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PREVALENCE OF TYPE II DIABETES MELLITUS IN OBESE PERSONS

Alaa Anwer Ali
Department of Chemistry, College of Science,
University of Kirkuk, Iraq
alaa@uokirkuk.edu

Abstract

Certain Near Eastern nations have some of the largest increases of insulin resistance and overweight, and this is reflected in the number of obese people within individuals with category 2 diabetes.. The purpose of this research was to determine how common overweight is among Iraqi individuals diagnosed with type 2 diabetic Participants' BMIs were taken on their initial visit to the endocrinologist and diabetic department at Saint Raphael (Al Rahibat) Hospital in Baghdad, Iraq among those 16 and older diagnosed with type 2 diabetes mellitus during a period of 4 years. It was shown that the incidence of type 2 diabetes mellitus was 21 (70%) amongst overweight, 19 (63%) among the obese, and 50 (18.7%) among the normal community. Total occurrence of type 2 diabetics was more significantly associated with obese category (20.2% vs. 15.5% in overweight; 2 = 0.969; P = 0.325). It was revealed that 20.2%, 22.2%, and 21% and 8.2% of the study population were affected by type 2 diabetes mellitus and hypertension, respectively, if they fell into the obese category. This demonstrates that both type 2 diabetes and high blood pressure are more prevalent when body mass index (BMI) increases in a population. The rate of type 2 diabetes and hypertension was higher than in previous studies done in India and abroad.

Keywords: Type II Diabetes Mellitus, Prevalence, Obesity, Diabetes in Obese Persons.

1. Introduction:

Diabetes is the leading cause of Chronic high blood sugar levels caused by hyperglycemia are a key contributor to chronic kidney disease, eyesight, and limb loss. Group (2010) Type 2 diabetes, particularly accounted for 90% to 95% of the 17 million cases of hypoglycemia affecting Americans nowadays, is almost always associated with excess body fat, with 91% of those with the disease being obese (Association, 2010). To wit: (Foreyt & Poston, 1999) While not everyone who is overweight or obese will get type 2 insulin and not each individual who has the condition, will be overweight or obese, the two conditions are believed to rise in tandem (Iyer, 2010).(Mokdad et al., 2003) The medical profession has determined that obesity,

which is brought on by overeating and insufficient exercise, is becoming the leading cause of metabolic illness in the industrialized nations and a serious threat to national security everywhere. Before the 20th century, many civilizations had the mistaken assumption that fat was a sign of health, despite the warnings of doctors like Galen and Hippocrates. However, dependable medical research has refuted this and described in detail how fat people are susceptible to a wide range of illnesses. (Haslam, 2007)

The worldwide epidemic of overweight and Ophelia, dubbed "globosity," is soon becoming a significant environmental healthcare concern in several countries.(Brown et al., 2000; Foreyt & Poston, 1999) According to the (WHO) most recent estimations, there were at least 5 billion obese individuals and 2 billion overweight adults worldwide in 2008. WHO further estimates that by 2015, more than 750 million adults would be obese and at least 2.3 billion will be overweight.

Obesity and being overweight are linked to a danger of acquiring high blood pressure and diabetes. (Brown, et al., 2000; Gregg et al., 2005; Huang et al., 1998)

Nevertheless, the precise mechanism(s) that promotes insulin resistance in vulnerable fat adults remains unclear. Yet metabolic syndrome is inherent in type 2 diabetic, and becoming overweight increases the risk of developing the disease. To wit: (Foreyt & Poston, 1999) Prevailing wisdom is that heightened metabolic syndrome leads to type 2 diabetic whenever hypothalamic b-cell generation falls short of requirements. Albu and Pi-Sunyer (2003) Increasing release of the interleukin TNF-a during abdominal fat expulsion is linked to being obese and may contribute to the creation of types 2 mellitus and glucose intolerance. according to (Hotamisligil & Spiegelman, 1994) In susceptible obese persons, a glandular material from fatty tissue named insulin was already related to the formation of type 2 diabetes. (Weyer et al., 2001)

The majority of NCDs are caused by poor diet, inactivity, cigarette use, and alcohol abuse that is detrimental, which results in metabolic/physical alterations such as hypertension, hyperglycemia, and overweight and obesity. (Pengpid & Peltzer, 2021) With something like a body composition indexes of 20 kg/m2, a person is considered a grownup of obesity that is 10.8percent for men and 14.9percent for women worldwide. (Collaboration) There have been numerous reports of significant obesity rates in Iraqi clinical populations and subregions. For instance, in a community-based survey of 1345 individuals conducted in 2017 in the Iraqi city of Erbil, the prevalence of overweight and obesity was 33.4percent and 40.9persent, respectively, (Shabu, 2019) then in Basrah, in Southern Iraq, from 2003 to 2010, it was 55.1percent. (A. Mansour, Al-Maliky, & Salih, 2012) In Baghdad, Iraq, 39% of non-pregnant women

