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Comparative Analysis of Type 1 and Type 2 Diabetes Mellitus: Assessing Demographics, Clinical Attributes and Risk Factors among Iraqi Patients

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Abstract

Background: Among the various forms of diabetes, Type 1 diabetes mellitus (T1DM) and Type 2 diabetes mellitus (T2DM) represent the most common and clinically significant categories. **Objective:** The objective of this retrospective comparison study was to find out the different between Type 1 Diabetes Mellitus and Type 2 Diabetes Mellitus in term of demographic information, clinical features, risk factors and consequences. **Methodology:** This retrospective comparison study was performed on 300 confirmed diabetes patients (T1DM and T2DM) extracted from medical records at a specialized diabetic clinic, Iraqi patients. Demographic data, clinical characteristics, risk factors and complications data was collected from May 2025 to May 2025. **Results:** A lot more people had type 2 diabetes (70.0%) of all cases than type 1 diabetesType 1 diabetes mostly affected younger people (mean age ± SD: 18.4 ± 6.2 years), while Type 2 diabetes mostly affected adults in their 40s and 50s (n = 48, 53.3%). A strong association was observed between overweight status and the development of Type 2 diabetes. People with Type 2 diabetes were more likely to have long-term problems. **Conclusion:** Type 1 diabetes mostly affects younger people. Type 2 diabetes, on the other hand, is closely linked to risk factors that can be changed, like being overweight and not being active. These results show the important of early diagnosis and focused living changes are for lowering the worldwide burden and avoiding long-term problems. [*Bangladesh Journal of Infectious Diseases, December 2025;12(2):228-233*]

Keywords: Diabetes mellitus; diabetes type 1; diabetes type 2; risk factors; demographic

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Introduction

Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels caused by insufficient insulin production, impaired insulin action, or both. The condition can lead to severe complications affecting multiple organ systems, including the heart, kidneys, eyes, nerves, and blood vessels[1]. Current global health reports indicate that diabetes affects hundreds of millions of people worldwide and continues to rise at an alarming rate. Current estimates suggest that more

than 589 million adults aged 20 to 79 years are living with diabetes, and projections indicate this number may reach approximately 853 million by 2050. Importantly, over 90% of these cases are attributed to Type 2 diabetes[2].

Over the past few decades, diabetes prevalence has increased dramatically worldwide, largely due to population growth, aging populations, urbanization, sedentary lifestyles, and rising obesity rates. More than 800 million individuals globally are estimated to be living with diabetes, making it one of the leading chronic diseases affecting human health[3]. Despite sharing similar symptoms and complications, Type 1 and Type 2 diabetes differ in their onset, pathophysiology, genetic predisposition, and treatment modalities. This paper aims to explore these differences comprehensively and provide a detailed comparison between the two forms of diabetes[4]. When insulin function is impaired, glucose accumulates in the bloodstream instead of being utilized by cells for energy. This condition leads to persistent hyperglycemia, which over time can damage organs and tissues throughout the body[5].

However, Type 1 and Type 2 diabetes account for the overwhelming majority of cases worldwide. Type 1 diabetes represents a smaller proportion of cases, affecting approximately 9 million individuals globally. Type 2 diabetes accounts for more than 90% of all diabetes cases and is closely associated with lifestyle and environmental factors[6]. The global prevalence of diabetes has increased dramatically over the past several decades. According to international health reports, approximately 589 million adults between the ages of 20 and 79 were living with diabetes in 2024. This number is projected to increase to 853 million by the year 2050[7]. More than 80% of individuals with diabetes live in low- and middle-income countries, where access to healthcare services may be limited. Additionally, a significant proportion of individuals remain undiagnosed, which increases the risk of complications[8].

Type 2 diabetes accounts for the vast majority of cases worldwide, primarily due to increased rates of obesity, sedentary lifestyles, and unhealthy dietary habits[9]. In contrast, Type 1 diabetes is less common but remains a major cause of morbidity among children and young adults[10]. Recent epidemiological studies have also shown that the incidence of Type 2 diabetes is increasing among younger populations, including adolescents and young adults[11]. This study was aimed to find out the different between type 1 diabetes and type 2 diabetes in term of demographic information, clinical features, risk factors and consequences.

