



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES<http://doi.org/10.5281/zenodo.3897952>Available online at: <http://www.iajps.com>

Research Article

**PREVALENCE AND OCCURRENCE OF DIABETES IN
RURAL AREAS OF LAHORE**

Ammad Qayyum, Ehsan ul Haq, Muhammad Rauf

Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur AJK

Article Received: April 2020

Accepted: May 2020

Published: June 2020

Abstract:

Diabetes describes metabolic disorders of various etiologies, characterized by chronic hyperglycemia with disorders of carbohydrate, protein and fat metabolism resulting from defects in insulin secretion, insulin action or both.

Objective: To diagnose new cases of diabetes in underdeveloped rural areas of Lahore

Study Design: An observational study.

Place and duration of the study: In the Medicine departments of Services Hospital Lahore for one year duration from March 2019 to March 2020.

Methods: Six hundred and two patients with diagnosed diabetes of both sexes, men and women, were divided into two groups. The first group was type I diabetes (30 patients) and the group two (572 patients). General physical examination, blood pressure, random blood sugar, fasting blood sugar, hemoglobin A1C and weight were calculated and recorded at the first visit and during the study period. Patients with alcoholism, peptic ulcer, kidney disease, liver disease, hypothyroidism, and hyperthyroidism were excluded from the study. The procedure was explained to patients and the patients' written consent was taken. Data were expressed as a percentage calculated at the end of the study and analyzed using the paired "t" test to determine the significance of the difference. The probability value <0.05 was the limit of significance.

Results: 30 out of 602 patients with selected diabetes had type I diabetes, and 572 patients were associated with type II diabetes. The difference between these two groups of patients is 90.04 ± 4.04 , which is extremely important at P values <0.001 . During the study of gender data, only 222 of 602 patients were female. Men with diabetes were 380. The difference between the groups is 26.24 ± 8.47 , which is significant when statistically analyzed and shows a P value <0.01 .

Conclusion: Finally, we came to the conclusion from our study that patients with type II diabetes increased sharply compared with type-I diabetes.

Key words: diabetes (DM), type I diabetes or insulin dependent diabetes mellitus (IDDM), type II diabetes or non-insulin dependent diabetes mellitus (NIDDM).

Corresponding author:

Ammad Qayyum,

Mohtarma Benazir Bhutto Shaheed Medical College, Mirpur AJK

QR code



Please cite this article in press Ammad Qayyum et al., *Prevalence And Occurrence Of Diabetes In Rural Areas Of Lahore.*, Indo Am. J. P. Sci, 2020; 07(06).

INTRODUCTION:

The term Diabetes describes a metabolic disorder with many different etiologies, characterized by chronic hyperglycemia with changes in carbohydrate, fat and protein metabolism due to insulin secretion, insulin action, or both¹⁻². The effects of diabetes include long-term damage, dysfunction and failure of various organs. Diabetes can occur with characteristic symptoms such as thirst, polyuria, blurred vision and weight loss³⁻⁴. It is estimated that the number of adults with diabetes in the world will increase from 135 million in 1995 to 300 million in 2025. In 2000, it is estimated that 171 million people worldwide have diabetes, and by 2030⁵⁻⁶. This number will double. Type 1 diabetes, previously known as insulin-dependent or childhood-related diabetes, is characterized by a lack of insulin production. In this type of diabetes, patients always need insulin and are prone to ketoacidosis and weight loss. Type 11 diabetes is a multifactorial metabolic disease characterized by abnormalities in many organs. These effects include insulin resistance and insulin deficiency⁷. Type 11 diabetes can be defined as a syndrome characterized by insulin deficiency alone or increased hepatic glucose production. A hard, obese and well-fed population is two to twenty times more susceptible to developing type 11 diabetes compared to thin populations of the same race. The incidence of NIDDM type 11 in the United States has increased significantly over the past two decades⁸. NIDDM (non-insulin dependent diabetes) is a common disease associated with high mortality and morbidity due to macrovascular and microvascular complications. There is about three time's greater risk for all cardiovascular diseases, and life

expectancy is significantly reduced at all ages⁹. In their fourth or fifth life, people with diabetes have twice the mortality rate compared to the control population.

PATIENTS AND METHODS:

This observational study was held in the Medicine departments of Services Hospital Lahore for one year duration from March 2019 to March 2020 to see the occurrence and compare the incidence of type I and type II DMs. During this study period, the total number of patients hospitalized after the patient exclusion criteria, i.e. alcoholism, peptic ulcer, kidney disease, liver disease, hypothyroidism and hyperthyroidism was selected. Six hundred and two diabetic patients were selected, both men and women, and then divided into two groups. The weight was estimated / calculated during the general physical examination, blood pressure, random blood sugar, fasting blood glucose, HBA1C, first examination, and then monthly visit. Both diabetic patients were treated with anti-diabetic drugs according to their blood sugar levels. The procedure was explained to patients before written consent. The data was saved in Performa, which was designed for further analysis. There were two groups of patients, therefore the paired t test was used for statistical analysis. The data were compared as a percentage, and then the P value was determined and the borderline significance P value was <0.05.