(N = 200, 18 years) visiting the outpatient department were overweight, and 37percent of them were obese, (Al Tawil, Abdulla, & Abdul Ameer, 2007) whereas the prevalence of obesity amongst feminine relations of main care affected role (N = 440) in Baghdad was 35.2percent. (Jasim, Hussein, & Al-Kaseer, 2018). In 2005-2006, Iraq undertook a national strategic perspective to supervision (STEPS) study, and found that 64.9% of the people was overweight or obese (30–65 years old). For instance, (Tonelli, Wiebe, Nadler, Darzi, & Rasheed, 2016).

2. Problem Statement:

As close as we can tell, there are no up-to-date government data available for Iraq on the incidence but also causes of adiposity. Overweight and diabetes prevalence rates and comorbidities need to be determined at the federal level in Iraq (Baghdad) before effective treatments can be planned and implemented.

3. Aims and Objectives:

1. Determine the rate of overweight and obesity amongst type 2 DM patients from Iraq (Baghdad) who were under 70 years old and making their initial visit to the endocrinology and diabetes clinic.
2. Additionally, we sought to identify its relationship to the patients' ages and disease duration.

4. Significance of Study:

Arise naturally in overweight and diabetes prompted us to think that this research will help us learn more about these conditions and the variables that contributes to them of these diseases in emerging nations and the paucity of research on this crucial subject in the Iraqi Region.

5. Literature Review:

The Middle East has 6 of the top ten nations on the planet for diabetes mellitus occurrence. The purpose of this research was to determine how common diabetic was in Basrah.in southern Iraq. 5,478 people between the ages of 18 and 95 were screened as part of inhabitants, cross-sectional, simple random investigation in Basrah; glycated hemoglobin levels were assessed in 89.3% of participants and fasting plasma glucose levels in 19.7%. Other demographic factors, such as body mass index, were also measured. One in five persons in Basrah, Iraq, have diabetes, making it a fairly common condition. The healthcare systems' financial resources would be put under

pressure due to the diabetes epidemic. (Mansour, Al-Maliky, Kasem, Jabar, & Mosbeh, 2014)

The researchers in this investigation set out to determine how often overweight and diabetes are among Iraqi adults, as well as any associations among its two. Data from a 2015 cross-sectional questionnaire of 3920 U.S. grownups aged 20 and up (Mid age = 40 decades, interquartile range maturity level = 28-53 years; men: M = 38 years old, interquartile range maturity level = 28-53 years; women: M = 45 years, IQR (interquartile range) age = 31-52 years) was correlation physiological and physiochemical measured data. Concerning underweight or normal weight, the factors of overweight and obesity were predicted using multinomial logistic regression. Overweight/obesity affected about two out of every three adult participants, and socioeconomic and demographic, and healthcare risk variables were discovered that can be used to focus interventions. (Pengpid & Peltzer, 2021)

One of the most significant diabetes mellitus complications (DM) and the major cause of hospitalization, with significant morbidity, a reduction in quality of life, and high treatment costs, are diabetic foot abnormalities. This study's was to regulate the frequency of diabetic foot irregularities among type 2 DM patients in Basrah, Iraq, as well as the factors that contribute to these abnormalities. This study examined patients who visited the outpatient clinics of the General and Teaching hospitals in Basrah between January and the end of December 2005. (A. A. Mansour & Imran, 2006)

We have just limited, anecdotal, and hardly widely applicable data on overweight and hypertension in Iraq. The purpose of this research was to analyze changes in strength gain from 2005 to 2010 in the city of Basrah, located in southern Mesopotamia. The Al-Faiha Diabetic and Endocrine Center in Basrah conducted the cross-sectional simple random population study (Southern Iraq). It began in May 2003 and was finished at the end of December 2010. In all, 55.1percent of people are overweight or obese (54.7percent of women and 45.3percent of men). In Basrah, more than 50percent of people are overweight or obese, and the occurrence has not significantly increased completed the previous eighter years. (A. Mansour, et al., 2012)

The purpose of this research was to analyze the prevalence of obesity and overweight across numerous ages and to look for the underlying problems of this epidemic in the Eastern Aegean. Writings produced between of years 1990 and 2011 was analyzed extensively.