Methodology

Study Design: This study was conducted as a retrospective comparative clinical analysis to evaluate the differences between Type 1 Diabetes Mellitus (T1DM) and Type 2 Diabetes Mellitus (T2DM). The research analyzed 300 confirmed cases of diabetes mellitus collected from medical records at a specialized diabetes clinic in a period of one year from May 2025 to May 2025.

Study Population: A total of 300 patients diagnosed with diabetes mellitus were included in the study. The patients were divided into two groups Type 1 Diabetes Mellitus 90 patients and Type 2 Diabetes Mellitus 210 patients. Patients were included in the study if they met the following criteria confirmed diagnosis of diabetes mellitus, availability of complete medical records and age older than 10 years. Patients with gestational diabetes, secondary diabetes due to other diseases and incomplete medical records have been excluded

Data Collection: The following variables were collected and analyzed age, gender, body mass index (BMI), type of diabetes, clinical symptoms, laboratory findings, diabetes-related complications. The data were obtained from patient medical records and clinical documentation.

Statistical Analysis: Statistical analysis was performed to compare the characteristics of patients with Type 1 and Type 2 diabetes were summarized using Frequencies, Percentages, Comparative tables, Graphical representations. Descriptive statistics were used to analyze the distribution of variables among the patient population.

Ethical Consideration: The ethics and protocol review were accepted by the ethics committee of the Department of Optometry Techniques, College of Health and Medical Technologies, Al-Mustaqbal University, Hillah, Babylon, Iraq (Number: 117. 220). Ethical clearance for sample collection was obtained from the ethics committee at the ministry of health/Iraq, and the individuals donating material gave their verbal and written consent.

Results

Distribution of Diabetes Types, Among the 300 cases analyzed, the distribution of diabetes types was as follows (Table 1).

Table 1: Distribution of Diabetes Types

Diabetes Type	Frequency	Percent
Type 1 Diabetes	90	30.0
Type 2 Diabetes	210	70.0
Total	**300**	**100.0**

These results indicate that Type 2 diabetes accounted for the majority of cases, representing more than two-thirds of the study population. The age distribution table 2 revealed significant differences between the two types of diabetes. The results show that Type 1 diabetes was more prevalent among younger individuals, particularly those aged between 10 and 20 years. In contrast, Type 2 diabetes occurred more frequently in middle-aged and older individuals. The results showed a slightly higher prevalence of diabetes among males, particularly for Type 2 diabetes. Body Mass Index was analyzed to determine its relationship with diabetes type table 4. These findings demonstrate that overweight and obesity were strongly associated with Type 2 diabetes, while the majority of Type 1 diabetes patients had a normal body weight.

Table 2: Age, Gender, Body Mass Index distribution between the two types of diabetes.

Variables	Type 1	Type 2
Age Group		
10 to 20 years	40	5
21 to 40 years	30	40
41 to 60 years	15	100
Over 60 years	5	65
Gender		
Male	48	110
Female	42	100
BMI Category		
Normal Weight	70	40
Overweight	15	90
Obese	5	80

Table 3: Clinical Symptoms

Symptom	Type 1	Type 2
Polyuria	85.0%	60.0%
Polydipsia	82.0%	55.0%
Weight loss	70.0%	20.0%
Fatigue	65.0%	68.0%
Blurred vision	40.0%	50.0%

