



**A STUDY OF PREVALENCE OF RISK FACTORS OF DIABETES
MELLITUS TYPE-2**

Akmal M^{*1}, Zulkifle M², Ansari AH³, Sajid M

¹Medical Officer, Govt. of Rajasthan

²HOD, Dept. Kulliyat NIUM, Bangalore-560091

^{3,4}Lecturer, Department of TST, NIUM, Bangalore-560091

Article Received on 10/08/2015

Article Revised on 01/09/2015

Article Accepted on 22/09/2015

***Correspondence for**

Author

Dr. Akmal M.

Medical Officer, Govt. of
Rajasthan.

ABSTRACT

Background: Diabetes Mellitus Type-2 is a metabolic disorder of menacing consequences. Its prevalence is rising day by day in almost all countries, more so in developed one. Inactive lifestyle, stress in everyday life and eating manners all are considered risk factors for the

DM-2. **Objectives:** The main objective of the study is to assess the prevalence of the risk factors like Inactive lifestyle, stress, eating habits in the diagnosed cases of the DM-2 in the patients attending the NIUM, Bangalore Hospital. **Materials and Methods:** In present study 166 diagnosed patients of DM-2 were interviewed for the risk factors. In this context eating behaviour related risk factors, family history of DM-2 and lifestyle related risk factors like obesity was found out. **Results:** In the study it was observed that 90.37% patients were taking non-veg /mixed type of diet, mostly (83.74%) patients were on tea/coffee, near about half (47.6%) patients were with positive family history of DM-2, 14% patients were with positive family history of obesity, more than half (59.63%) patients not doing any type of exercise. **Conclusion:** The trend of the results indicates that the risk factors like obesity, previous family history of DM-2 and sedentary life had the association with the disease. More studies with large sample size needs to be conducted to further explore the association with the disease.

KEYWORDS: Diabetes Mellitus Type-2; Prevalence; Incidence; Risk Factors; Obesity; Exercise; Family History.

INTRODUCTION

The prevalence and incidence of Diabetes Mellitus Type-2 (DM-2) is rising day by day. Some scientist believes it as penalty for socioeconomic development and adoption of sedentary mode of life. Indiscriminate use of various foods makes the eater susceptible to DM-2. DM-2 may be considered as the unpleasant outcome of imbalance between energy consumption and expenditure. Increasing fat accumulation in the body secondary to increase energy consumption is thought main reason of DM-2. The main abnormality in this disorder is of carbohydrate metabolism. This results from either qualitative or quantitative abnormalities of insulin. It is supposed that in obese relative deficiency as well as target organs insensitivity are playing crucial role in derangement of glucose metabolism. Earlier it was considered a disease of affluent society but now it has broken all the social boundaries. Now it has been observed that as the number increases so does the incidence of DM-2. It is the main reason why India is considered as capital of diabetes. No definitive cause has been established yet for DM-2. In epidemiological studies so many risk factors associated with DM-2 have been established. The definitive role of different risk factors varies from region to region and even in the different individuals of the same community. Presently 40 million people of diabetes are residing in India, the projected number is of diabetics up to 2030 is 80 million. DM-2, a silent but major killer, is responsible for lion share of morbidity and mortality. Its impacts on immune system and vascular competency are very threatening and fatal. During its course diabetes destroy heart, brain, kidney, nerve and eyes. Since we are in dark regarding the precise cause, so satisfactory and curative treatment could not be made available not to speak of primary prevention. However because of long list of risk factors, associated with DM-2, primary prevention and better control can be achieved by proper modifications of risk factors. For the effective primordial prevention the role of different risk factors should be clear. For this aspect epidemiological studies are going on.

MATERIALS AND METHODS

The present study was a hospital based survey which was conducted in National Institute of Unani Medicine, Hospital. In this hospital the specialized diabetes clinic ran separately. Only the diagnosed patients of DM-2 were included in the study. Prior ethical clearance and written consent were obtained from institutional ethical committee (IEC) and from patients respectively. During study period 166 patients participated in the study voluntarily. To collect the data regarding the prevalence of risk factor, a pretested, bilingual, semi structured schedule was administered to every patient. Every patient was interviewed carefully and

