

Table (7): Comparison of BMI classes between males and females

Gender	BMI group			Total	P-value
	< 25	25 - 30	≥ 30		
Male	4 (7.4%)	18 (33.3%)	32 (59.3%)	54 (100%)	0.001*
Female	0 (0%)	4 (8.7%)	42 (91.3%)	46 (100%)	
Total	4 (4.0%)	22 (22.0%)	74 (74.0%)	100 (100%)	

*** Significant at P < 0.05**

Comparison between males and females regarding lifestyle characteristics revealed that there are significant differences in smoking and irregular physical activity, with P-value of (<0.001, 0.019, respectively).

Regarding smoking, the male participants formed (100%) of the study participants, similarly, irregular physical activity formed (64.8%) of male gender and (35.2%) of female gender as detailed in table 8.

Table (8): Comparison between males and females regarding lifestyle characteristic

Variable		Gender		Total	P-value
		Male	Female		
Smoking	Yes	46 (100%)	0 (0%)	46 (100%)	<0.001*
	No	8 (14.8%)	46 (85.2%)	54% (100%)	
Irregular physical activity	Yes	35 (64.8%)	19 (35.2%)	54 (100%)	0.019*
	No	19 (41.3%)	27 (58.7%)	46 (100%)	

*** Significant at P ≤ 0.05**

A multiple linear regression was calculated to predict systolic blood pressure based on smoking, BMI, and irregular physical activity. A significant regression equation was found, F(3,96)=4.50, P=0.005, with an R^2 of 0.123 table 9.

Smoking was found to significantly predict systolic blood pressure, P-value = 0.005. Smokers had 6.7 mmHg higher systolic blood pressure compared to non-smokers.

In contrast, neither BMI nor irregular physical activity were found to significantly predict systolic blood pressure, P-value = 0.219 and 0.691, respectively**.**

Table (9): Multiple linear regression for systolic blood pressure based on smoking, BMI, and irregular physical activity

Predictors	**B coefficient**	**P-value**
Smoking	**-6.70**	**0.005***
BMI	**7.22**	**0.219**
Irregular physical activity	**-0.92**	**0.691**
F(3,96)=4.50, R^2=0.123, P-value = 0.005		

*** Significant at P ≤ 0.05**

Similarly, multiple linear regression was also calculated to predict diastolic blood pressure based on smoking, BMI, and irregular physical activity. A highly significant equation was found, R^2=0.262, F(3,96)=11.37, P-value < 0.001.

Smoking was highly predictive of diastolic blood pressure, with P-value < 0.001. Smokers generally had 10.8 mmHg higher diastolic blood pressure compared to non-smokers.

BMI and irregular physical activity were not significant predictors, P-value = 0.203 and 0.798, respectively table 10.

Table (10): Multiple linear regression for diastolic blood pressure based on smoking, BMI, and irregular physical activity

Predictors	B coefficient	P-value
Smoking	**-10.80**	**< 0.001***
BMI	**6.85**	**0.203**
Irregular physical activity	**-0.54**	**0.798**
F(3,96)=11.37, R^2=0.262, P-value < 0.001		

*** Significant at P ≤ 0.05**

Calculation of multiple linear regression for the prediction of waist circumference based on smoking, BMI, and irregular physical activity was highly significant, F(3,96)=16.96, P-value < 0.001.

Smoking was a significant predictor with P-value < 0.001. Smokers had 7.95cm higher waist circumference than non-smokers. BMI and irregular physical activity were non-significant predictors, P-value = 0.455 and 0.485, respectively table 11.

Table (11): Multiple linear regression for waist circumference based on smoking, BMI, and irregular physical activity

Predictors	B coefficient	P-value
Smoking	**-7.95**	**< 0.001***
BMI	**2.22**	**0.455**
Irregular physical activity	**0.82**	**0.485**
F(3,96)=16.96, R^2=0.346, P-value < 0.001		

*** Significant at P ≤ 0.05**

Regression equation for the prediction total cholesterol based on smoking, BMI, and irregular physical activity was also significant, R^2=0.123, F(3,96)=4.47, P-value = 0.006.

Both smoking and irregular physical activity were significant predictors of total cholesterol, with P-values of 0.008 and 0.004, respectively. BMI was not a significant predictor table 12.

