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Research Article

**OCCURRENCE OF TYPE-2 DIABETES AND ASSOCIATED
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Abstract:

Objective: The main aim of this research work is to interrogate the occurrence of type-2 diabetes and associated factor of risks in the district of Lahore, Punjab, Pakistan.

Methodology: This research work was a transverse research work in which the analysis of one thousand six hundred and fifty persons from twenty to eighty year of age, carried out with the utilization of random sampling method. After the fast of one complete night, the analysis of pre-diabetes & diabetes type-2 carried out in accordance with the standards of WHO.

Results: The occurrence of diabetes type-2 and pre-diabetes was 11.10% & 16% correspondingly. Type-2 diabetes was present in 11% women & 11.20% men. Logistic regression in accordance with steps displayed that enhance age, family positive history, obesity, hypertension, no exercises, qualification & income of monthly basis are the vital risk factors linked with diabetes type-2.

Conclusion: The findings of this research work show that type-2 diabetes is very serious health issue in the district of Lahore and there is requirement of good prevention strategies to tackle this complication.

KEY WORDS: Body mass index, requirement, tackle, diabetes, methodology, regression, transverse.

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INTRODUCTION:

Type-2 diabetes is a serious issue of health in the whole world, having influenced greater than four hundred and fifteen million persons & there is expectation it will reach to six hundred and forty-two million by the end of year 2040 [1]. The incidence of this disease is increasing very fast from last twenty years with obesity [13]. The amount of the persons suffering from diabetes will rise to 69.0% in the countries which are under development from 2010-2030 [4]. One research work displayed that diabetes is the fourth main cause of death in various modern world countries [5]. In our country Pakistan, WHO has concluded that 12.90 million persons are suffering from diabetes, 9.40 million patients of diabetes confirmed the diagnosis & 3.50 million patients are still undiagnosed [6].

One research work displayed that our country at number seven having type-2 diabetes & it will reach to number four by the end of year 2030 [6]. There is a report that 120,000 persons will meet their death every year in our country Pakistan as a result of type-2 diabetes [7]. There is a large amount of research works to evaluate the occurrence and to interrogate the various factors of risks of type-2 diabetes in various cities of Pakistan [8-12]. Various research works have elaborated that prevention from type-2 diabetes is possible with the help of change in dietary habits and change of the life style [13-16]. One research work displayed that a rigorous life style showed a 58.0% decrease in the prevalence of diabetes [17]. In this research work we diagnosed the occurrence of diabetes type-2 in Lahore, then we assessed various risk factors as BMI, advanced age, qualification, family history, hypertension, no physical activity & life style.

METHODS:

We utilized the random sampling technique to select the participants of more than twenty years of age in this research work. We selected patients from each union of the district. There were total 1650 persons from both genders in this research work. The females with pregnancy were not the part of this research work. A well-organized questionnaire was in use for the collection of information by our professional staff. Information contained demographic traits, family history, level of qualification, profession, level of monthly income and smoking [18]. Every participant gave written consent to participate in the research work. The screening of the patients carried out for the plasma glucose in fasting in the time of morning

utilizing glucometer. They were not eating anything from last eight hours.

WHO standards were in use for hypertension, BMI & diabetes type-2 [6]. Ethical committee of the institute Jinnah Hospital Lahore gave the approval to conduct this research work. Every patient gave written consent to participate in the research work. Percentages were in use for the presentation of diabetes & pre-diabetes. Chi square test was in utilization to evaluate the trends prevailing in type-2 diabetes and pre-diabetes among various groups of age. To investigate the effects of various risk factors on the occurrence of this disease logistic regression was in utilization. There were three categories of response variables as normal, diabetes & pre-diabetes. Various independent variables were patient's age, gender, profession, income on monthly basis, exercise, family history, high BP, fatness etc. SPSS V.20 was in use for the statistical analysis of the collected information.

