



Analysis of Risk Factors among Diabetic Patients Visiting Diabetic Research Clinic at Nishtar Hospital Multan-Pakistan

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Authors' contributions

This work was carried out in collaboration between all authors. Author KA designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors MUZ and KS managed the analyses of the study. Authors MAZ and KA managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJMAH/2017/35857

Editor(s):

(1) Darko Nozic, University of Belgrade, Serbia.

Reviewers:

(1) D. Atere Adedeji, Achievers University, Nigeria.

(2) Anthony E. Ojeh, Delta State University, Nigeria.

(3) Jean Baptiste Niyibizi, Kibogora Polytechnic & University of Gitwe, Rwanda.

(4) Filip Zamosteanu Nina, University of Medicine and Pharmacy Gr. T. Popa Iasi, Romania.

Complete Peer review History: <http://www.sciencedomain.org/review-history/21669>

Original Research Article

Received 31st July 2017
Accepted 11th October 2017
Published 1st November 2017

ABSTRACT

Background: Diabetes is the most common non-communicable disease. Currently Diabetes Mellitus (DM) affects 240 million people worldwide. Pakistan belongs to high prevalence area having 6.9 million diabetics. Diabetes mellitus is 4th leading cause of death in most developed countries with Pakistan ranking 7th position in the list. Factors responsible for diabetes are of two types: modifiable and non-modifiable. Modifiable risk factors include smoking, eating habits and lifestyle and Non-modifiable risk factors include family history, obesity and stressful life.

Objective: To determine frequency of risk factors among diabetic patients visiting diabetic Research Clinic Nishtar Hospital Multan. To suggest the ways how to reduce diabetic disease.

Methodology: A cross-sectional descriptive study was conducted at the outdoor patients setting of Diabetic Research Clinic at Nishtar Hospital Multan from 22-5-2016 to 27-7-2016. 142 patients of diabetes mellitus were selected through convenient sampling technique. The data was collected

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through a structured questionnaire. Data was analysed through Microsoft Excel, using version 2016 for different variables. The data was calculated through frequencies and percentages.

Results: Out of 142 patients 71(50%) were males and 71 (50%) were females, 62(43%) patients were overweight, 98 (69%) patients had diabetes for more than two years, 65(45%) patients were suffering from Hypertension before Diabetes mellitus. There was no history of smoking among 102 (71%) patients while 73(51%) patients had stressful life.

Conclusions: In our study we found that hypertension, stressful life, eating habits and family history are the most common risk factors of diabetes mellitus.

Keywords: Diabetes mellitus; risk factors; stressful life; hypertension; obesity; eating habits.

1. INTRODUCTION

Diabetes mellitus continues to be a major public health problem in Pakistan. By evolving risk factors of Diabetes mellitus we can easily prevent, control and manage Diabetes mellitus. There is 170% increase in incidence of Diabetes among developing countries as compared to 47% among developed countries [1]. Currently 240 million people are suffering from diabetes. Out of them 6.9 million are present in Pakistan that may be doubled by 2030. Pakistan is 7th leading country in the world [1]. Diabetes is cause of 88,000 deaths per day (men 35,615 and women 52,397). Pakistan is a poor country having 24\$ per person cost of diabetes. Accurate data is not available regarding prevalence of Diabetes in Pakistan. First time a phased nationwide prevalence study of Diabetes mellitus was conducted in Pakistan in 1999 in the rural and urban areas of the country. The meta-analysis of the survey was published in 2007. In this survey, the risk factors for diabetes such as Obesity, Bad eating habits, smoking and hypertension were studied [2-5].

1.1 Objectives of Study

The objectives of this study are stated as under:

- To assess role of obesity, family history and hypertension in development of the disease.
- To assess role of smoking and eating habits in development of the disease.
- To assess role of lifestyle and stress in development of the disease.
- To make recommendations for policy makers to take corrective measures to control growing menace of diabetes in Pakistan.

2. MATERIALS AND METHODOLOGY

2.1 Study Design

It is a descriptive and cross-sectional study.

2.2 Venue

The study was conducted at Diabetes Research Clinic, Nishtar Hospital Multan-Pakistan. It was an independent study conducted by authors without availing any funding from the Clinic.