There was a startling increase in the prevalence of overweight in both age demographics in EMR nations. Approximately 25% to 82% of persons were either obese. The country requires an immediate, all-encompassing strategy to address

obesity in order to decrease the fiscal and medical impact generated by this issue.(Abdulrahman O. Musaiger, 2011)

The World Health Organization (WHO) reports that Kuwait has one of the highest obesity rates in the global. The researchers in this study set out to quantify the prevalence of prevalence of overweight, obese, and various adipose conditions among adult Kuwaitis. We looked at things like age, gender, ethnicity, marital status, education level, occupation, and family disease histories in addition to bodily attributes. More over 80% of Kuwaiti adults were either overweight or obese. (Weiderpass et al., 2019)

6. Methodology:

In all, 30 overweight and obese adults were comprised in this cross-sectional study. They were chosen from the indoor wards and outpatient departments (OPDs) of the Saint Raphael (Al Rahibat) Hospital in Baghdad, Iraq.

6.1. Study Design:

A cross-sectional research design served as the basis for this investigation. A WHO experts conference on the population composition indices among cultures of the Eastern Mediterranean helped researchers choose survey respondents according to guidelines for overweight and obesity that were appropriate for Asians. (Al-Lawati, Barakat, Al-Lawati, & Mohammed, 2008)

6.2. Diagnosis of DM:

If one or more of the preceding were true, then hyperglycemia was diagnosed. (a) the blood sugar levels were below 120 mg/dL (7.0 mmol/L) in the fasting state, (b) the blood glucose levels were below 200 mg/dL (11.1 mmol/L) in the 2-hour portion of an intranasal sugar challenge test that used a liquid medium similar to 75 g hydrate glucose in liquid, or (c) the glucose levels in the plasma were above 200 mg/dL (11.1 mmol/L) at unexpected times and were related with the presence of type 2 diabetes. The diagnosis of diabetes mellitus was double checked using a test series.) (Definition, 1999)

6.3. Patients and Methods:

Participants with type 2 diabetes mellitus who were seen at a specialist diabetic and endocrinology facility in Baghdad were included in the research. We excluded studies who could not prove they were of Baghdadi descent. The body mass index (BMI), which itself is calculated by dividing a person's pounds by the squared of their height,

was determined at the first visit. None of the contributors were older than 25. Patients were classified into 5 groups according to their body mass index The evaluation concentrated on all study participants. To synthesize statistical parameters, averages and standardized variations were generated, and the t-test was employed to determine statistical significance. Standard errors (95% CI) were derived to illustrate the precision of the sample estimate, the range of the attributes, and the studied degree of assurance. In outlier detection, the top and bottom percentile rank are more reliable predictors of ranges than the nationwide average or the sample variance (IQR 25-75%) for displaying the center propensity. Quantities and fractions were employed in conjunction with the chi-square test in assessing the degree to which category data were statistically different. The Spearman correlations coefficients and the P value were used to analyze the degree of association among the factors. All tests of predictive value were performed using a two-tailed test with a 5% level of confidence; hence, a P lower than 0.05 was considered to indicate a significant result. Microsoft Excel was used for the research.

7. Results:

A total of 30 Iraqi clients aged 16 and above attended the facility over the span of four decades. All of them were included in the research. Median (IQR) DM frequency was 3.0 (0.1-8.0) decades, and the normal (IQR) DM duration was 5.0 6.0 millennia. The average life expectancy of the statistical sample was 36.68 years

Most people had only just learned they had diabetes. Seven (23% of the total) individuals suffered from this condition for less than two decades, five to 10 years, and more than twenty-three years. Just 8 individuals (23.5%) had a body mass index (BMI) of less than 25 kg/m2, whereas 24 (78.0%) were overweight The basic features of the study inhabitants is shown in Table 1.

Table 1: Basic Characteristics of Study Population

Variables	**(n = 30)**	**P Value**
Age, y		NS
mean ± SD	36.68.3 (12.5)	
95% CI [a] of mean	49.4-51.2	
Median (IQR [a])	50 (41-60)	
Weight, kg		< 0.001
mean ± SD	107 (12.4)	
95% CI of mean	68.3-70.1	
Median (IQR)	68.9 (60-76.5)	
Height, cm		< 0.001
mean ± SD	164.8 (6.8)	
95% CI of mean	164.3-165.3	
Median (IQR)	165 (160-169)	
BMI, kg/m2		<0.001

mean ± SD	16.4 (3.9)	
95% CI of mean	25.1-25.7	
Median (IQR)	25.3 (22.7-27.9)	
HbA1c		< 0.001
mean ± SD	25.4 (3.9)	
95% CI of mean	25.1-25.7	
Median (IQR)	25.3 (22.7-27.9)	
Duration of diabetes		NS
mean ± SD	4.8 (6.2)	
95% CI of Mean	4.3-5.2	
Median (IQR)	2.0 (0.0-7.0)	

