

## An Overview of Diabetes Prevalence in Yazd Province Based on Health Registry Data (2018-2019)

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### Abstract

**Objective:** Knowledge of the current status of diabetes in Yazd is crucial for health policy planning, maintaining stable disease prevalence rates and risk factors, and establishing evaluation indicators. This study aimed to investigate the prevalence of diabetes in Yazd Province in accordance with acceptable international standards in 2018–2019.

**Materials and Methods:** A cross-sectional descriptive study was conducted in Yazd Province in 2018–2019. The study population included all individuals living in the geographical areas of Yazd Province in 2018–2019 who had sought medical or preventive services at health centers or pharmacies. Data were obtained through collaboration with the Health Deputy (APPLE project), the Food and Drug Deputy (provincial pharmacies), insurance organizations (medical services, social security, relief committee, armed forces, banks, etc.), and the Diabetes Treatment Research Center.

**Results:** After removing duplicate data, 95,798 diabetic patients were registered. Approximately 58% of the patients were female and 42% were male. The mean age of the patients was  $59.2 \pm 13.34$  years. About 68% of the patients were receiving insulin treatment.

**Conclusion:** Considering the importance of diabetes and its increasing prevalence globally and especially in Yazd Province, and in order to implement a monitoring and continuous care program for the disease, an effort was made to present the overall picture of diabetes in the province.


**Keywords:** Yazd, Type 2 diabetes mellitus, Risk factors

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## Introduction

**D**iabetes is undoubtedly a major health challenge in the 21st century, affecting millions of people worldwide (1). In 2011, over 360 million adults, accounting for 8.3% of the global population, were diagnosed with diabetes, and projections indicate an increase to over 552 million by 2030. Diabetes is a leading cause of death globally and is associated with various complications such as cardiovascular problems, renal complications, hypoglycemia, and diabetic ketoacidosis (2-5).

The economic and public health burden of diabetes is significant, with costs for diabetic patients being substantial (6-8). The total annual direct and indirect costs of diabetic and non-diabetic patients in Iran show that the costs for a diabetic patient are 2.92 times higher than those for a non-diabetic person. Moreover, 53% of the total costs of diabetes are related to complications and their care (9). On the other hand, repeated studies have shown that geographic, ethnic, cultural, and epidemiological diversity play an important role in the spread of this disease (10).

Considering the importance of diabetes, its progressive prevalence, and the debilitating microvascular and macrovascular complications that affect diabetic patients, awareness of the occurrence of diabetes in each geographic region is crucial for preventive measures and appropriate care. It is important and necessary to implement a program for monitoring and providing continuous care for the disease. Knowledge of the current situation is crucial for health policy planning, maintaining consistent disease prevalence rates and risk factors, and determining evaluation indicators. This study aimed to investigate the prevalence of diabetes in Yazd Province in accordance with acceptable international standards in 2018-2019.

## Materials and methods

A cross-sectional descriptive study was conducted with the aim of determining the types of diabetes in Yazd Province in 2018-2019. The study population included all individuals living in the geographical areas of Yazd Province in 2018-2019 who had sought medical or preventive services at health centers or pharmacies. Data were obtained through collaboration with the Health Deputy (APPLE project), the Food and Drug Deputy (provincial pharmacies), insurance information (medical services, social security, relief committee, armed forces, banks, etc.), and the Diabetes Treatment Research Center. Yazd data were collected.

The inclusion criteria were as follows: all individuals registered as diabetic or diagnosed with diabetes, regardless of the type of diabetes or the diagnostic method, were included in the study. The collected information included demographic details, type of diabetes, treatment type, and hospitalization history, type of hospitalization and treatment, and mortality. To comply with ethical standards, this information was kept confidential. After collecting the information of all patients based on the national code, removing duplicate data, and verifying the data using SPSS v.20 and Excel software, the information was analyzed.

## Ethical considerations

This project was approved by ethics committee of Shahid Sadoughi University of Medical Sciences, Yazd. (No: IR.SSU.REC.1399.099)

## Results

After removing duplicate data, 95,798 diabetic patients were registered. The descriptive analysis is shown in Table 1. The relationship between age, gender, and medication is shown in Tables 2.

The mean ( $\pm$  SD) age of patients in male and female groups were 60.16 ( $\pm$  12.92) and 58.52 ( $\pm$  13.58). ( $P$ -value: 0.0001).

females seeking more preventive programs. Also the frequency of female patients is higher than males, may be due to true higher frequency or unknown male diabetic patients.

**Table 1. Descriptive analysis of Yazd diabetic patients**

Variable		Frequency	Percent
Gender	female	5558	58
	male	40231	42
Age Mean ( $\pm$ SD)		59.21 ( $\pm$ 13.34)	Range :7-98
Medication	Insulin	30945	32.3
	Oral med	64853	67.7
	Bank	170	0.2
	Tamin Ejtemaei	30066	31.4
	Khadamat Darmani	15081	15.7
Source of Data	SIB	27361	28.6
	Ghaza&Darou	11545	12.1
	Komite Emdad	310	0.3
	Yazd diabetes research center	11265	11.8

**Table 2. The relation of type of medication and studied variables**

variable		Oral med	Insulin	$P$ -value
Gender	Female	22831 (39.3%)	10852 (18.7%)	0.0001
	Male	17169 (29.5%)	7257 (12.5%)	
Age		58.95 (13.45)	57.97 (14.11)	0.0001
	Bank	105 (0.1%)	65 (0.1%)	
	Tamin Ejtemaei	18781 (19.6%)	11939 (12.5%)	
Source of data	Khadamat Darmani	1459 (1.5%)	12968 (13.5%)	0.0001
	SIB	7881 (8.2%)	19480 (20.3%)	
	Ghaza&Darou	1327 (1.4%)	10218 (10.7%)	
	Komite Emdad	51 (0.1%)	259 (0.3%)	
	Yazd diabetes research center	1381 (1.4%)	98841 (10.3%)	

## Conclusions

In general, in this study, considering the importance of diabetes and its increasing prevalence at the global level and especially in Yazd Province, and in order to implement a monitoring and continuous care program for the disease, an effort was made to outline the overall picture of diabetes in the province. In this regard, demographic information such as age and sex, as well as the type of medication used by diabetic patients, whose information was available through the aforementioned methods, was analyzed. The results show that female patients are younger than male patients, which may be explained by the fact that

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## Conflict of Interest

None

## Author contributions

N.N: statistical analysis and manuscript writing.

All of authors: data collection.

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