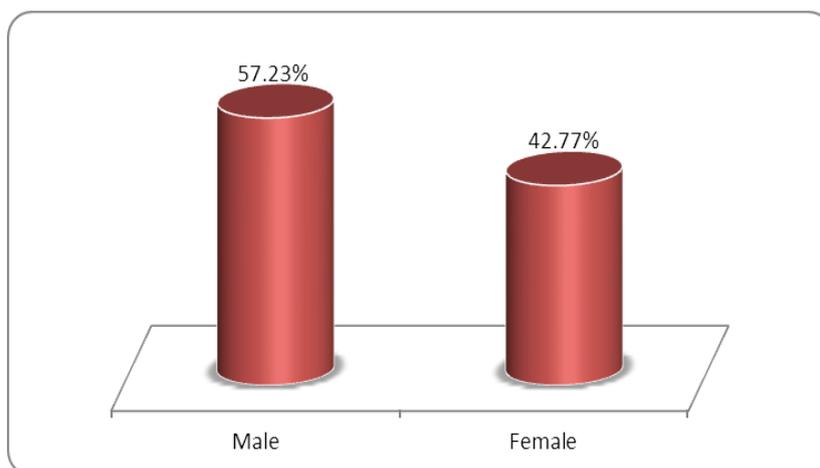
relevant data were collected. The schedule consisted of demographic details and details regarding the risk factors of DM-2. Measurable variables were measured by standard techniques while subjective variables were asked and recorded in schedule. The main emphasis was on socioeconomic status (SES), this was obtained from modified Kuppuswamy Socioeconomic Scale,¹ on smoking habit, alcohol consumption with quantity, tea / coffee consumption, on weight on birth and on body mass index (BMI). The BMI was calculated by dividing the weight in kilogram by height meter² using the formula. $BMI = \frac{\text{weight in kg}}{\text{height in m}^2}$

At the completion of study results were prepared and presented statically in graphic and tubular forms.

OBSERVATIONS AND RESULTS

Table No. 1: Distribution of the Patients according to Sex

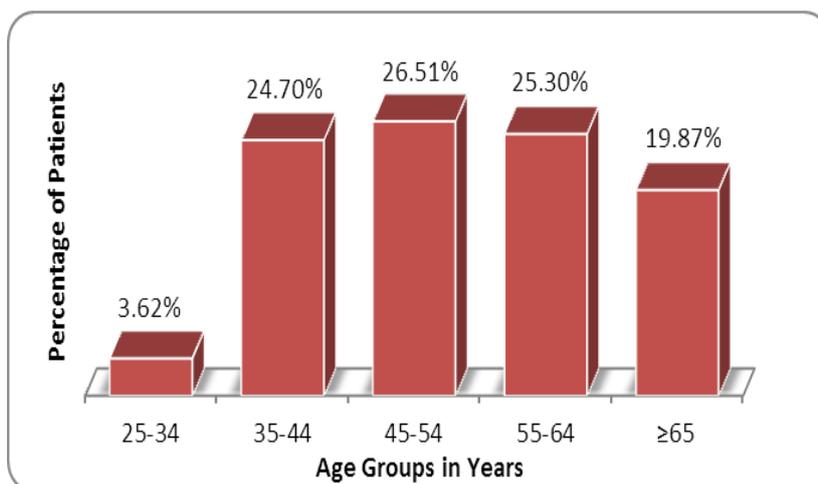
Gender	Number	Percentage
Male	95	57.23%
Female	71	42.77%
Total	166	100%



Graph No. 1: Distribution of the Patients according to Sex

Table No. 2: Distribution of Patients according to Age

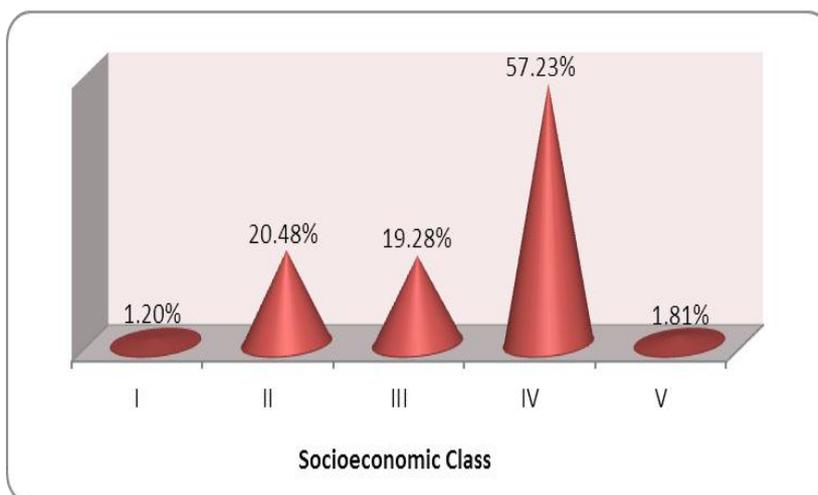
Age	Number	Percentage
25-34	6	3.62%
35-44	41	24.70%
45-54	44	26.51%
55-64	42	25.30%
≥65	33	19.87%
Total	166	100%