RESULTS:

Of the 602 selected diabetic patients, it was observed that only 30 patients had type I diabetes. Five hundred and seventy-two patients had type II diabetes, as shown in Table 1.

Table 1: Comparison of diabetic patients in type 1 and type 11 diabetes, showing % and P-value at the end of study

Types of Diabetes	n=	%age	Difference between groups
Type I DM	30	04.98	
Type 11 DM	572	95.02	90.04 ± 4.04

When the number of patients was expressed as a percentage, it was 4.98% of type I and 95, 02% of patients with type II diabetes. The difference between these two groups is 90.04 ± 4.04. When the paired t test was used to analyze the significance of the difference between the two groups, the P value was <0.001, which is very statistically significant. Depending on the sex, male and female patients were divided into two groups. We observed that out of six hundred and two patients, three hundred and eighty patients were men. There were 63 (12%). Only two hundred and twenty-two women suffered from diabetes. The percentage was 36.88%. The difference between the two groups is 26.24 ± 8.47. When the difference was statistically analyzed using the paired "t" test, it was significant, i.e. P-value <0.01 as shown in Table 2.

Table 2: Comparison of Diabetic patients in two genders, showing % and P-value at the end of study

Gender of Diabetic patients	=n	%age	Difference between groups
Male patients	380	63.12	26.24 ± 8.47
Female patients	222	36.88	

DISCUSSION:

The goal of our four-year study was to determine the prevalence of type II diabetes in the rural province of Sindh in Pakistan. The results of our research and observations John L. M. et al. His work was also a long-term four-year study. They observed the same results. Epidemiology and complications of diabetes were the same as in our study⁹⁻¹⁰. Krische Daniel explained the occurrence and occurrence of type II diabetes. He noticed that Type II diabetes mellitus increased. The cause may be insulin resistance to normal levels of circulating hormones. This insulin resistance may start at an early age and lead to other complications such as hypertension, dyslipidemia and obesity. At a young age, there may be a risk of hyperlipidemia, obesity and etiology of hypertension or hyperglycemia. Our observations coincide with those of Matthew RC, who observed the same incidence of type II DM in 1,100 men and women aged 30-70. In their research they chose obese, hyperlipidemia, hypertension, chain smokers and simple people. They then explained that a sedentary lifestyle, limiting physical exertion, taking junk food and smoking are strong and safe factors that are predisposed to the appearance of type II diabetes in Western society¹¹. Another study by Marwat MA and Wazir ZM discussed that increased obesity and reduced physical activity in Western societies is strongly associated with the increased incidence and incidence of type II diabetes. Dabelea D et al found that glycemic control gradually deteriorates with longer diet and exercise treatment alone. Pharmacotherapy begins when dietary measures and exercise are ineffective¹². The Canadian Diabetes Association has recently proposed combination therapy as first-line treatment for type II diabetes, but current guidelines by the American Diabetes Association suggest a gradual approach. They suggested that a target HbA1c level below 6.0%, depending on the risk of hypoglycemia, should be considered controlled hyperglycemia. In addition, there is a potential benefit of postprandial glucose lowering agents. All patients were women in their studies. This difference may be due to the large sample size (2,560 patients), the well-controlled environment in the research center (patients in the diabetes center) and the only female in the study. They explained that type I diabetes was considered an autoimmune disorder, indicating that beta cells producing insulin in the pancreas are slowly being destroyed. Finally, insulin deficiency is absolute. Without insulin transporting glucose into cells, blood glucose levels increase excessively; because the body cannot use sugar, it is poured into urine and disappears. Weakness, weight loss, frequent urination, and extreme hunger and thirst are among the first signs. Patients with type I diabetes must take insulin daily to survive. Our results do not coincide with the results of studies conducted by Retnakaran R and Zinman B, who observed the

incidence and incidence of type I diabetes in 2008¹³⁻¹⁴. In men, only 56% of them had type II diabetes in 2008. This difference may be due to genetic diversity, since all patients are from the African continent. Another reason for this difference may be the age factor, because the criteria for inclusion in the study at its age were 17-30 years¹⁵.

CONCLUSION:

Finally, our study shows that the number of patients with type II diabetes has increased rapidly in the rural population of Lahore Pakistan compared to patients with type I diabetes during the study period.