2.3 Study Duration

The period of study was spread over two months starting from May 22, 2016 to July 27, 2016

2.4 Sample Size

The size of sample was 142 patients, suffering diabetic disease.

2.5 Sampling Technique

Non-probability convenient sampling technique was used in this study

2.5.1 Inclusion criterion

- Gender → both male and females were included into this study
- Age group → 14 to 65 years
- Participants → K known Diabetic patients

2.5.2 Exclusion criterion

- Patients of age group less than 14 years and more than 65 years were excluded from this research

2.5.3 Data collection procedure

It was an observational cross sectional study conducted at Diabetic Research clinic Nishtar Hospital Multan for period of 22-05-2016 to 27-07-2016. 142 patients were interviewed through convenient sampling technique. The data was collected through a structured questionnaire, containing close ended questions.

3. RESULTS

Data was analysed through Microsoft Excel version 2016. The value of different variables was calculated through frequencies and percentages. The results are shown in Table 1.

Table 1. Demographic statistics

Sr. No	Question	Options	% age
1	Gender	Male	50.00
		female	50.00
2	BMI	Normal	26.06
		Overweight	43.66
		Obese	30.28
		Morbid obese	0.00
3	When he have	Less than 1 y	16.90
		1-2 Year	14.08
		More than 2 year	69.01
4	Family history	present	63.38
		absent	36.62
5	History of hypertension	absent	11.27
		before diabetes	45.77
		after diabetes	43.66
6	History of smoking	present	28.17
		absent	71.83
7	Eating habits before DM	sweet lover	41.55
		junk food	7.75
		eating habit b/w meals	50.70
8	Life style	Sedentary	30.28
		Normal	45.77
		Active	23.94
9	Stress full life	present	51.41
		absent	48.59
Total No. of patients interviewed			= 142

Table 2. Frequency distribution of diabetes mellitus patients regarding gender (n=142)

Gender	Frequency	Percentage
Male	71	50.00
Female	71	50.00

Table 3. Frequency distribution of diabetes mellitus patients regarding obesity (n=142)

Obesity from BMI	Frequency	Percentage
Normal	37	26.06
Overweight	62	43.66
Obese	43	30.28
Morbid obese	0	0.00

Table 4. Frequency distribution of diabetes mellitus patients regarding duration of disease (n=142)

Duration of Disease	Frequency	Percentage
Less than 1 y	24	16.90
1-2 Year	20	14.08
More than 2 year	98	69.01

Table 5. Frequency distribution of diabetes mellitus patients regarding family history (n=142)

Family history	Frequency	Percentage
Present	90	63.38
Absent	52	36.62

Table 6. Frequency distribution of diabetes mellitus patients regarding hypertension (n=142)

History of Hypertension	Frequency	Percentage
Absent	16	11.27
Before diabetes	65	45.77
After diabetes	62	43.66

Table 7. Frequency distribution of diabetes mellitus patients regarding smoking (n=142)

Smoking habit	Frequency	Percentage
Present	40	28.17
Absent	102	71.83

Table 8. Frequency distribution of diabetes mellitus patients regarding eating habits (n=142)

Eating habits before DM	Frequency	Percent
Sweet lover	59	41.55
Junk food	11	7.75
Eating habit b/w meals	72	50.70

Table 9. Frequency distribution of diabetes mellitus patients regarding Life style (n=142)

Life style	Frequency	Percent
Sedentary	43	30.28
Normal	65	45.77
Active	34	23.94

Table 10. Frequency distribution of diabetes mellitus patients regarding stressful life (n=142)

Stressful life	Frequency	Percent
present	73	51.41
absent	69	48.59

[10]. In our study 62(43%) patients were overweight that shows close relationship between higher BMI with Diabetes mellitus. 65 (45%) patients had Hypertension before Diabetes mellitus that shows there is a close relationship between Diabetes mellitus with Hypertension.