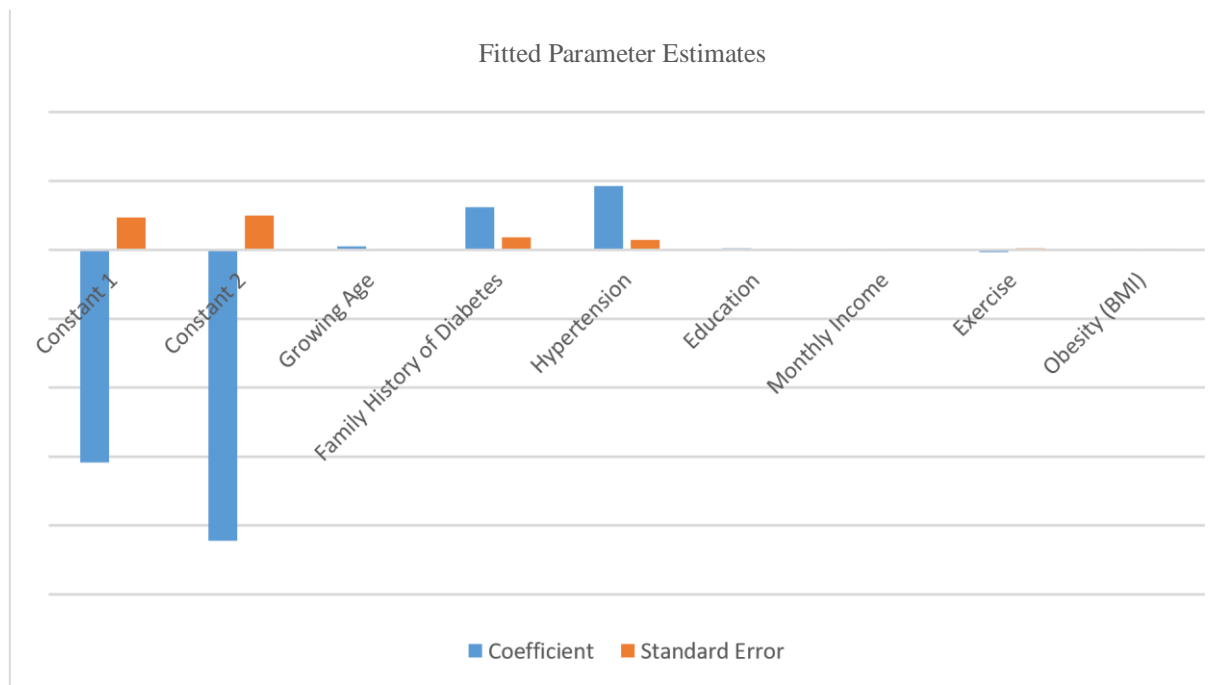
RESULTS:

We examined the occurrence of diabetes type-2 and pre-diabetes for one thousand six hundred and fifty participants having age from twenty to eighty years. There were eight hundred and eleven female and eight hundred and thirty-nine male patients. The overall occurrence of diabetes & pre-diabetes were 11.10% & 15.70%, correspondingly.

The occurrence of pre-diabetes was very high in comparison with the diabetes in age groups: age group from 20 to 34 years (pre-diabetes 7.70% vs diabetes type-2 3.230), age group from 50 to 65 years (pre-diabetes 16.90% vs diabetes 11.90%). There was not much significant disparity of the incidence of diabetes & pre-diabetes in the groups of age as age group from 35 to 49 years (pre-diabetes 11.50% vs diabetes 8.250) & age group of sixty-five years or greater age (pre-diabetes 27.20% vs 20.70% diabetes). The logistic regression displayed that advanced age, fatness, family past history, no physical activity, level of education, monthly salary and hypertension are very important factors of risk which have association with high danger of diabetes type-2. Table-1 is describing the coefficients of risk factors mentioned above. Some coefficients as advanced age, past history of family for diabetes, level of education, monthly salary & hypertension were available as negative. This means that high amount of rise in these factors have the ability to enhance the possibility of diabetes.

Table-I: Fitted parameter estimates using stepwise logistic regression.

