

Original Research Article

## Diabetes Mellitus Association with Complications and Complaints

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### Article History

**Received:** 14.04.2025

**Accepted:** 20.05.2025

**Published:** 22.05.2025

**Abstract:** *Backgrounds:* diabetes mellitus is one of the most dangerous disease in human .so it's important to complaint the therapeutic plan of diabetes mellitus continuously which can reduce the complications and mortality of this disease. *Aims of the Study:* The aims of study is to identify the association between diabetes mellitus with complications and complaints. *Methodology:* A cross sectional study done to patients with diabetes mellitus from 1st February 2023 to 10th April 2023. A convenient sample of 245 patients with diabetes mellitus. *Results:* male and female equal percentile. The most of the sample is blood group (O) 43.3% and followed by blood group (A) is 24.9%. 22.9 % were smokers and the major of the sample were had family history of DM either by their parents or brother and sisters. Regarding the complication of the Dm we found the eye complication were 15.9%, cardiovascular complications were 8.9%, neuropathy were 16.3%, teeth complications were 10.6%, diabetic foot were 6.5%, dermatological complications were 4.1%, GIT complications were 7.8%, genital complications were 4.9%, nephropathy 11.4%, recurrent infection were 11.8% and other 5.7%. Regarding the problems of the DM thyroid were 5.7%, adrenaline were 0.8%, asthma were 6.5%. Allergy were 14.7 and autoimmune disease were 9.4%. 39.6% were go to the emergency room or lie in the hospital because of diabetes. 73.9 % were complain to treatment, 4.9 % were not complain and 21.2% were often not complain. 33.5% were complain to diet, 26.9 % were not complain and 39.6% were often not complain. 62.1% were complain to measure his sugar regularly, 10.2 % were not complain and 27.7% were often not complain. 57.5% were use pills, 28.9% were use insulin and 2.1% were use both (insulin and pills), 7.8% were use pills and now insulin and 3.7 % were only diet. *Conclusions:* We conclude that were association between DM and complications (eye complication, cardiovascular complications, neuropathy, teeth complications, diabetic foot, dermatological complications, GIT complications, genital complications, nephropathy, recurrent infection) and there were association between problems of the DM (thyroid, adrenaline, asthma, allergy, autoimmune disease). There were significant association between DM and complaint to medication, complaints to diet and using insulin and pills.

**Keywords:** Diabetes Mellitus, Complaints, Complications.

## INTRODUCTION

"Diabetes mellitus (DM) is a group of metabolic disorders marked by high blood sugar levels due to impaired insulin secretion, action, or both. In 2014, DM affected approximately 9% of the global population, and in 2015, it was directly responsible for nearly 1.6 million deaths worldwide [1, 2]."

Diabetes mellitus (DM) is linked to significant morbidity, stemming from a wide array of complications, including retinopathy, nephropathy, neuropathy, and cardiovascular disease [3].

Preventing and managing these complications have become key priorities in modern diabetes care. In addition to these common complications, DM is also associated with oral health issues [4]. Recognizing this, the International Diabetes Federation (IDF) released the "Guideline on Oral Health for People with Diabetes" in 2009, promoting the integration of oral care into diabetes management [6].

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**Citation:** Rahman Agab Aljanabi (2025). Diabetes Mellitus Association with Complications and Complaints. *South Asian Res J App Med Sci*, 7(3), 76-80.

To effectively implement the guideline, it is crucial to understand the common oral complications in patients with DM, their frequency of occurrence, and the underlying pathogenesis [7].

Most studies on oral complications in patients with DM primarily focus on elevated blood glucose levels. However, it is well established that various other pathogenic mechanisms—such as hyperglycemia, insulin resistance, dyslipidemia, hypertension, and immune dysfunction—also play significant roles in the development of diabetic complications. This report aims to review the literature on oral complications of DM through this broader lens [8].

To comprehend the biological mechanisms involved, it is important to first explore the pathogenic mechanisms underlying classic diabetic complications [9].

DM complications are generally classified into acute and chronic categories. Given that oral complications are likely the result of long-term diabetic effects, this review will focus on chronic complications. These are primarily associated with vascular damage, categorized into microvascular and macrovascular diseases [10].

Microvascular diseases include retinopathy, nephropathy, and neuropathy, while macrovascular complications involve cardiovascular diseases (CVD), such as coronary artery disease, cerebrovascular disease, and peripheral artery disease [11].

**Aims of the Study:** The aims of study is to identify the association between diabetes mellitus with complications and complaints.

## METHODOLOGY

A cross sectional study done to patients with diabetes mellitus from 1st February 2023 to 10th April 2023. A convenient sample of 245 patients with diabetes mellitus. The data was collected by using a self-completed online questionnaire through Google Forms. The link to questionnaire is shared to patients with diabetes mellitus through social media groups. The study was approved by Council of the College of Medicine, IBN- SINA University.

Verbal informed consent was obtained from all students included in the study.

### Data Processing and Analysis:

Data obtained was entered, processed and analyzed using Statistical Package for Social Sciences (SPSS) version 26. Descriptive analysis was used to summarize data. Categorical data were summarized in frequency and percentages. Chi square were used ( $p$  value  $> 0.05$ ).

## RESULTS

A total number of ( $n=245$ ) of patients with diabetes mellitus. Male and female equal percentile. The most of the sample is blood group (O) 43.3% and followed by blood group (A) is 24.9%.

22.9 % were smokers and the major of the sample were had family history of DM either by their parents or brother and sisters as shown in table 1.