REFERENCES:

1. Zhao M, Lin H, Yuan Y, Liu L, Liu B, Wang F, Xi Y, Shen P, Wen LM, Bu S. The prevalence and associated factors of type 2 diabetes in rural areas of Ningbo, China. *International Journal of Diabetes in Developing Countries*. 2019 Oct 1;39(4):698-706.
2. McLeod L, Bharadwaj L, Epp TY, Waldner CL. Bayesian Hierarchical Models as Tools to Evaluate the Association Between Groundwater Quality and the Occurrence of Type 2 Diabetes in Rural Saskatchewan, Canada. *Archives of environmental contamination and toxicology*. 2019 Apr 1;76(3):375-93.
3. Anderson P, Grills N, Singh R, Singh R, Evans RG, Sengupta P, Thrift AG. Prevalence of diabetes and pre-diabetes in rural Tehri Garhwal, India: influence of diagnostic method. *BMC public health*. 2019 Dec;19(1):817.
4. Forouhi NG, Wareham NJ. Epidemiology of diabetes. *Medicine*. 2019 Jan 1;47(1):22-7.
5. Hassan FM, Khatab AA, El-Fotoh WM, Ganh IN. Prevalence of diabetes mellitus among school-age children. *Menoufia Medical Journal*. 2019 Jan 1;32(1):305.
6. Aung WP, Bjertness E, Htet AS, Stigum H, Kjøllesdal MK. Trends in Diabetes Prevalence, Awareness, Treatment and Control in Yangon Region, Myanmar, Between 2004 and 2014, Two Cross-Sectional Studies. *International journal of environmental research and public health*. 2019 Jan;16(18):3461.
7. Xin CA, Min YA, Bo HX, Ling TX, Ya LI, Nan HU, Sheng CM, Wei TW, Xiao MA, Hua XR. Prevalence and Rates of New Diagnosis and Missed Diagnosis of Diabetes Mellitus among 35-74-year-old Residents in Urban Communities in Southwest China. *Biomedical and Environmental Sciences*. 2019 Sep 1;32(9):704-9.
8. Meharry PM, Tengera O, Rulisa S, Byambu AK, Nietert PJ, Byiringiro S, Habimana C, Gishoma C, King LR. Prevalence of gestational diabetes mellitus among women attending antenatal care at public health centers in

- Rwanda. diabetes research and clinical practice. 2019 May 1;151:252-9.
9. Aamir AH, Ul-Haq Z, Mahar SA, Qureshi FM, Ahmad I, Jawa A, Sheikh A, Raza A, Fazid S, Jadoon Z, Ishtiaq O. Diabetes Prevalence Survey of Pakistan (DPS-PAK): prevalence of type 2 diabetes mellitus and prediabetes using HbA1c: a population-based survey from Pakistan. *BMJ open*. 2019 Feb 1;9(2):e025300.
 10. Li J, Ni J, Wu Y, Zhang H, Liu J, Tu J, Cui J, Ning X, Wang J. Sex differences in the prevalence, awareness, treatment, and control of diabetes mellitus among adults aged 45 years and older in rural areas of northern China: a cross-sectional, population-based study. *Frontiers in endocrinology*. 2019;10.
 11. Nimavat NK, Dadwani RS, Kartha GP. Prevalence of gestational diabetes mellitus and associated risk factors amongst antenatal women attending urban health centre of Rajkot City, Gujarat. *International Journal of Community Medicine and Public Health*. 2019 Jul;6(7):3033-7.
 12. Telo GH, Cureau FV, Szklo M, Bloch KV, Schaan BD. Prevalence of type 2 diabetes among adolescents in Brazil: Findings from Study of Cardiovascular Risk in Adolescents (ERICA). *Pediatric diabetes*. 2019 Jun;20(4):389-96.
 13. Liu X, Zhang Q, Raffenaud A, Ge L, Xiong W, Liu Y. Prevalence and risk factors of diabetes among urban residents in Luzhou City, China. *International Journal of Diabetes in Developing Countries*. 2019 Apr 1;39(2):374-9.
 14. Ren YC, Liu Y, Sun XZ, Wang BY, Liu Y, Ni H, Zhao Y, Liu D, Liu X, Zhang D, Liu F. Prevalence and relationship of hypertriglyceridaemic-waist phenotype and type 2 diabetes mellitus among a rural adult Chinese population. *Public health nutrition*. 2019 Jun;22(8):1361-6.
 15. Liu F, Guo Y, Liu Y, Chen G, Wang Y, Xue X, Liu S, Huo W, Mao Z, Hou Y, Lu Y. Associations of long-term exposure to PM1, PM2. 5, NO2 with type 2 diabetes mellitus prevalence and fasting blood glucose levels in Chinese rural populations. *Environment international*. 2019 Dec 1;133:105213.