Table (12): Multiple linear regression for total cholesterol based on smoking, BMI, and irregular physical activity

Predictors	B coefficient	P-value
Smoking	**-19.32**	**0.008***
BMI	**9.88**	**0.582**
Irregular physical activity	**20.63**	**0.004***
F(3,96)=4.47, R^2=0.123, P-value = 0.006		

*** Significant at P ≤ 0.05**

In a similar manner, regression equation for triglycerides was also significant, R^2=0.105, F(3.96)=3.75, P-value = 0.013 (Table 4-16). Both smoking and irregular physical activity were significant predictors, P-value= 0.006 and 0.048, respectively. BMI was not a significant predictor table 13.

Table (13): Multiple linear regression for triglycerides based on smoking, BMI, and irregular physical activity

Predictors	B coefficient	P-value
Smoking	**-19.56**	**0.006***
BMI	**15.08**	**0.390**
Irregular physical activity	**13.83**	**0.048***
F(3,96)=3.75, R^2=0.105, P-value = 0.013		

*** Significant at P ≤ 0.05**

Chapter Four

Discussion

Metabolic syndrome's (MetS) high prevalence is a global issue. Because of the concurrent growth in obesity prevalence, this prevalence appears to be rising[16]. The metabolic issues brought on by obesity and metabolic vulnerability are of concern to many different medical specialties. One of them is the MetS, which is frequently considered to be a risky cardiovascular health issue[1].

The incidence of metabolic syndrome was shown to be high in all prior investigations, independent of the criteria utilized, despite the little number of studies published regarding its prevalence in Iraq[3].

In our cross sectional study, which targeting 100 patients aged more than 18 years, their mean age was 54.9 years approximately three quarters of them were above 50 years, more than half of them were males and the remaining were females, most of them had primary education. Regarding the age and gender, similar results were found in Iraqi analysis using nationally cross-sectional data from the"2015 Iraq STEPS survey" [8], additionally, several studies showed an increased risk of MetS in people with lower education, one of them is the nationally representative cross-sectional study in Iraq[8]. Persons with lower education may have lesser knowledge on health risk behaviors (such as overeating, lack of exercise, cigarrete smoking) that are implicated in the development of MetS.

The study found a significant rural-urban difference,thus a majority of participants were urban residence, which is slightly different from the results of previous studies conducted in Iraq. This could mean that MetS risk behavior(sedentary lifestyle, stress and diet changes) have been invaded urban life more than rural; furthermore, the setting of study could make a quite difference in the sample collection[8,19].

Regarding marital status, most of the study participants were married, which is consistence with a cross-sectional study carried in Kingdom of Saudi Arabia[19].

Significant differences were observed between males and females regarding systolic blood pressure, diastolic blood pressure, serum cholesterol, and waist circumference, two studies from four urban US communities assessing sex related differences of hypertention and CVD risk factors in the NHANES 1999–2004 population and the Coronary Artery Risk Development in Young Adults (CARDIA),in which women were noted to have higher mean systolic pressures and lower mean diastolic pressures

as compared to men[23]. Men's blood pressure increases sharply during and after adolescence, while women's blood pressure increases sharply in the postmenopausal age, according to previous research comparing the incidence of hypertension in women and men[23].

There are anatomical variations between males and women's hearts and arteries, according to a few studies; women's hearts and arteries are stiffer. Sex hormones are hypothesized to mitigate this impact throughout the reproductive years[23].

In contrast to our findings, Results from the DECODE (Diabetes Epidemiology: Collaborative analysis of Diagnostic criteria in Europe) and DECODA (Diabetes Epidemiology: Collaborative analysis of Diagnostic criteria in Asia) groups, which included 13 European and 10 Asian studies, show that the prevalence of type 2 diabetes is significantly higher in men than in women, typically 1.5-3 times higher in men between 50 and 70 years old[23,30].

This might be explained by the fact that type 2 diabetes, a crucial element of MetS, is assessed as impaired glucose tolerance (IGT) or impaired fasting glucose (IFG). Studies on sex variations in insulin resistance confirm this idea, which explains why IGT is more common in women whereas IFG is more common in men. Both IFG and IGT have a comparable risk of developing Type 2 diabetes[23,30]

Previous studies have shown that biologically, there is no difference between men and women in the prevalence and characteristics of type 2 diabetes[31].