4. DISCUSSION

This study is different from others because this includes age criteria 14 to 65 years, while in National diabetes survey the participants were of 25 years or above [6-9]. Out of 142 patients selected through convenient sampling, 71 (50%) were males and 71 (50%) were females that was equal in proportion. This is different from national diabetic survey in which prevalence of Diabetes is higher among males than females

Our results are consistent with the studies conducted in Saudi Arabia where higher association between diabetes mellitus BMI and hypertension before Diabetes mellitus was found [11]. In our study, 90 (63%) patients have positive family history of diabetes mellitus. This indicates genetic predisposition among patients. Our results are consistent with studies conducted in other South Asian countries [12]. 72 (50%) patients had habit of eating between meals. Our results are consistent with the results of national

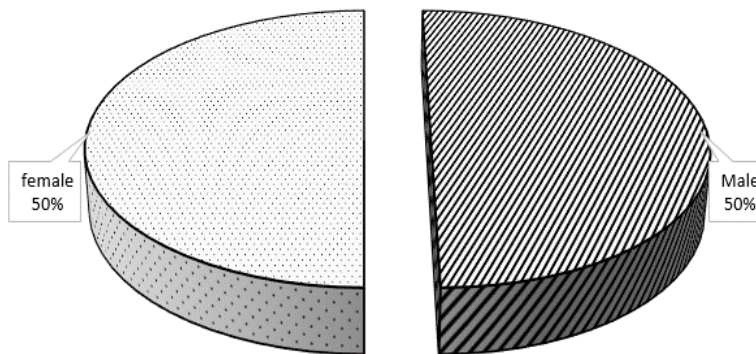


Fig. 1. Frequency distribution of diabetes mellitus patients regarding gender

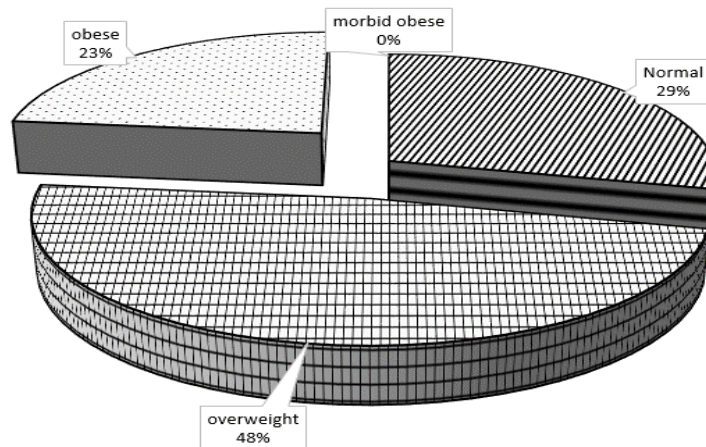


Fig. 2. Frequency distribution regarding obesity

nutrition survey conducted in 1985-1987 [13,14]. Our results indicate that 73(51%) people had stressful life before diabetes mellitus. It means

that there is correlation between stressful life and diabetes. We must developed stress management among diabetic patients.

