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Original Article

Statistical Analysis to Identify the Effect of Risk Factors on Diabetic Population

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Abstract:

Inducting: The aim of this research was to study the effects of certain major risk factors on the development of diabetes and the specific objectives of this study were to assess the associations of gender and marital status with the risk factors of diabetes.

Methodology: Specific objective of the study was to identify the significant factors affecting diabetic patients to discriminate between with and without significant diabetes disease. The present study also tells us about the most significant risk factor of diabetes for male and female persons and for single and married persons.

Results: A cross-section and convenient sample of 100 persons consisting of both males and females without any discrimination of Risk Factors and Diabetes Mellitus was selected by non-probability convenient sampling. SPSS 23.0 was used for data entry and analysis.

Conclusion: Tabular form was used to represent the finding. Graphs shows the response of respondents. The Chi-Square test has been used to assess the statistical significance of risk factors for the diabetic patients. In the overall analysis the risk factors i.e. physical exercise, complications and environmental factors are affected in diabetic patient's w.r.t gender and marital status.

Key words: risk, factor, diabetic, hospital, patient

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Introduction:

Diabetes mellitus is a wide occurring disease. Pakistan with a diabetic population of 5.2 million, 90% of whom are Type 2, ranked 6th in the year 2000 in a list developed by World Health Organization (WHO) showing the countries with the highest number of diabetics. Environmental factors (dioxin, POPs, PCDDs)s are found throughout the world in the environment. The highest levels of these compounds are found in some soils, sediments and food, especially dairy products, meat, fish and shellfish. Very low levels are found in plants, water and air. In terms of environmental factors (dioxin, POPs, PCDDs) release into the environment, uncontrolled waste incinerators (solid waste and hospital waste) are often the worst culprits, due to incomplete burning. Technology is available that allows for controlled waste incineration with low environmental factors (dioxin, POPs, PCDDs) emissions.

Methods:

- Sample Collection

  Over 100 Type 2 diabetic patients were included in the study. All other patients having disease other than diabetes were not included.

- Statistical AnalysisData was analyzed by using multiple tests including tests for associations Pearson's chi-squared test (χ^2), the Kolmogorov–Smirnov goodness-of-fit test, Mann-Whitney U test.

1. Descriptive Analysis

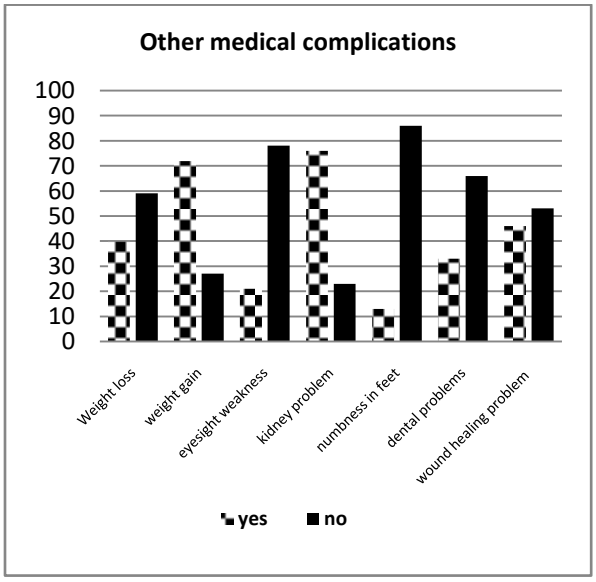
In this section the frequency and percentages of the different environmental factors of diabetes for patients will be discussed. There are 100 subjects (diabetic patients). The debate of the results will base on the frequency (counts), percentages.