Parameters	Coefficient	Standard Error	P value
Constant 1	-6.1730	0.9300	0
Constant 2	-8.4520	0.9930	0
Growing Age	0.1040	0.0090	0
Family History of Diabetes	1.2440	0.3660	0
Hypertension	1.8430	0.2850	0
Education	0.0520	0.0200	0.0300
Monthly Income	0.0001	0.0001	0
Exercise	-0.0670	0.0470	0.0450
Obesity (BMI)	0.0170	0.0330	0.0110

**DISCUSSION:**

The findings of this research work are depending upon the complete incident figures of Type-2 diabetes from the samples of this research work. The total occurrence in this research work was 26.10% in both genders which was much high in comparison with the previous research works carried out in three different non-urban areas of KPK province [9] (20.50%), & and other remaining provinces like Sindh [19] (25.0%) and Baluchistan [10] (22.0%). The high amount of the abnormality to the tolerance to glucose level was

available in 25.10% males & 26.40% females & increase of the prevalence of disease with the increase of the age is much alarming. In accordance with the study of WHO on demography, the incidence of diabetes type-2 in our country Pakistan in the year of 1995 concluded a rise in type-2 diabetes from 4.30 million in the year of 1995 to 14.50 million in the year of 2025.

Then Pakistan will be at number rank among first ten reporting countries about diabetes in the whole world

[20]. There are many factors responsible for the immediate rise in the patients of diabetes as urbanization and change in the style of life [21].our results also display that the occurrence of pre-diabetes is higher than the diabetes which hint the possibility for future rise in the amount of patients of diabetes in persons with elder age. Moreover, our assessment displayed that enhance age, hypertension, family history of diabetes and monthly income are very important risk factors for the occurrence of diabetes. The results are very much similar with the findings of the past research works [8-12].

A very important risk factor for this disease in the population of Asia is high prevalence of the disease in the family and close relatives. Consanguinity can have relation with the genetic diabetes like consanguineous marriages is are very frequent practices in countries of Asia. Furthermore, high level of urbanization & unbalanced styles of life, maternal malnutrition and thus fetus & genetic aspects are also available as factors of risk for the occurrence of diabetes. As a consequence of a particular style of life of the poor social classes of the country, exercises at a proper time is normally decreasing among populations [22-23]. Opposite of past published research works [18, 24-25], this research work displayed an important association between the level of qualification and the incidence of diabetes. This fact shows that people with high education are normally less active physically. We also discovered some not important factors as smoking habit, profession & sex.

CONCLUSION:

The findings of this research work showed that occurrence of type-2 diabetes & pre-diabetes is very high in this very district an there is need of immediate prevention strategies. There is a requirement of serious efforts to tackle the complication of diabetes. In time diagnosis and handling of the risk factors are the best options to prevent the occurrence of this disease. There is requirement of future research works to determine the relationship between various risk factors.

REFERENCES:

- Shaw JE, Sicree RA, Zimmet PZ. Global estimates of the prevalence of diabetes for 2010 and 2030. *Diabetes Res Clin Pract.* 2010;87(1):4-14. doi:10.2337/dc10-S062
- Amos AF, McCarty DJ, Zimmet P. The rising global burden of diabetes and its complications: estimates and projections to the year 2010. *Diabetic Med.* 1997;14(S5):S7-S85. doi: 10.1002/(SICI)10969136(199712)14:5+<S7
- WHO. Diabetes Geneva, Switzerland: World Health Organization; 2016 [cited 2016 January 14]. Available from: http://www.who.int/diabetes/facts/world_figures/en/index2.html.
- Reporter S. '120,000 die of diabetes in Pakistan every year'. *The Dawn.* 2013. Accessed on 2 Nov. 2015
- Shera A, Jawad F, Maqsood A. Prevalence of diabetes in Pakistan. *Diabetes Res Clin Pract.* 2007;76(2):219-222.doi: 10.1016/j.diabres.2006.08.011
- Shera A, Rafique G, Ahmed K, Baqai S, Khan I, King H. Pakistan National Diabetes Survey prevalence of glucose intolerance and associated factors in North West Frontier Province (NWFP) of Pakistan. *J Pak Med Assoc.* 1999;49(9):206-210. doi: 10.1016/j.pcd.2010.01.003
- Shera A, Rafique G, Khawaja I, Baqai S, King H. Pakistan National Diabetes Survey: prevalence of glucose intolerance and associated factors in Baluchistan province. *Diabetes Res Clin Pract.* 1999;44(1):49-58. doi: 10.1016/j.pcd.2010.01.003
- Shera AS, Basit A, Fawwad A, Hakeem R, Ahmedani MY, Hydrie MZI, et al. Pakistan National Diabetes Survey: prevalence of glucose intolerance and associated factors in the Punjab Province of Pakistan. *Primary Care Diabetes.* 2010;4(2):79-83. doi: 10.1016/j.dsx.2008.02.007
- Zahid N, Claussen B, Hussain A. Diabetes and impaired glucose tolerance in a rural area in Pakistan and associated risk factors. *Diabetes Metabol Syndr Clin Res Rev.* 2008;2(2):125-130. doi: 10.1016/j.dsx.2008.02.007
- Gress TW, Nieto FJ, Shahar E, Wofford MR, Brancati FL. Hypertension and antihypertensive therapy as risk factors for type 2 diabetes mellitus. *N Engl J Med.* 2000;342(13):905- 912. doi: 10.1056/NEJMoa012512
- Group DPPR. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med.* 2002;346(6):393. doi:10.1371/journal.pone.0079724
- Hu FB, Manson JE, Stampfer MJ, Colditz G, Liu S, Solomon CG, et al. Diet, lifestyle, and the risk of type 2 diabetes mellitus in women. *N Engl J Med.* 2001;345(11):790-797. doi: 10.1056/NEJMoa010492
- O'Rahilly S, Barroso I, Wareham NJ. Genetic factors in type 2 diabetes: the end of the beginning? *Science.* 2005;307(5708):370-373. doi: 10.1056/NEJM200003303421301