Additionally, Significant sex differences in serum cholesterol and triglycerides, males had a significantly higher levels of serum total cholesterol and triglycerides. Different theories have been offered up to explain why men and women exhibit different patterns in their lipid profiles. These include variations in the activity of the enzymes hepatic lipase and lipoprotein lipase as well as the impact of hormones. Numerous prospective epidemiological investigations, like the MESA research, have found this sex-based variance in lipid patterns[23,30,31].

As a result, all study participants' waist circumferences (WC) exceeded the cutoff values for our population, which were 99 cm for women and 97 cm for men in one study carried out in Iraq and another study had been reported in Japan. This is because the International Diabetes Federation (IDF) proposed that central obesity, as

measured by waist circumference (WC) cutoff values specific for ethnicity and gender, is mandatory for a diagnosis of MetS[32,33].

Our study findings showed that, the mean of WC in males was higher than that of females, which confirm the former research conducted in the Medical City/Baghdad Teaching Hospital, 2013[3].

The IDF definition makes it clear that central obesity is a necessity, not a choice. Waist circumference in women may be even more sensitive marker for detecting central obesity than measures of total fatness[33].

This study revealed that almost half of the study participants engaged in irregular physical activity. These findings confirm the high prevalence of physical inactivity among adult males, females and adolescents reported by previous studies; cosequentely, These results were consistent with those of other Arab Gulf nations, where the proportion of adults who were physically active varied from 26.3% to 28.4% for women and 39.0% to 42.1% for males. There was a wide range of physical inactivity, between 43.3% and 99.5%, according to other research from different locations[19].

Wide variations in physical activity have been reported across countries, and there are significant differences between countries in terms of the prevalence of physical activity, the method used to collect data, and the criteria used to determine whether or not a person meets a physical activity threshold. It is important to note that among non-communicable chronic illnesses, physical inactivity is one of the primary causes of impairments, morbidities, and mortality[19].

Our findings show that women engage in more irregular physical activity than males do, which is the highest disparity in physical activity prevalence seen in the eastern Mediterranean.

It is more likely that cultural and societal reasons than biological ones are to account for the lower prevalence of physical exercise among females. In their culture, women are not supposed to engage in physical activity in public. Walking for exercise is often acceptable for women who live in cities, but it might not be in rural areas[43].

Regardind body mass index(BMI), our study shows a relatively high measures with a mean BMI of(32.6 kg/m^2). Females had significantly higher BMI compared to male.

Our study also examined the risk factors most frequently linked to the development of MetS, including waist circumference, levels Of cholesterol, high triglycerides, and sedentary lifestyles, all of which are widespread in Iraq, particularly among women. Because of the traditions, it is uncommon to find a man or woman running in the early morning hours or going to the gym even once in his lifetime. Additionally, despite our relatively tasty food, we habituated to serving high-calorie, high-fat diets on a regular basis, we believe it is time to modify this[2].

Regarding smoking history, smokers formed about one third of the study population, who all were male gender, which was surprising because it leads to a quite difference in the results; nevertheless, it was adversed to other study done in Iraq:results of the 2015 STEPS survey. The disparity in these findings may be explained by the study's small sample size and the fact that we did not account for the individuals' status as passive smokers. However, we found that the prevalence of MetS was higher in a sizable study population that was stratified by smoking; this provides a more accurate estimate and is consistent with the 2013 LifeLines Cohort Study conducted in the Netherlands[8][15][24].

Additionally,we noticed that there was significant difference in serum triglyceride levels between smokers and non-smokers(p-value=0.007), which was confirmed by study conducted in Netherlands,2014[28][24].In contrast,there was no significant difference in total cholesterol between smokers and non-smokers(p-value=0.067), This finding is also seen in data from the cross-sectional “2017 Morocco STEPS Survey”. It has been suggested that "smoking and nicotine reduce weight both by increasing energy expenditure and by suppressing appetite"[29].

We did not find strong evidence against no effect of smoking on MetS using causal methods which are consistent with previous studied[25,26];However, some studies indicated a positive relationship between smoking and MetS[27].The difference in study population, MS definition, and statistical analysis may justify the controversial results[28,27].