**Table 1: Demographic data of the sample**

Demographic data	Frequency	Percentage
<b>Gender</b>		
Male	123	50.2%
Female	122	49.8%
<b>Year of patients diagnosis</b>		
2023-2020 AH	61	24.9%
2019-2015 AH	76	31%
2014-2010 AH	49	20%
2009-2000 AH	43	17.6%
>2000 AH	16	6.5%
<b>Blood group</b>		
A	61	24.9%
B	48	19.6%
AB	30	12.2%
O	106	43.3%

Demographic data	Frequency	Percentage
Smokers	56	22.9%
<b>Family history</b>		
Yes 'Father & Mother'	151	61.6%
Only brother and sisters	10	4.1%
No	84	34.3%

Regarding the complication of the Dm we found the eye complication were 15.9%, cardiovascular complications were 8.9%, neuropathy were 16.3%, teeth complications were 10.6%, diabetic foot were 6.5%, dermatological complications were 4.1%, GIT complications were 7.8%, genital complications were 4.9%, nephropathy 11.4%, recurrent infection were 11.8% and other 5.7%. Regarding the problems of the DM thyroid were 5.7%, adrenaline were 0.8%, asthma were 6.5%. Allergy were 14.7 and autoimmune disease were 9.4% as shown in table 2.

**Table 2: DM complications questionnaire**

Questionnaire	Frequency	Percentage
Did patient suffer from any of following complication	P value =0.04	
Eye complications	39	15.9%
Cardiovascular complications	22	8.9%
Neuropathy	40	16.3%
teeth complications	26	10.6%
Diabetic foot	16	6.5%
Dermatological complications	10	4.1%
GIT complications	19	7.8%
Genital complications	12	4.9%
Nephropathy	28	11.4%

Recurrent infections	29	11.8%
Others	14	5.7%
Do you suffer from any problems of the following ?	P value =0.03	
Thyroid	14	5.7%
Adrenaline	2	0.8%
Asthma	16	6.5%
Allergy	36	14.7%
Autoimmune disease	23	9.4%
Not found	170	69.4%
Does the patient suffer from symptoms of hypoglycemia (paleness/freshness/headache/hunger or nausea/fatigue/rapid heartbeat/easiness of excitability and anxiety)?	P value = 0.832	
Yes	83	33.9%
No	74	30.2%
Often	88	35.9%
Does the patient suffer from symptoms of high blood sugar (fatigue / hunger / thirst / vision problems / persistent urination above normal / urination that wakes the patient up during the night)?	P value = 0.06	
Yes	150	61.2%
No	27	11%
Often	68	27.8%

Table 3 show the complain of the patients towards the DM. 39.6% were go to the emergency room or lie in the hospital because of diabetes. 73.9 % were complain to treatment, 4.9 % were not complain and 21.2% were often not complain. 33.5% were complain to diet, 26.9 % were not complain and 39.6% were often not complain. 62.1% were complain to measure his sugar regularly, 10.2 % were not complain and 27.7% were often not complain. 57.5% were use pills, 28.9% were use insulin and 2.1% were use both (insulin and pills), 7.8% were use pills and now insulin and 3.7 % were only diet.

**Table 3: DM complain questionnaire**

Questionnaire	No.	%
Did you go to the emergency room or lie in the hospital because of diabetes	97	39.6%
Is the patient Complain to treatment?	P value =0.029	
Yes	181	73.9%
No	12	4.9%
Often not complain	52	21.2%
Is the patient Complain to the diet?	P value = 0.03	
Yes	82	33.5%
No	66	26.9%
Often not complain	97	39.6%
Does the patient measure his sugar level regularly?	P value = 0.09	
Yes	152	62.1%
No	25	10.2%
Often	68	27.7%
Does the patient use pills or insulin?	P value = 0.049	
Pills	141	57.5%
Insulin	71	28.9%
Both (pills and insulin)	5	2.1%
Was pills and now insulin	19	7.8%
Only diet	9	3.7%

## DISCUSSION

Our study objectives to identify diabetes mellitus association with complications and complaints. In this part we will discuss the our results and compare the findings with other study.

The patients included in this study were male and female equal and major of them were recently diagnosed DM which 24.9% were between 2020- 2023 and 31% were between 2019-2015 and this result agree with study done in Netherland in 2019 by Verhulst *et al.*, [12].

Regarding the complication of the Dm we found there significant association complications (eye complication, cardiovascular complications, neuropathy, teeth complications, diabetic foot, dermatological complications, GIT complications, genital complications, nephropathy, recurrent infection) and there were association between problems of the DM (thyroid, adrenaline, asthma, allergy, autoimmune disease) and this study agree with study done in Japan in 2011 by Gono *et al.*, [13].

There were no association between diabetes mellitus and symptoms of hypoglycemia (paleness/freshness/headache/hunger or nausea/fatigue/rapid heartbeat/easiness of excitability and anxiety).

There were significant association between DM and complaint to medication, complaints to diet and using insulin and pills and this study agree with study done in Norway by Hoff *et al.*, [14].

There were no relationship between DM and measuring his sugar level regularly and this disagree with study above.

## CONCLUSION

- We conclude that were association between DM and complications (eye complication, cardiovascular complications, neuropathy, teeth complications, diabetic foot, dermatological complications, GIT complications, genital complications, nephropathy, recurrent infection) and there were association between problems of the DM (thyroid, adrenaline, asthma, allergy, autoimmune disease).
- There were significant association between DM and complaint to medication, complaints to diet and using insulin and pills

## Recommendations

- Further future study about this topic with larger sample size.
- Complaint of medications to prevent complications.
- Complaint of diet to prevent complications.
- Using insulin and pills.

- Measuring blood sugar regularly.

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