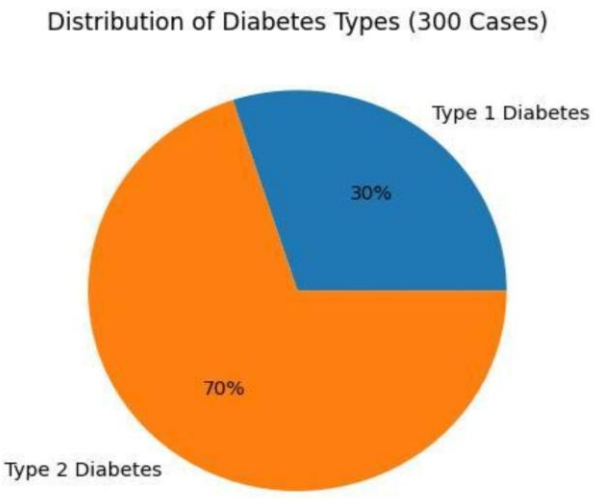

Figure I: Distribution of Diabetes Types

The analysis of 300 clinical cases revealed that Type 2 diabetes accounted for 70.0% of cases (n=210), while Type 1 diabetes represented 30.0% (n=90). This finding confirms that Type 2 diabetes is significantly more prevalent in the studied population (Figure I).

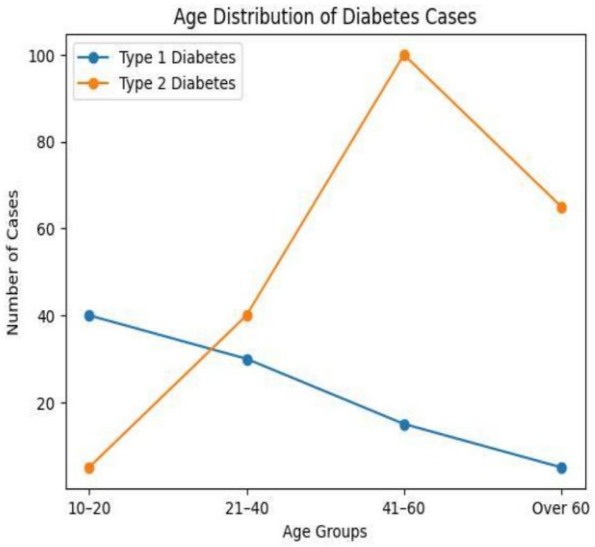

Figure II: Age Distribution of Patients

Type 1 diabetes was most commonly observed in younger age groups (10 to 20 years), whereas Type 2 diabetes was predominantly found among individuals aged 41 to 60 years and older (Figure II).

The majority of Type 2 diabetes patients were classified as overweight or obese, indicating a strong association between obesity and Type 2 diabetes. In contrast, most Type 1 diabetes patients had a normal BMI (Figure III).

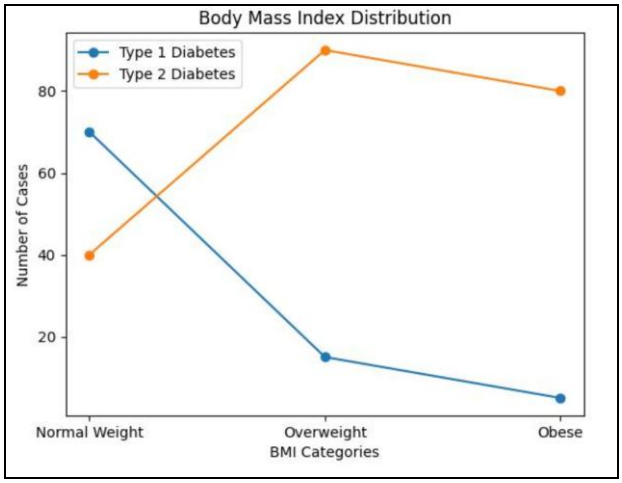

Figure III: BMI Distribution

Complications such as retinopathy, neuropathy, nephropathy, and cardiovascular disease were significantly more frequent among Type 2 diabetes patients compared with Type 1 diabetes patients (Figure IV).

