



## PREVALENCE OF DIABETES AND HYPERTENSION IN SAMARKAND UZBEKISTAN

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### Abstract

**Background:** Evaluation of the prevalence and severity of hypertension among diabetics is crucial for effective management of hypertension and its potentially fatal effects. This evaluation is essential for effective management of hypertension. This research was conducted with the intention of determining the prevalence of hypertension and diabetes in Samarkand, which is located in Uzbekistan.

**Objective:** To determine the prevalence of diabetes and hypertension in Samarkand, Uzbekistan.

**Methods:** It is a cross sectional study design. The participants were selected through simple random sampling. During participants' usual checkups, blood pressure (BP) was monitored. Information about demographic variables like age, gender etc., family history and HbA1c value was gathered through medical history.

**Results:** In this study a sample of 1382 participants were taken who had diabetes and hypertension. 662(47.9%) were males and 720(52.1%) were females. 433(42%) of the participants had HbA1c > 7%. About 1362(98.6%) of the Twenty of the participants, or 1.4%, did not have a history of hypertension, while the other participants had a family history of hypertension. About 970 (or 70.2%) of the participants had a history of diabetes in their family, while 412 (or 29.8%) of them did not have a history of diabetes in their family. Diabetes was found to be prevalent in 74% of the population.

**Keywords:** Hypertension, Type 2 diabetes mellitus, Prevalence





## Introduction

Hypertension is the main cause of early morbidity and mortality rate globally. People with diabetes mellitus (DM) have a prevalence of hypertension that ranges from thirty two or eighty two percent, which is greater than those patients not having diabetes and having the same chronological age and gender (Basit, Tanveer, Fawwad, & Naeem, 2020). Systolic blood pressure (BP) of one fourth mmHg and/or diastolic blood pressure of at ninety mmHg are indicators of the disease (Abdissa & Kene, 2020). Hypertension is one of the major causes of disease burden in the globe and is expected to cause seven million deaths yearly, or around twelve percent of all deaths globally. (Oparil et al., 2018). Hypertension, a global public health concern, is a significant contributor to a variety of cardiac diseases and mortality in people with diabetes. (Mills, Stefanescu, & He, 2020). According to earlier observational studies, the occurrence of hypertension in diabetic population is about double (Wild, Roglic, Green, Sicree, & King, 2004). Additionally, hypertension is the most prevalent comorbid condition among diabetic patients when compared to other cardiovascular diseases. Eighty percent of diabetes patient will die from heart disease, primarily hypertension and stroke since most diabetes patients develop hypertension, according to a 2009 WHO estimate. Hypertension, which is one of the primary risk factors for heart-related diseases, has an effect on every community on the planet. Uncontrolled hypertension has several different causes (Unadike, Eregie, & Ohwovoriole, 2011). Numerous studies from all over the world have demonstrated that lifestyle factors, such as physical activity and diet, are crucial for managing hypertension and avoiding its long-term consequences (Tsimihodimos, Gonzalez-Villalpando, Meigs, & Ferrannini, 2018). Since hypertension and the risk of cardiovascular events are linked persistently and continuously, controlling hypertension in diabetics can significantly impact the course of cardiovascular disease. Patients with diabetes are about twice as likely to have hypertension as individuals without the disease (Chung, Won, & Journal, 2011). 81% of T2DM pass away from CVA, particularly from stroke and hypertension (Abdissa, Kene, Targets, & Therapy, 2020). Death rate is increased by seven times when Diabetes and hypertension occurs together (Vargas-Uricoechea & Cáceres-Acosta, 2018). The presence of hypertension is also associated with a forty-four percent rise in the risk of heart abnormalities and the death rate in diabetes individuals.

Healthcare providers will be better able to address the effects on patients if the causes of hypertension in diabetic patients are clarified. In addition, it can assist in the development of effective strategies for cost-cutting in the healthcare industry. There is currently no published data in Uzbekistan that supports the causes of hypertension





in diabetic people. In order to ascertain the causes of hypertension in diabetic patients in Samarkand, Uzbekistan, the current investigation was performed. For the purpose of organizing future research, The current study will provide data on the frequency of hypertension and its aetiology among individuals with diabetes.

### **Literature review**

Hypertension among diabetes patients is one of the major public health issues. Patients with diabetes experience hypertension about twice as frequently as patients without diabetes. This study aims to pinpoint the elements that cause hypertension in adults with diabetes. An inpatient tertiary care hospital's diabetic clinics participated in this cross-sectional investigation. This cross-sectional investigation was carried out in tertiary care hospital diabetic clinics. In this investigation, gender, activity level, family medical history, smoking status, BMI, sedentary lifestyle, anxiety levels, were found to be linked to hypertension in individuals with diabetes. Due to the study's findings, it is imperative for practitioners to initiate patient education regarding hypertension and its prevention. Furthermore, it is imperative to devise methodologies that can precisely focus on these elements (Salameh et al., 2022).