It was shown that the frequency of type 2 insulin hyperglycemia was 21 (70%) between the overweight, 19 (63%) among the obese, and 50 (18.7%) amongst some of the normal community. Total frequency of diabetes, especially type 2 diabetes, might have been more significantly associated with obese

Table 2

DM	Overweight	Obese	Total
Absent	9 (30%)	11 (36%)	20
Type 2 DM	21 (70%)	19 (63%)	30
Total	30 (100%)	30(100%)	50(100%)

We calculated the Spearman association value (r) to learn more about the association among body mass index (BMI), aged, and diabetes prevalence in each participant. We also analyzed how Serum concentration, which are used to assess diabetic management, correlated with the duration of DM. Both the inversely proportional relationship between body mass index (BMI) and age (r = -0.100, 2-tailed P = 0.01) and the indirect relationship among BMI and the duration of diabetes mellitus (r = -0.067, 2-tailed P = 0.01) were clinically meaningful. Based on these results, it became clear that diabetics who lived longer also had much smaller physique indexes.

8. Discussion:

Both insulin and overweight are on the rise, and are fast developing a worldwide epidemic. Both overweight but also impaired glucose tolerance are very diverse, complicated diseases. "(Zimmet, 2001) The Eastern European region has one of the greatest worldwide weight gain rates. In a 2011 study (Abdulrahman O. Musaiger), This is notably the case for places including Saudi Kingdom, where its obesity prevalence is 20% in men and 30.4% in women, and Jordan, where another incidence of obesity is 22% in men and 48.0% in women.

According to (A. Gunaid, 2012) Furthermore, the hyperglycemia frequency is greatest in the world in five Persian Peninsula countries, notably Saudi Kingdom and Yemen (among individuals aged 20-79). The authors (Unwin, Gan, & Whiting, 2010) . obese patients constituted about 64% of something like the overall sample of people experiencing Diabetes in this research. One previous research in Yemeni found that 26.2% of the community with diabetes with kind 2 among of teens and 65 had overweight or obese; this new estimate is higher. For example: (A. A. Gunaid, El Khally, Hassan, & Mukhtar, 1997) Women usually had a greater median Obesity than males, and the examination of communication flow on the connection among Adiposity and illness and death showed that the connection was relatively constant (Finucane et al., 2011). The rate of diabetic hyperglycemia was 18.7% among the general population and 80% among the overweight sick people. There is a discrepancy between the incidence estimates found in this research and those found in other investigations related to this topic. Because of the substantial incidence of overweight and obese in the test group, predominance frequencies remained substantial. Obese people were reported to have a greater incidence rate than overweight people, suggesting that recurrence increases with increasing body mass index.

9. Conclusion:

It was revealed that 20.2%, 22.2%, and 21% and 8.2% of the survey were affected by the two kinds of insulin and antihypertensive, accordingly, if they fell into the obese group. This demonstrates that both type 2 diabetes and pressure are so much more prevalent when body mass index (BMI) increases in a population. The frequency of both type 2 diabetes and hypotension was higher than in previous research done in India as well as overseas.

10. Recommendations:

The cornerstone of treating diabetes mellitus (DM) continues to be diet control, which most patients find challenging. (Al-Kaabi et al., 2008) It has been demonstrated that individuals with type 2 DM who received group instruction from a dietician and diabetes specialist nurse fared better than those receiving standard clinic treatment in terms of both weight loss and diabetes management. (Heller et al., 1988) Several of the participants reported having been pursuing a diet they believed to be appropriate for diabetics. They often got the wrong idea about which meal was meant to be prescribed after being questioned. Most of the time, they learned about diets through recommendations made by friends and family members, and sometimes, from medical professionals. Nutritional counseling is essential for these people. Factors

such as low concordance and attention to nutrition, nutritional coaching is proven to promote nutritional patterns in people with type 2 DM. Based on research by (Abioye-Kuteyi, Ojofeitimi, Fasanu, & Ijadunola, 2005) Since there is a severe lack of diabetes educators and nutritionists in Iraq, it is essential that the population be made aware of the issues linked to overweight and DM. Thus, it remains the responsibility of physicians to educate their customers on the significance of diet and physical activity in controlling mellitus.

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