A multiple linear regression applyed to predict systolic blood pressure based on smoking, BMI, and irregular physical activity, smoking was found to significantly predict systolic blood pressure, P-value = 0.005. Smokers had 6.7 mmHg higher systolic blood pressure compared to non-smokers, we found similar result in The LifeLines Cohort Study[24], as it is well established that acute smoking may cause a rise in blood pressure. In contrast, neither BMI nor irregular physical activity were found to significantly predict systolic blood pressure. Similarly, smoking was found to significantly predict diastolic blood pressure, while, BMI and irregular physical activity were not significant predictors.

Although some studies have indicated that smoking is related to type 2 diabetes[58], the overall association was not statistically significant in our population between smoking and fasting blood glucose. This confirms the results obtained in other studies [59,60]. Ishizaka *et al*. found a higher prevalence of elevated blood glucose in smoking males, but not females.

The results also showed that a participants with a high waist circumference were smokers with a 7.95cm higher waist circumference than non-smokers.The finding of Netherlands' study in 2013[24] has confirmed our study results.In contrast, BMI and irregular physical activity were non-significant predictors for increased the waist cicumference; consequentely, previous studies have shown an excessive visceral fat to be a major contributor to MetS, beside overweight and obesity[26]. However, a high prevalence of MetS observed in the obese non-smokers.

Limitations:

1- The small study sample of our study was one of its weaknesses.. This is because of difficulty to confirm the inclusion criteria of the metabolic syndrome components for the participants. More over the time limitation of this study that affects sample size.
2- The body site for the WC measurement was the second restriction, we measured in accordance with the IDF's suggestion at the umbilical level, which is believed to be several centimeters longer than measurement at the "mid-level" in women but is more or less the same in males.

3- The possibility of recall bias, as a result of the assessment of the physical activity, is carried out via a questionnaire, which might result in an inaccurate assessment of physical activity on many occasions. Available objective measures of physical activity are more difficult to implement in the current design of the study.

4- The results are highly inconsistent since we did not account for the subjects' status as passive smokers. Additionally, we were unable to determine who had never smoked or how long they had smoked.

Chapter Six

Conclusion

1- Patients with Metabolic syndrome are more commonly males, aged 50-69 years, of lower educational level, and urban residents.

2- Males with metabolic syndrome had a higher systolic, and diastolic Bp. Additionally, they had higher serum cholesterol,triglycerides, and waist circumference than females.

3- A significant numbers of patients with metabolic syndrome had risky behaviors including smoking, irregular physical activity,and obesity.

4- Smoking is regraded as predictor for metabolic syndrome components.

5- Risky life styles for metabolic syndrome including smoking, and irregular physical activity are higher in male patients, whereas obesity is higher in females.

Chapter Seven

Recommendation

1. The earlier MetS is discovered and treated, the better the long-term prevention. Health-care systems must be reorganized to prioritize preventive medicine, particularly for obesity and MetS.

2. Population-level interventions are strongly advised to address this epidemic and to strengthen efforts to avoid noncommunicable diseases, such as type 2 diabetes mellitus, which has a high prevalence in Iraq and around the world.

3. Apart from weight loss, greater physical activity is currently the most effective approach to minimize generalized metabolic vulnerability. Every day, people with MetS should practice in at least 30 minutes of moderate-intensity activity. Sixty minutes of exercise is much better.

4. Interventions are required, and specific measures include the provision of facilities and supportive contextual elements; nonetheless, lifestyle therapies continue to be the most important intervention strategies. Without this, humanity will struggle economically, socially and individually in the the 21st century.

5.As we mentioned, smoking was a significant predictive of all metabolic syndrome component, there is a strict need to conduct awareness campaigns against smoking, and started to focus on accelerating their efforts to reduce smoking rates.

6.Focusing on sitting time and sleeping hours in the upcoming Iraqi researches should be the next important suobject, as they highly contribute to metabolic syndrome.

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Appendices

جمهورية العراق

وزارة التعليم العالي والبحث العلمي
جامعـــــة كربـــــلاء
كلية الطب
معاون العميد للشؤون العلمية
شعبة الدراسات العليا

العـدد: د/ك/ 348

التاريخ: 2022/ 2/ 3

كلية الطب
الصادر

امر اداري

م/اقرار مشاريع بحوث طلبة الدراسات عليا/دبلوم عالي/طب اسرة

إشارة الى ما جاء في محضر مجلس الكلية بالجلسة الخامسة المنعقدة بتاريخ (2021/12/20) والمصادق عليها من قبل رئاسة جامعة كربلاء /أمانة مجلس الجامعة بكتابهم المرقم (ج/1814 في 2021/12/30) ،واستناداً للصلاحيات المخولة لنا تقرر:

- اعتماد خطط ومشاريع بحوث طلبة الدراسات العليا/دبلوم عالي/طب اسرة وأسماء السادة التدريسيين المشرفين على خطط مشاريع البحوث حسب الجدول ادناه واعتباراً من تاريخ كتاب مصادقة أمانة مجلس الجامعة على محضر مجلس الكلية.