Graph No. 2: Distribution of Patients according to Age

Table No. 3: Distribution of Patients according to SES

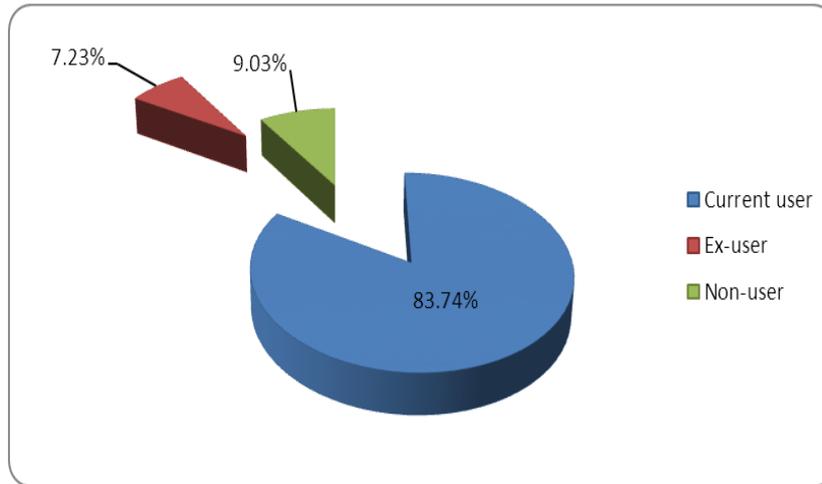
SES	Number	Percentage
I	2	1.20%
II	34	20.48%
III	32	19.28%
IV	95	57.23%
V	3	1.81%
Total	166	100%



Graph No. 3: Distribution of Patients according to SES

Table No. 4: Distribution of Patients according to Tea/Coffee Consumption

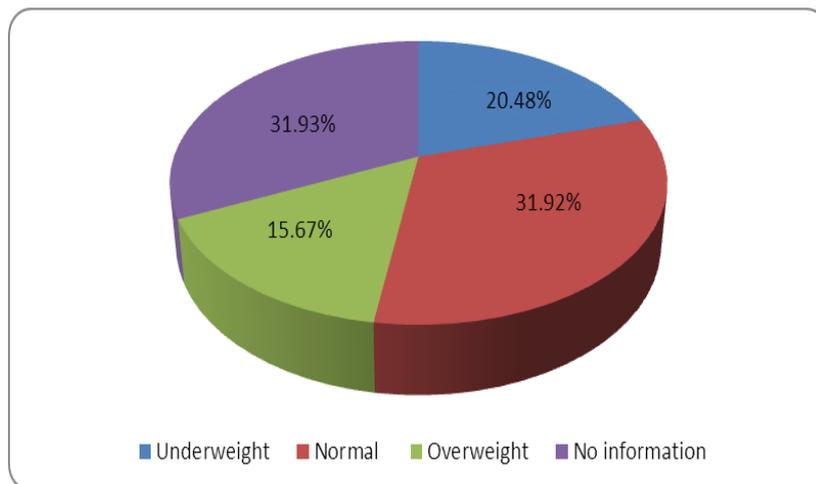
Status	Number	Percentage
Current user	139	83.74%
Ex-user	12	7.23%
Non-user	15	9.03%
Total	166	100%



Graph No. 4: Distribution of Patients according to Tea/Coffee Consumption

Table No. 5: Distribution of Patients according to Weight at Birth

Status of Weight	Number	Percentage
Underweight	34	20.48%
Normal	53	31.92%
Overweight	26	15.67%
No Information	53	31.93%
total	166	100%



Graph No. 5: Distribution of Patients according to Weight at Birth

DISCUSSION

The present study was conducted to observe the prevalence of risk factors in patients with DM-2, attending NIUM, hospital, Bangalore. In the present study out of 166 eligible patients 57.23% were males and 42.77% were females, as shown in Table & Graph-1. The higher percentage of males in present study may be attributed to the higher prevalence of DM-2 in males. Ramchandaran *et al* reported 2.6% prevalence of DM-2 in males and 1.6% in females

from Tamil Nadu.^[2] Similar data has been reported from Andhra Pradesh with 14.3% and 12% prevalence of DM-2 in males and females respectively^[3] In 2006, a national level study was conducted by Reddy *et al* at 10 big centre of India which revealed 11.2% and 8.2% prevalence of DM-2 in males and females respectively.^[4] One factor for higher prevalence of DM-2 in males in present study may be the higher number of male patients that attended the hospital during the study period.

As shown in Table & Graph-2, the maximum numbers of patients in present study were found in age group 45-54 years i.e. 26.51% and least were in age group of 25-37 years i.e. 3.62%. Almost same finding have been reported by DESI.^[5] In the present study an increasing trend of prevalence of DM-2 with increasing age was observed. At the same time slight to moderate decline in prevalence of DM-2, was observed in advanced age groups. The most probable factor for decline of prevalence in elderly may be health care negligence from their health care takers. This section of the society is the most neglected one.