Evaluating the prevalence and development of hypertension among diabetics is crucial for the optimal treatment of hypertensive disorders and its possibly deadly effects. This study looked at Jordanian individuals with type 2 diabetes mellitus (T2DM) to assess the prevalence, severity, and causes of hypertension. Thirteen hundred Jordanian patients with type 2 diabetes were the subject of a cross-sectional investigation. Every two to three months, for a total of twelve months, blood pressure (BP) was tracked and measured during patients' routine visits. Sociodemographic information, HbA1c, serum lipids, the occurrence of diabetes comorbidities, and medication information were all extracted from medical records. At the beginning of the study, seventy four percent of the individual had diabetes and increase blood pressure. Among individual with diabetes who had no history of hypertension at the start of the study, the occurrence of hypertension was twenty six percent. Compared to patients taking only oral hypoglycemic medications, those using insulin alone had a lower risk of uncontrolled hypertension(Shah, Shah, & Shah, 2018).

**Relevance:** The current study will give information on the frequency of occurrence of hypertension and diabetes in the population. It will help the Healthcare providers to be better able to address this public health issues by implementing the policies.

**Purpose of the study:** The purpose of determine the prevalence of diabetes and hypertension in Samarkand, Uzbekistan. Information on the frequency of hypertension and its causes among diabetic patients will be provided by the current





study. By putting the policies into practice, it will assist the healthcare professionals in better addressing these public health challenges.

### Material or method of research

A cross sectional study was held among 1382 Uzbek participants. Blood pressure (BP) was monitored using a standardized automated sphygmomanometer. Information about demographic variables like age, gender etc., family history and HbA1c value was gathered through medical history. Type 1 diabetics, people with end-stage renal illness, women with gestational diabetes, and people under the age of 18 were all disqualified from the study. Before the study began, each patient provided their informed consent.

### Results

In this study a sample of 1382 participants were taken who had diabetes and hypertension. 662(47.9%) were males and 720(52.1%) were females. 433(42%) of the participants had HbA1c > 7%. About 1362(98.6%) of the participants had a family history of hypertension and 20(1.4%) don't had a history of hypertension. About 970(70.2%) of the participants had a family history of diabetes and 412(29.8%) don't had a history of diabetes.

Variable	N (%) n
<b>Age (years)</b>	
Below 60	675 (48.9)
Above 60	707 (51.1)
<b>Gender</b>	
Male	662 (47.9)
Female	720 (52.1)
<b>Marital status</b>	
Married	1229 (88.9)
Single	153(11.1)
<b>Residence</b>	
Urban	840 (61.9)
Rural	518 (38.1)
<b>HbA1c (&gt; 7%)</b>	433 (42)
<b>Family history of hypertension</b>	
Present	1362 (98.6)
Absent	20 (1.4)
<b>Family history of diabetes</b>	
Present	970 (70.2)
Absent	412 (29.8)



Patients with diabetes were found to have a 74.2% overall prevalence of hypertension. Table 2 lists the traits of people who had or did not have hypertension. Patients with hypertension had substantially older mean ages than those without. In patients without hypertension, it was much greater, and it was present in nearly half of patients with hypertension.

Variable	Hypertension		
	Yes	No	
<b>Age (years)</b>			
Below 60	231 (45.2)	219 (38.4)	0.028
Above 60	281 (54.8)	320 (61.6)	
<b>Gender</b>			
Male	245 (47.8)	250 (48.3)	0.82
Female	267 (52.2)	269 (51.7)	
<b>Marital status</b>			
Married	452 (88.2)	460 (89)	0.789
Single	60(11.8)	59(11)	
<b>Residence</b>			
Urban	328 (64.0)	328 (63)	0.875
Rural	184 (36)	192 (37)	
<b>HbA1c (&gt; 7%)</b>			
Controlled (<7)	235 (46)	198 (39)	0.007
Uncontrolled (≥7)	277 (54)	321 (61)	
<b>Family history of hypertension</b>			
<b>Present</b>	509 (99.4)	507 (97.6)	0.012
<b>Absent</b>	3(0.6)	12 (2.4)	
<b>Family history of diabetes</b>			
<b>Present</b>	382 (76.5)	384 (73.9)	0.876
<b>Absent</b>	130(23)	135 (26.1)	#NAME?

### Conclusion:

In conclusion, there is an unacceptably high prevalence of hypertension among Uzbekistani Patients with diabetes. Healthcare professionals should be dedicated to policies or preventive measures that focus on the hypertension-related modifiable risk factors.



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