ت	اسم الطالب	عنوان البحث	اسم المشرف
1	زهراء رحيم عويز	Perceived Stress in Distant Learning among undergraduate College Students During the COVID-19 Pandemic in Kerbala, Iraq 2022	أ.م.د. بشير عقيل العلي طب اسرة ومجتمع جامعة كربلاء-كلية الطب
			ا.م.د عامر فاضل الحيدري امراض نفسية جامعة كربلاء-كلية الطب
2	قمر جواد عبد الكريم	Knowledge, Attitude and Practice Regarding Dietary Habits among Students in University of Kerbala. 2022	أ.م.د. بشير عقيل العلي طب اسرة ومجتمع جامعة كربلاء-كلية الطب
			د. سارة ماجد عبد الأمير طب اسرة دائرة صحة كربلاء
3	عبير علي يحيى	Evaluation of Risk Factors of Autism Spectrum Disorders among Children in Babil, 2022.	ا.م.د. شهرزاد شمخي الجبوري طب اسرة ومجتمع جامعة كربلاء-كلية الطب
			د. محمد رضا ورور طب نفسي دائرة صحة كربلاء
4	خلود جاسم محمد علي	Assessment of Preventive Measures towards COVID-19 among Secondary Schools Students in Kerbela, 2022.	أ.م.د. بشير عقيل العلي طب اسرة ومجتمع جامعة كربلاء-كلية الطب
			د. منتظر قاسم محمود طب اسرة دائرة صحة كربلاء
5	ورود مهدي عبد	Knowledge, Attitude, and Vaccination Status of COVID_19 among Adults in	ا.م.د. شهرزاد شمخي الجبوري طب اسرة ومجتمع جامعة كربلاء-كلية الطب

جمهورية العراق

وزارة التعليم العالي والبحث العلمي
جامعة كربلاء
كلية الطب
معاون العميد للشؤون العلمية
شعبة الدراسات العليا

العدد: ح/ 16/ 348

التاريخ: 2022/ 2/ 3

		Karbala City, 2022	د. أنور حميد رشيد طب اسرة دائرة صحة كربلاء
6	مثال ابراهيم محمد حسين	Dietary Knowledge, Attitude and Practice among Pregnant women Attending Primary Health Care Centers in Karbala city, 2022.	ا.م.د.علي عبد الرضا ابوطحين طب اسرة جامعة كربلاء-كلية الطب
			م.د. نورا صباح رسول نسائية وتوليد جامعة كربلاء-كلية الطب
7	رسل فاهم عبيد	Assessment of Depression and Social Support among Women with Breast Cancer in Kerbala City, 2022.	ا.م.د. شهرزاد شمخي الجبوري طب اسرة ومجتمع جامعة كربلاء-كلية الطب
			د. احمد مهدي حسن تحري سرطاني دائرة صحة كربلاء
8	شيماء احمد عاشور	Prevalence of Tobacco Smoking and its Correlates among Female Students of University of Kerbala, 2022.	ا.م.د.علي عبد الرضا أبو طحين طب اسرة جامعة كربلاء-كلية الطب
			د. نعيم عبيد طلال طب مجتمع دائرة صحة كربلاء
9	هند جواد كاظم	Clinical Impacts of Hyperandrogenima in Patients with Polycystic Ovarian Syndrome in Baghdad, 2022.	ا.م.د.علي عبد الرضا أبو طحين طب اسرة جامعة كربلاء-كلية الطب
			أ.م.د منال ناصح نسائية وتوليد جامعة كربلاء-كلية الطب
10	رند علاء ناصر	Evaluation of Lifestyle Characteristics among Patients with Metabolic Syndrome in Najaf, 2022	ا.م.د. شهرزاد شمخي الجبوري طب اسرة ومجتمع جامعة كربلاء-كلية الطب
			أ.م.د. شيماء عبد اللطيف خليل طب أسرة جامعة الكوفة-كلية الطب