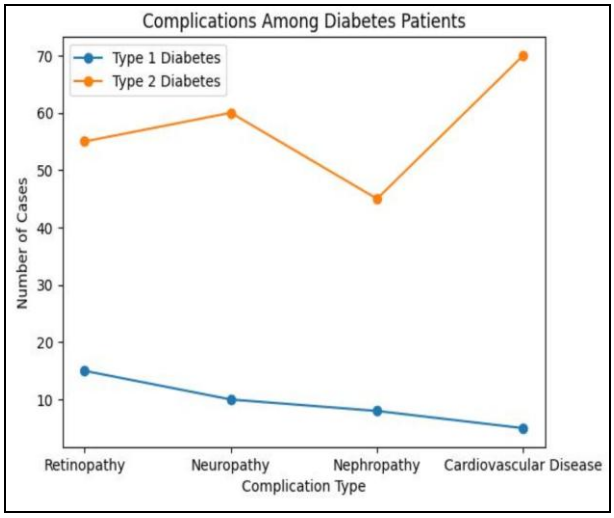

Figure IV: Diabetes Complications

Discussion

Our study demonstrated that Type 2 diabetes was significantly more prevalent, accounting for 70% of the total cases. This observation aligns with global epidemiological studies[12]. It has been reporting that Type 2 diabetes represents more than 90.0% of all diabetes cases worldwide[13]. Age distribution analysis revealed that Type 1 diabetes predominantly affected younger individuals[14], while Type 2 diabetes was more common among middle-aged and older adults[15]. This pattern reflects the underlying pathophysiological mechanisms of both diseases. The analysis of BMI showed a strong association between obesity and Type 2 diabetes. Overweight and obese individuals represented the majority of Type 2 diabetes cases was reported by Garvey et at[16], supporting previous research that identifies obesity as a major risk factor for insulin resistance and metabolic dysfunction.

In contrast, most patients with Type 1 diabetes had a normal body weight, which is consistent with the autoimmune nature of the disease rather than lifestyle-related factors which was the same result found by Nabeel et al[17]. The study also revealed that chronic complications were more prevalent in Type 2 diabetes patients[18]. This may be due to the fact that Type 2 diabetes often remains undiagnosed for several years, allowing prolonged hyperglycemia to cause vascular damage before treatment begins[19]. Overall, the results of this study emphasize the importance of early detection, lifestyle modification, and effective management strategies in reducing the burden of diabetes and preventing long-term complications.

The data made it evident that people with Type 1 and Type 2 diabetes differed significantly in terms of body weight and age distribution. While Type 2 diabetes was more common in middle-aged participants, especially those between the ages of 40 and 59, Type 1 diabetes was more common in younger age groups, particularly adolescents and young adults. Furthermore, the data demonstrated that people with Type 2 diabetes were significantly more likely to be overweight or obese. As body mass index levels increased, a progressive rise in the prevalence of diabetes was also noted. These results confirm the robust association between lifestyle-related variables and Type 2 diabetes incidence. As body mass index levels increased, a progressive rise in the prevalence of diabetes was also noted. These results confirm the robust association between lifestyle-related variables and Type 2 diabetes incidence.

Conclusion

This comparative analysis of diabetes cases highlights significant differences between Type 1 and Type 2 diabetes mellitus in terms of epidemiology, risk factors, clinical characteristics, and complications. Type 1 diabetes primarily affects younger individuals and results from autoimmune destruction of pancreatic beta cells, requiring lifelong insulin therapy. In contrast, Type 2 diabetes is strongly associated with obesity, sedentary lifestyle, and genetic predisposition. The findings emphasize the importance of early diagnosis, lifestyle modification, and effective

treatment strategies to reduce the global burden of diabetes and prevent long-term complications.

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Conflict of Interest
The authors would like to state that there is no conflict of interest in this work.

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Authors' contributions
Mohaimen Al-Ini designed the study, wrote the manuscript, GQH wrote and revised the manuscript with input from all authors, Mundher Al-Samurai re-designing all tables and figures and the statistical analysis was done by Ebtehal Al-Bassam

Data Availability
Any inquiries regarding supporting data availability of this study should be directed to the corresponding author and are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate
The Institutional Review Board granted the study ethical approval. Since this was a prospective study, every study participant provided formal informed consent. Each method followed the appropriate rules and regulations.

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