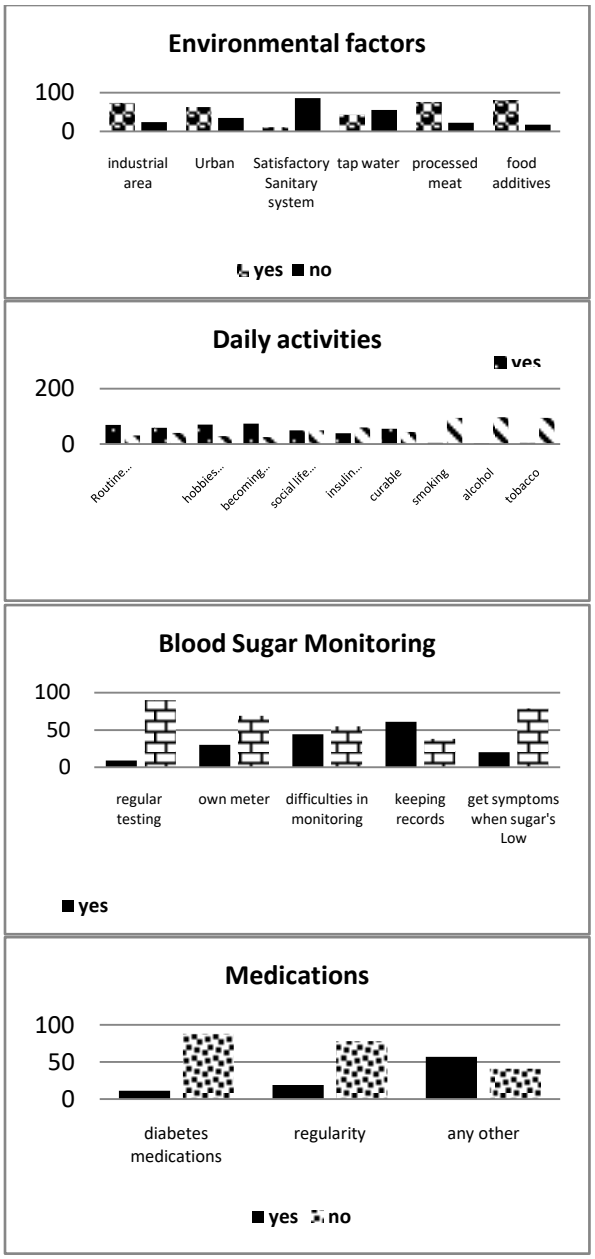
2. Inferential Analysis

Data was analyzed by using multiple tests including tests for associations Pearson's chi-squared test (χ^2), the Kolmogorov–Smirnov goodness-of-fit test, Mann-Whitney U test.

- Pearson’s Chi-Square Test:
- Mann-Whitney U Test:

Results:





Statements	Chi square	d.f	p-value	Conclusion
H_0: There is no association of industrial area and Usual range of tests.	6.641	2	0.036*	Significant
H_0: There is no association of industrial area and kidney problem	5.860	1	0.015*	Significant
H_0: There is no association of industrial area and type of exercise	6.296	2	0.043*	Significant
H_0: There is no association of industrial area and kind of industry	72.887	3	0.000*	Significant
H_0: There is no association of marital status and age.	82.639	37	.000*	Significant
H_0: There is no association of marital status and profession	60.937	35	.004*	Significant
H_0: There is no association of marital status and kind of water drunk.	6.306	2	.043*	Significant

Table 1: *Tests on diabetic patients of Jinnah Hospital*

Statements	Chi square	p-value	Conclusion
There is association between marital status and day spend in exercise.	9.863	.020*	Significant
There is association between marital status and skip meal.	6.792	.034*	Significant
There is association between marital status and alcohol frequently use.	7.670	.022*	Significant
There is association between marital status and kind of medicine.	4.800	.019*	Significant
There is association between marital status and check-up.	6.423	.040*	Significant
The gender effect complication.	600.000	.000*	Significant

Table 2: *Tests on diabetic patients of Sheikh Zaid Hospital*

Conclusion:

In the overall analysis the risk factors i.e. type of exercise, kidney problems, range of tests, kind of industry, age, profession and satisfaction with sanitary system are significantly associated with marital status. There was effect of patients' gender regarding other complications involved in diabetes whereas medications and environmental factors were affected by the habitat of patients.The results from patients of Sheikh Zaid Hospital suggested that the physical exercise, complications and environment factors were associated with diabetic gender.

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