Republic of Iraq
Al-Najaf Al-Ashraf Governorate
Najaf Health Directorate
Training and Human Development Center

جمهورية العراق
محافظة النجف الأشرف
مديرية صحة النجف
مركز التدريب و التنمية البشرية

No.
Date:

العدد: ١٢٢٧٤
التاريخ ١٤/ ٢/ ٢٠٢٢

الى/ مدينة الصدر الطبية / مركز السكري والغدد الصم

م / تسهيل مهمة

تحية طيبة ...

استنادا الى كتاب **جامعة كربلاء/ كلية الطب** ذي العدد ٤٠٨ **في** ٢٠٢٢/٢/٨ يرجى تسهيل مهمة الباحثة طالبة الدبلوم العالي/طب اسرة (**رند علاء ناصر**) لإجراء البحث الموسوم :

Evaluation of lifestyle characteristics among patients with metabolic syndrome in Najaf 2022

نرجو بيان رايكم حول اجراء البحث في مؤسستكم وتزويدها بالبيانات والمعلومات المطلوبة لإجراء البحث واعلامنا ليتسنى لنا اجراء ما يلزم ..

مع التقدير والاحترام.

المرافقات :
استمارة الموافقة على أجراء بحث توقع وتعاد الينا

الدكتور
حيدر خضير عباس
مدير مركز التدريب والتنمية البشرية
٢٠٢٢/٣/ ١٤

نسخة منه الى
- مركز التدريب والتنمية البشرية / شعبة ادارة المعرفة والبحوث/مع الاوليات

Republic of Iraq
Al-Najaf Al-Ashraf Governorate
Najaf Health Directorate
Training and Human Development Center

No.
Date:

جمهورية العراق
محافظة النجف الأشرف
مركز التدريب و التنمية البشرية

العدد: ١٢٤٧٦
التاريخ: ٢٠٢٢/٢/١٤

إلى/جامعة كربلاء/كلية الطب ٢٩٩٤ ٢/٢٤

م / تسهيل مهمة

تحية طيبة ...

إشارة إلى كتابكم ذي العدد ٤٠٨ في ٢٠٢٢/٢/٨ بخصوص تسهيل مهمة الباحثة **طالبة الدبلوم العالي/طب اسرة (رند علاء ناصر)** للحصول على الموافقة الاخلاقية لإجراء البحث العلمي الموسوم:

Evaluation of lifestyle characteristics among patients with metabolic syndrome in Najaf 2022

حصلت موافقة اللجنة العلمية للبحوث في مركز دائرتنا على إجراء البحث في **(مدينة الصدر الطبية / مركز السكري والغدد الصم)** في دائرتنا مع التأكيد على الالتزام الكامل بتعليمات السلامة الحيوية والضوابط الاخلاقية والحصول على موافقة المشاركين قبل الشروع بالبحث والحفاظ على خصوصيتهم وعدم افشاء البيانات او استخدام العينات لغير اغراض البحث العلمي ... على أن لا تتحمل دائرتنا أية تبعات مادية.

للتفضل بالاطلاع .....مع الاحترام

لا مانع لدينا من اجراء البحث في مركزنا

الدكتور
ناصر الجبوري
مدير مركز السكري
اخصائي الغدد الصم والسكري

الدكتور
احمد عباس طاهر الاسدي
مدير عام دائرة صحة النجف الاشرف
احمد عباس طاهر الاسدي
المدير العام/وكالة
٢٠٢٢/٣/١٧

التدريب والتعليم

الدكتور الصيدلاني
ضرغام عبد العباس الكريطي
٢/١٢

الى مركز السكري لغرض الاجراء
١٤/٢/٢٠٢٢

نسخة منه الى/
- مكتب المدير العام / للعلم مع الاحترام .
- مركز التدريب و التنمية البشرية / مع الأوليات
- مدينة الصدر الطبية / مركز السكري والغدد الصم/..... تسهيل مهمة الباحثة ... مع الاحترام