14. Tuomilehto J, Lindström J, Eriksson JG, Valle TT, Hämäläinen H, Ilanne-Parikka P, et al. Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance. *N Engl J Med.* 2001;344(18):1343-1350. doi: 10.1056/NEJM200105033441801
15. Yang W, Lu J, Weng J, Jia W, Ji L, Xiao J, et al. Prevalence of diabetes among men and women in China. *N Engl J Med.* 2010;362(12):1090-1101. doi: 10.1056/NEJMoa0908292.
16. Shera AS, Rafique G, Khwaja IA, Ara J, Baqai S, King H. Pakistan National Diabetes Survey: Prevalence of Glucose Intolerance and associated factors in Shikarpur.Sindh province. *Diabetic Med.* 1995;12(12):1116-1121.
17. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes. Estimates for the year 2000 and projections for 2030. *Diabetes Care.* 2004;27:1047–1053. doi: 10.2337/diacare.27.5.1047
18. Ramachandran A, Snehalatha C, Viswanathan V. Explosion of Type 2 diabetes in the Indian Subcontinent *Int. Diabetes Monitor.* 2003;15:1–6.
19. Basit A, Riaz M, Fawwad A. Improving diabetes care in developing countries: The example of Pakistan. *Diabetes Res Clin Pract.* 2015;107:224-232. doi: 10.1016/j. diabres.2014.10.013
20. Ansari RM, Dixon JB, Browning CJ. Self-management of type 2 diabetes in middle-aged population of Pakistan and Saudi Arabia. *Open J Prev Med.* 2014;4:396-407. doi: 10.4236/ojpm.2014.46047.
21. Borrell LN, Dallo FJ, White K. Education and diabetes in a racially and ethnically diverse population. *Am J Public Health.* 2006;96:1637-1642. doi:10.2105/AJPH
22. Ko GTC, Chan 30. JCN, Yeung VT, Chow CC, Tsang LW, Cockram CS. A low socioeconomic status is an additional risk factor for glucose intolerance in high risk Hong Kong Chinese. *Eur J Epidemiol.* 2001;17:289-295. doi: 10.1023/A:1017935707807
23. Atlas ID. Brussels: International Diabetes Federation. 2015.
24. Guasch-Ferré M, Bulló M, Costa B, Martínez-Gonzalez MÁ, Ibarrola-Jurado N, Estruch R, et al. A risk score to predict type 2 diabetes mellitus in an elderly Spanish Mediterranean population at high cardiovascular risk. *PloS One.* 2012;7(3):e33437. doi: 10.1371/journal.pone.0033437
25. Shaw JE, Sicree RA, Zimmet PZ. Global estimates of the prevalence of diabetes for 2010 and 2030. *Diabetes Res Clin Pract.* 2010;87(1):4-14. doi: 10.1016/j. diabres.2009.10.007