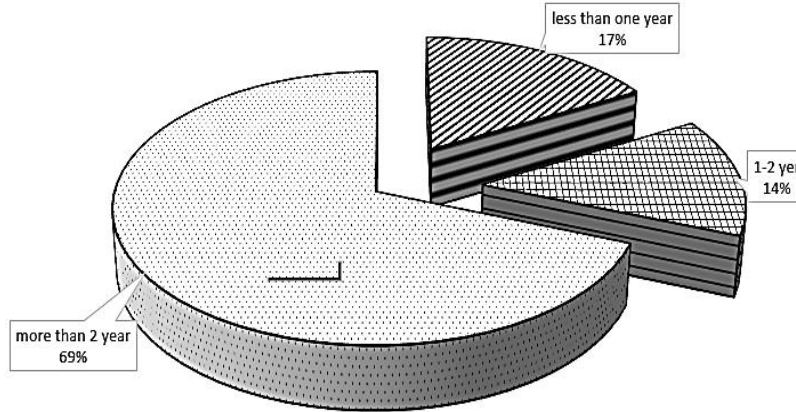


Fig. 3. Duration of Disease

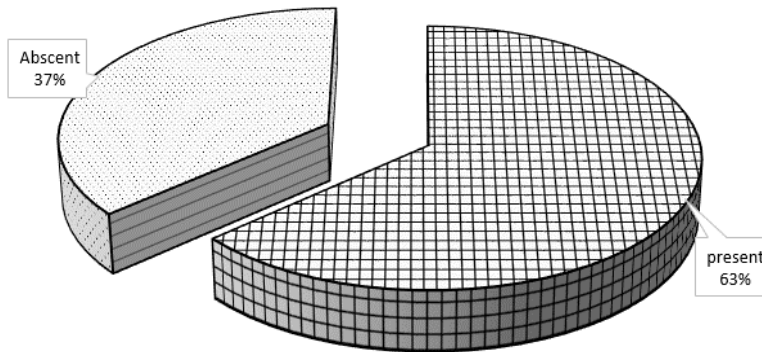


Fig. 4. Family History of patients

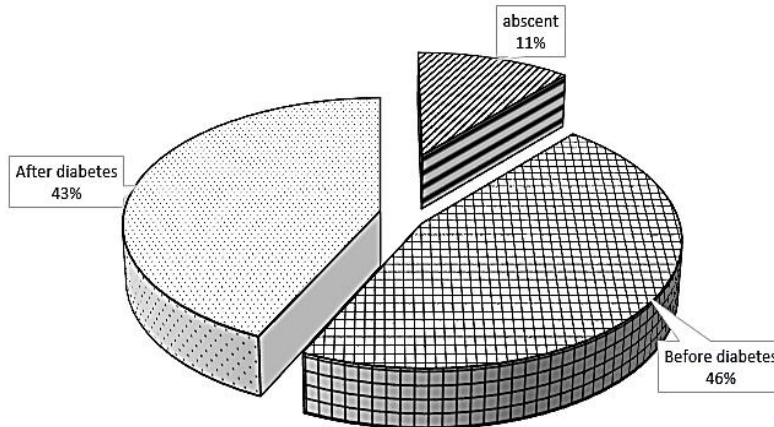


Fig. 5. Relationship between diabetes and Hypertension

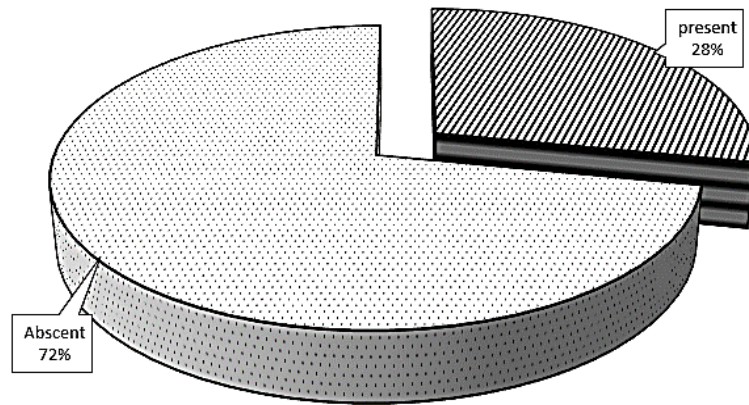


Fig. 6. Relationship between diabetes and smoking

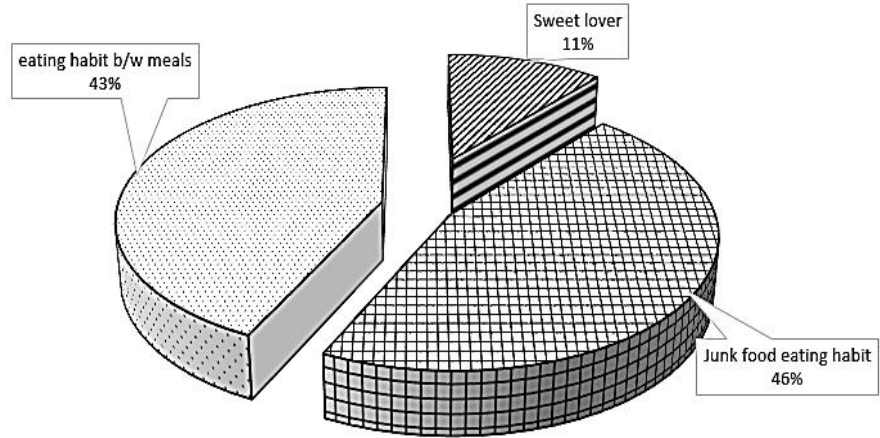


Fig. 7. Relationship between diabetes and eating habits

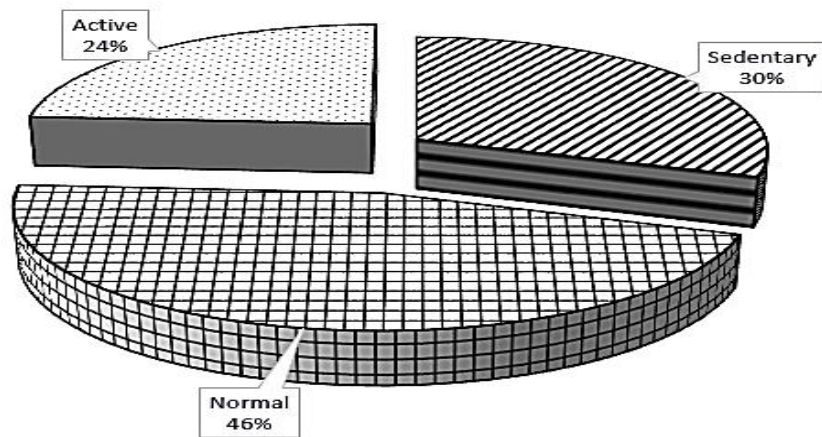


Fig. 8. Relationship between diabetes and life style

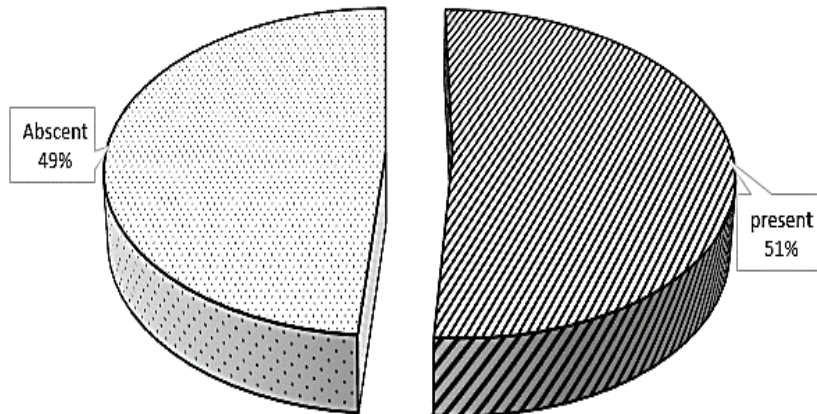


Fig. 9. Relationship between diabetes and stressful life

5. CONCLUSION

Our study shows higher prevalence of Diabetes among overweight people and it has strong association with family history in diabetic patients. A higher number of patients had Hypertension before Diabetes mellitus. Most of patients had history of eating between meals before Diabetes mellitus. Our empirical results show that there is a strong correlation between Diabetes with stressful life of patients. In other words, stress is one of the causes of diabetic disease among the patients. Similarly, hypertension and obesity are also the major causes of this disease.

6. RECOMMENDATIONS

On the basis of the above discussion we would like to make the following recommendations to reduce the menace of diabetic disease in Pakistan.

- Health education and awareness about disease is of prime importance.
- Daily exercise and healthy diet can prevent DM so people should be encouraged to devote time for exercise.
- The use of sugar must be reduced to lessen the menace of diabetes.
- Awareness must be created about treatment of disease among the people.
- Smoking must be discouraged for prevention of disease.
- Lifestyle must be changed to control level of Blood Glucose.

7. LIMITATIONS

There are some limitations of this study

- The study was conducted on DM patients attending Diabetes Research Clinic Nishtar Hospital Multan, therefore, results cannot be applied to whole community.
- Some of patients were unable to understand questionnaire and did not give proper answers to our questions.
- Our study might have ignored some factors which are important to study to draw comprehensive results.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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The peer review history for this paper can be accessed here:
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