

## Research Article

# Prevalence of Complexities Hypertension Associated with Type 2 Diabetes: A Cross Sectional Study

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## ABSTRACT

**Background:** Diabetes is a disease that changes the effectiveness and production of hormone insulin. Diabetes prevalence was increases day by day, in Pakistan 9.8% people was affected with diabetes. Asia in particular is considered one of the areas of highest increase in projected numbers of diabetes patients.

**Aim:** Our objective of study is to aware people about prevalence of diabetes and hypertension which is a major complication related to this.

**Materials and methods:** The cross-sectional study in which 350 patients samples was collected from three different cities of Pakistan and presented the prevalence in them on socio-demographic variables base. Hypertension associated

with diabetes prevalence was also evaluated.

**Results:** Results was shown that prevalence of diabetes was more in females than males and a large number of patients of diabetes having hypertension. Diabetes prevalence was also more in urban patients that rural which 55.7% according to our study was. Diabetes associated with hypertension was also more common in Graduates that illiterates.

**Conclusion:** we concluded that life style modifications are needed for to improve this. A timely national programme for prevention, early diagnosis and to address the modifiable risk factors is a need of the hour to lessen the socio- economic burden of the disease.

**Keyword:** Diabetes; Socio-demographic; Cross-sectional

## Introduction

Hypertension is a state of elevated blood pressure defined as >140 mm Hg systolic and or >90 diastolic blood pressure. Hypertension is also associated with diabetes complications. If you are diabetic then average blood pressure must be 130/80 mm Hg. Type 2 diabetes is estimated to affect 150 million of people world-wide. This range increases day by day due to some life style modifications or demographic changes environments [1-3]. Frequency of hypertension in diabetic patients is more than no diabetic patients. Usually diabetes and hypertension co-exist and this was the major cause of cardiovascular problem and causes death of diabetic patients. Diabetes mellitus is a major clinical and public health problem accounting for 4.6 million deaths annually world-wide. The recent surveys indicates that diabetes now effect a large part of population, i.e., 12-18% in urban areas and 3-7% in rural areas of Pakistan [4-6]. The quality of life is also mostly effected adult aged people recently, due to which great number of increase in diabetes prevalence in developing countries. The major aim of our study is to estimate the prevalence of diabetes associated with hypertension considering different variables [7,8].

## Materials and Methods

A cross-sectional study was conducted in three different districts of Punjab, Pakistan (Gujranwala, Lahore, Sargodha)

and samples was collected randomly from October 2016-May 2017. A sample size is 350. Inclusion and exclusion criteria of this study is that all patients with type 2 diabetes was included in this study other all were excluded. Data was collected on a structured questionnaire which prepared for to gathered sociodemographic variable (Age, Education and Gender) and Smokers. For to association of hypertension blood pressure was measured by standardized sphygmomanometer and reading two times for confirmation. We used Microsoft excel version 2013 for data evaluation.

## Results

### Prevalence of type 2 diabetes associated with hypertension

In our results we presented the prevalence of diabetes on the basis of sociodemographic variables. In which we can evaluated that diabetes was more in females than males which was 61.71% and 38.28%, respectively but on the other hand hypertension ratio associated with diabetes was almost same in both. On the other hand diabetes was more in 50-60 years of age patients which is 39.71% and hypertension was also more in these patients. Our study was also presented that diabetes associated with hypertension was also more common in Graduate people of our country. Diabetes was also more in urban residents which was 55.72% and in rural was 44.28% as shown in Table 1.

**Table 1:** Sociodemographic prevalence of diabetes associated with hypertension.

	Total Diabetic N (%)	Hypertension	
		Yes N (%)	No N (%)
<b>Gender</b>			
Females	216 (61.71)	163 (75.4)	53 (15.14)
Males	134 (38.28)	102 (76.11)	32 (23.8)
<b>Age (Years)</b>			
<40 years	93 (26.57)	62 (66.7)	31 (33.3)
40-50 years	118 (33.71)	83 (70.3)	35 (29.7)
50-60 years	139 (39.71)	120 (86.3)	19 (13.7)
<b>Education</b>			
Illiteracy	116 (33.14)	82 (70.7)	34 (29.3)
Matric	101 (28.8)	76 (75.24)	25 (24.7)
Graduates	133 (38.0)	107 (80.4)	26 (19.5)
<b>Area</b>			
Urban	195 (55.72)	156 (80.0)	39 (20.0)
Rural	155 (44.28)	109 (70.3)	46 (29.6)
<b>Smoking Status</b>			
Current Smokers	43 (12.3)	39 (90.7)	4 (9.3)
No Smokers	307 (87.7)	226 (73.6)	81 (26.4)

**Table 2:** Compare the prevalence of hypertension among different cities.

	Sample Size N (%)	Total Diabetic N (%)	Hypertension	
			Yes N (%)	No N (%)
Gujranwala	120 (34.28)	120	95 (79.2)	25 (20.9)
Lahore	130 (37.14)	130	102 (78.4)	28 (21.5)
Sargodha	100 (28.57)	100	68 (68.0)	32 (32.0)

### Compare the prevalence of Hypertension in different cities

We also compare the prevalence of hypertension associated with diabetes of different districts and concluded that hypertension range was Gujranwala>Lahore>Sargodha which was 79.2%, 78.4% and 68.0%, respectively as show in Table 2.

### Discussion

It is assumed that diabetes prevalence rete was rising in Pakistan. This study was carried out in three different big cities of Pakistan. In this we described the prevalence of diabetes on the basis of sociodemographic data. Our study shown that diabetes was more in females with 61.71% and in males with 38.28%. We also concluded that diabetes and hypertension complexities was increases with increasing age as in less than 40 years patients diabetes prevalence is 26.57% and in 50-60 years of age its prevalence is 39.71%. We also showed from results that diabetes was more common in illiterate population which is 33.14% because they don't know about proper diet plan management. According to previous studies Berraho [9] which proves that diabetes was more in females than male same results was of our study that diabetes was more in females than males which were 61.71% and 38.28%, respectively. One other study is

that Zafar [10] indicates that diabetes was more in aged people and hypertension was also increases with increasing age. Same results was proved by our study that type 2 diabetes patients was increases by increasing ages and same case in hypertension associated with diabetes. In our study if we see overall 75.7% patients having hypertension associated with diabetes which was a big value. The prevalence of diabetes and pre-diabetes was very high. Prevalence increased with increasing age and body mass index. Major independent risk factors were increasing age, central obesity and family history of diabetes and hypertension. Hypertension is a major cause of cardio-vascular problems and ischemic heart disease which causes immediate death of Patient [10-13].

### Conclusion

We concluded that diabetes rate increases day by day. So we must consider some preventive measures for to improve this and complications related to this. Diabetes can be improved or recovered by life style modifications. Diabetes educators and diabetes specialist can play a major role in this issue. Hypertension was strongly associated with the diabetes. A timely national programme for prevention, early diagnosis and to address the modifiable risk factors is a need of the hour to lessen the socio- economic burden of the disease. The

role of awareness programs and community-based screening campaigns against diabetes should not be overruled. These efforts will surely help reduce the burden of the disease.

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