تعليمات الاستمارة ٩١

جامعة كربلاء
كلية الطب
فرع طب الأسرة المجتمع

إلى / الدكتورة هدى غازي حميد المحترمة

م/ تقييم استبانة

تحية طيبة

نظرا للمكانة العلمية والخبرة التي تتمتعون بها نرفق لكم استمارة استبانة مقترحة لرسالة طالبة الدبلوم العالي في طب الاسرة د. رند علاء ناصر المبين عنوانها في ادناه، راجين من جنابكم الاطلاع عليها واعطاء ملاحظاتكم القيمة بشأنها ... مع فائق التقدير

" Evaluation Of Lifestyle Among Metabolic Syndrome Patients In Najaf City 2022"

أ.م. د
شهرزاد شمخي الجبوري
طب اسره ومجتمع
٩ / ٣ / ٢٠٢٢

عنوان الرسالة:
(تقييم نمط الحياة لدى مرضى متلازمة التمثيل الغذائي في النجف)2022

" Evaluation Of Lifestyle Among Metabolic Syndrome Patients In Najaf City 2022"

اهداف الرسالة:

Aim of the study:
To evaluate the frequency of metabolic syndrome and abdominal obesity together with related lifestyle features in najaf city

الملاحظات:

اسم الخبير :..... د. هدى غازي حميد .....

اللقب العلمي :..... استاذ .....

مكان العمل :..... كلية الطب / جامعة الكوفة .....

عدد سنوات الخبرة :..... ١٠ .....

التوقيع :.....

[A]

QUESTIONNARE

Demographic and socio-economic data

1.Gender :

Male ☐ Female ☐

2.Age:

3.Residense:

Rural ☐ Urban ☐

4.Province:

5.Occupation:

Free job ☐ government employee ☐

Retired ☐ House wife ☐

6.Marital state:

Single ☐ Married ☐

Divorced ☐ Widower ☐

Widow ☐

7.Educational level:

Illiterate ☐ Read and write ☐

Primary school ☐ Secondary school ☐

collage and higher education ☐

8.Physical activity:

Routin daily task ☐

Regular physical activity: ☐

<1/wk ☐

1-2/wk ☐

2/wk ☐

Irregular physical activity ☐

<1/wk ☐

1-2/wk ☐

2/wk ☐

9.Smoking:

Ex smoker ☐ Non smoker ☐

current smoker ☐

.Duration**:**

0-5yrs ☐ **6-10yrs** ☐

more than 10yrs ☐

.Dose:

1-20cigarete ☐ **21-40cigarete** ☐

more than 40 cigarete ☐

Anthropometric Data

1- Height [ ]cm
2- Weight [ ]kg
3- waist circumference[ ]cm
4- Body mass index[ ]kg/cm^2
5- Systolic blood pressure[ ]mmHg
6- diastolic blood pressure[ ]mmHg

Biochemical Data

1- Fasting blood sugar[ ]mg/dl
2- HbA1c[ ]mmol/mol
3- Total cholestrol[ ]mg/dl
4- High density lipoprotein[HDL] [ ]mg/dl
5- Low density lipoprotein[LDL] [ ]mg/dl
6- Triglyceride[TG] [ ] mg/dl

الخلاصه

الخلفيه:

متلازمة التمثيل الغذائي هي مجموعة من عوامل الخطرالأيضية المختلفة التي تحدث في نفس الفرد، بما في ذلك السمنة المركزية وارتفاع ضغط الدم وارتفاع السكر في الدم واختلال الدهون في الدم. إنها تساهم في المراضة والوفيات القلبية والأوعية الدموية ، وترتبط بسرطانات متعددة بما في ذلك الثدي والبنكرياس والقولون والكبد ، على الصعيد العالمي يقدر أن 25 ٪ من السكان البالغين يمكن وصفهم بأنهم يعانون من هذهِ المتلازمه. السمنة تأخذ دور رئيسي في هذهِ المتلازمه، ومع وباء السمنة العالمية ، فإن انتشار متلازمة التمثيل الغذائي يرتفع بسرعة في العالم المتقدم والنامي على حدٍ سواء.

الاهداف:

1.لتقييم الخصائص الديموغرافية لمرضى متلازمة .

2. لتقييم ارتباط بعض خصائص نمط الحياة مع عوامل متلازمة التمثيل الغذائي.

3. لتقييم الاختلافات بين الجنسين فيما يتعلق بعوامل الخطر الديموغرافية والسريرية وخصائص نمط الحياة.