Socioeconomic status (SES) influences the nutrition, lifestyle and exercise profile of the individual and of the community at large. Thus it is considered directly related to DM-2. Surprisingly present study revealed maximum 57.23% prevalence of DM-2 in upper lower socioeconomic class (IV), as shown in Table & Graph-3. From abroad so many studies have revealed the inverse relationship between SES and prevalence of DM-2.^[6] The abroad trend of prevalence of DM-2 in present study in context of SES may be attributed to transition of Bangalore to metropolitan status that may affect the community in the similar way as in developed countries. It has been reported that low level of income and education thereby low SES were associated with increased prevalence of DM-2.^[7] From present study it was clear that low levels of education and income were more important risk factors for DM-2.

The present study surprisingly revealed the higher (90.97%) prevalence of DM-2 in tea/coffee drinkers, as shown in Table & Graph-4. Several other studies revealed inverse association between consumption of green/ black tea as well as coffee takers and DM-2.^[8] One thing that is worth mentioning here is that such tea usually taken without sweetener but in India it is customary to drink sweet tea which is neither green nor black. So the contradictory findings may be attributed to the use of sugar in tea and its effects on β -cells not of tea itself. Contemporary data from India were not available for comparison.

In the present study prevalence of DM-2 in underweight at birth patients was 20.48% whereas in patients born with normal weight it was 31.92%, as shown in Table & Graph-5. The prevalence of DM-2 in low birth weight was found significantly higher than overweight (15.67%). Carlson *et al* reported that low birth weight was associated with increased risk of developing glucose intolerance and diabetes in later life. ^[9] Shaw reported reduced β -cell functions in low birth weight adults. ^[10] Brand *et al* reported 19% prevalence of impaired glucose tolerance with hyper insulinaemia in children and adolescent with low birth weight. The life time risk of developing the DM-2 is attributed to malfunctioning of β -cells consequent to in-utero malnutrition or infection. This factor is independent of other risk factors of DM-2. ^[11]

CONCLUSION

The trend of the results indicates that the risk factors like obesity, previous family history of DM-2 and sedentary life had the association with the disease. More studies with large sample size needs to be conducted to further explore the association with the disease.

REFERENCES

1. Kumar N, Shekhar C, Kumar P, Kundu AS. Kuppuswamy's Socioeconomic Status Scale-Updating for 2007. Indian journal of paediatrics, 2007; 74: 1131-1132.
2. Ramchandaran A, Snehlata C, Kapur A, Vijay V, Das AK, Rao P V, et al. High Prevalence of diabetes and impaired glucose tolerance in India-National Urban Diabetes Survey. Diabetologia, 2001; 44: 1094-1101.
3. Chow CK, Raju PK, Raju R et al. The prevalence and management of diabetes in rural India. Diabetes Care, 2006; 29: 1717-18.
4. Reddy KS, Prabhakaran D, Chaturvedi V, Jeemon P, Thankappan KR, Ramakrishna L, et al. Method for establishing a surveillance system for cardio vascular disease in Indian Industrial population. Bulletin of World Health Organization June, 2006; 84(6): 461-469.
5. Gupta R and Mishra A. Type 2 Diabetes in India Regional disparities. The British J of Diabetes and vascular disease, 2007; 7: 12-16.
6. Connolly V, Unwin N, Sherriff P, Bilous R, Kelly W. Diabetes prevalence and socioeconomic status: a population based study showing increased prevalence of Type 2 DM in deprived areas. J Epidemiol Community Health, 2000; 54: 173-177.
7. Hamman RF, Mann JI, Payorala K, Teuscher A. Diabetes in affluent societies: Diabetes in epidemiologic perspective. Edinburg, Scotland: Churchill Livingstone, 1983; 7-42.

8. Tuomilehto J, Hu G, Bidal S, Lindstrom J, Jousilanti P. Coffee consumption and risk of type 2 diabetes mellitus among middle aged Finnish men and women. *JAMA*, 2004; 291: 1213-1219.
9. Carlson S, Person PG, Alvarson M, low birth weight, family history of diabetes, and glucose intolerance in Swedish middle aged men, *Diabetes care*, July 1999; 22 (7): 1043-7.
10. Shaw JE, Zimmet DZ, Courten DM, Doase GK, Chitson P, Gareeboot, et al. Impaired fasting glucose or impaired glucose tolerance, what best predicts future diabetes in Mauritius. *Diabetes Care*, 1999; 22: 399-402.
11. Bloomgarden ZT. International Diabetes Federation meeting 1997: Type 2 diabetes: its prevalence causes and treatment. *Diabetes Care*, 1998; 21: 860-865.