الطريقة:

أجريت دراسة مقطعيه في مستشفى الصدر التعليمي في محافظة النجف الأشرف/ العراق والمركز التخصصي لمرض السكري والغدد الصماء ، تهدف إلى استكشاف خصائص نمط الحياة في مرضى متلازمة التمثيل الغذائي وعوامل الخطر المرتبطة بها.

المشمولون بالدراسة الحالية الذين كانت جنسيتهم العراقية واعطو موافقه على المشاركة في هذه الدراسة. تم جمع بيانات كل مريض من خلال مقابلة مباشرة لمدة 15 دقيقة باستخدام استبيان. أكملت جميع الحالات استبيانًا مفصلاً تضمن معلومات حول القياسات الديموغرافية والأنثروبومترية والاختبارات الكيميائية الحيوية والقياسات البدنيه ومعلومات نمط الحياة ، وتم إدخال البيانات وتحليلها من خلال الحزمة (SPSS الاصدار 24) يعتبر الارتباط الاحصائي مهما عندما تكون قيمة P مساوي او اقل من 0.05 .

النتائج:

وجدت هذه الدراسة أن النشاط البدني غير المنتظم بين غالبية المشاركين في الدراسة (54.0 ٪) ، ويشكل المدخنون (38.0 ٪) من المشاركين في الدراسة ، ومؤشر الكتلة الجسدية للمشاركين في الدراسة من (22.3 كجم/م 2) إلى (42.8 كجم/م 2). كان للإناث ارتفاع مؤشر كتلة الجسم (34.9 ± 3.4 كجم/م 2) مقارنة بالذكور (30.3 ± 3.0 كجم/م 2). تم حساب الانحدار الخطي المتعدد لتحديد المؤشرات لمعايير متلازمة التمثيل الغذائي على أساس التدخين ، ومؤشر كتلة الجسم ، والنشاط البدني غير المنتظم. كان التدخين مؤشرا هاما مع قيمة p اقل من 0.001 لجميع معايير متلازمة التمثيل الغذائي.

الاستنتاج:

1- المرضى الذكور الذين يعانون من متلازمة التمثيل الغذائي أكثر شيوعًا من المرضى الاناث ، كذلك الذين تتراوح أعمارهم بين 50 و 69 عامًا ،والذين يعانون من مستوى تعليمي أقل ، وسكان المناطق الحضريه.

2- كان لدى الذكور الذكور الذين يعانون من متلازمة التمثيل الغذائي نسب اعلى في ارتفاع ضغط الدم الانقباضي والانبساطي، بالإضافة إلى ذلك ، كان لديهم ارتفاع الكوليسترول في الدم ، الدهون الثلاثية ، ومحيط الخصر اعلى من الإناث.

3- أعداد كبيرة من المرضى الذين يعانون من متلازمة التمثيل الغذائي لديهم سلوكيات محفوفة بالمخاطر بما في ذلك التدخين ، والنشاط البدني غير المنتظم ، والسمنة.

4- التدخين يعتبر مؤشر لمكونات متلازمة التمثيل الغذائي.

5- أنماط الحياة المحفوفة بالمخاطر بما في ذلك التدخين ، والنشاط البدني غير المنتظم أعلى في مرضى الذكور ، في حين أن السمنة أعلى في الإناث.

الكلمات الدالة:

متلازمة الايض الغذائي، مرض السكري من النوع الثاني، النشاط البدني، مؤشر كتلة الجسم ، العراق، السمنة ، محيط الخصر، خصائص نمط الحياة.

جمهورية العراق

وزارة التعليم العالي والبحث العلمي

جامعة كربلاء

كلية الطب

قسم طب الاسرة والمجتمع

تقييم نمط الحياة لدى مرضى متلازمة الايض الغذائي في محافظة النجف 2022

أطروحه

مقدمه للمجلس العلمي لطب الأسره في كلية الطب / جامعة كربلاء وهي جزء من متطلبات نيل درجة الدبلوم العالي طب الأسره

من قبل الدكتوره

رند علاء العكَيلي

بكالوريوس طب وجراحه عامه

اشراف

أ.م.د.شهرزاد الجبوري

اختصاص طب المجتمع

جامعة كربلاء/ كلية الطب

أ.م.د. شيماء عبد اللطيف خليل

اختصاص طب الأسره

جامعة الكوفه/ كلية الطب