



Prevalence of Diabetes in Adopted Village of Western Maharashtra

Mahendra Alate¹, S. V. Kakade²

¹Krishna Vishwa Vidyapeeth, "Deemed to be University", Karad, Maharashtra

²Associate Professor,

Department of Community Medicine, Krishna Institute of Medical Sciences,
Krishna Vishwa Vidyapeeth, "Deemed to be University", Karad, Maharashtra,

Email: mahendra.alate@gmail.com

ABSTRACT

Worldwide peoples are suffering from diabetes mellitus. Out of that Majority of them primarily type 2 diabetes mellitus in developing and developed countries. Diabetes is a chronic diseases. Commonly chronic diseases are slow development of recovery. There are some factors such as genetic, physiological, environmental and evident affecting to control the diabetes. The prevalence of diabetes varied across Indian states ranging from 2.02% to 40.3% in rural Madhya Pradesh [01] and Tamil Nadu[02] respectively. To Estimate prevalence diabetes of adopted village Material Methods: This study was conducted in adopted village by Krishna Vishwa Vidyapeeth, "Deemed to be University", Karad. Total 507 samples included in this study. Data was collected from 1st October 2023 to 31st December 2023 with the help of a pre tested questionnaire from respondents. Individuals having above age 18 to 92 years old included. Prevalence of Diabetes was observed as 10.65% in adopted village. A habit of consumption of tea, tobacco chivvying not affecting to diabetes, but there was risk of generating others types of morbidity. Prevalence of diabetes is increase with last decade. There should be need of conducting screening of debits program and also health awareness programme at rural level.

Keywords: Diabetes, Prevalence, Adopted village

Received 12.10.2023

Revised 20.10.2023

Accepted 04.12.2023

INTRODUCTION

Day by day burden of diabetes is increasing globally [2]. The prevalence of diabetes is growing most rapidly in low- and middle-income countries [3]. As per International Diabetes Federation (IDF) past decade increasing trend of diabetes in India [4, 5, 6, 7, 8]. India is one of the developing countries, approximate 77 million individuals surviving from diabetes. As per World Health Organization (WHO) report of 2019 total 74% of deaths globally due to non communicable diseases (NCDs). NCDs are of long duration and slow progression [9] Apart from diabetes resulted in 1.6 million deaths [10]. Tao Z prediction nearly 592 million people will die due to diabetes in 2035[11].

The multi organ complications, broadly divided into micro vascular and macro vascular complications due to type 2 diabetes (T2DM) .There are several rezones T2DM to reduced life expectancy and create economical burden to the family. The Economical burden came's to the family automatically economic burden on health care system. There are several factors such as family history, genetics, physical inactivity, unhealthy diet age, obesity, ethnicity affecting to T2DM [12]. Diabetes is associated with lifestyle diseases [10]. Lifestyle diseases are illnesses that are dependent on the routine habits of people [13]. Gupta and Joshi told about the prevalence of diabetes in the urban population was 3.04%, and in the rural areas, it was 1.287%. The male-to-female ratio for diabetes in the urban area was 2:1, and in the rural area, it was 1:1[14].

National Family Health Survey (NFHS-5) survey was conducted from 19th June 2019 to 30th December 2019, whereas NFHS-4 survey was conducted from 1st April 2015 to 25th September 2015. As per NFHS report the prevalence of diabetes is 14.6% in urban and 10.7% in rural area among women, while 15.3% in urban area and 12.4% in rural area among men [14].

So our area of interest the prevalence of diabetes adopted village, to know the current situation of these diseases in rural area.

MATERIAL AND METHODS

A Observational study was conducted on adopted village by Krishna Vishwa Vidyapeeth “Deemed to be University’, karad in rural area. Information regarding the personal data was collected with the help of a pre tested questionnaire from respondents. In this study we are included individuals having above age 18 to 92 years old. **Sample Size:** Study sample i.e. n

$$n = [(Z^2PQ)/L^2]$$

Where,

Z = level of confidence according to the standard normal distribution

(For a level of confidence of 95%, z = 1.96)

P=Prevalence of Diabetes

Q=100 - Prevalence

L² = margin of error

According to the Pradeepa R, Mohan V. Suggested prevalence of diabetes is 11.4 % in India. Therefore

$$n = [(1.96^2 * 11.4 * Q)/5^2]$$

$$n = [3.8416(11.4*100-11.4/25)]$$

$$n = (3871.41) / 25$$

$$n = 154.85$$

Minimum Sample size n = 155

In this study we had total 507 samples studied from adopted village. Data were collected from the period of 1st October 2023 to 31st December 2023.

Ethical Issue: -An Ethical clearance was taken from Institutional Ethical committee of Krishna Vishwa Vidyapeeth “Deemed To Be University”, Karad

Statistical Methods:- Data were analyzed using Microsoft Excel .The results were expressed in terms of descriptive Statistics and expressed in terms of the percentage. Significances of differences between variable was calculated.

RESULTS

Table No: 1 Distribution of Socio Demographic Variables

Parameters	Count	Percentage
Gender		
Male	239	47.14
Female	268	52.8
Types of food taken		
Mix (Veg /non vage)	407	80.2
Veg	100	19.72
Marital Status		
Married	423	83.43
Unmarried	48	9.46
Widows	36	7.1
Economical status		
(AAY)	11	2.10
Above Poverty Line (APL)	446	87.96
Bellow poverty Line (BPL)	50	9.86
Total	507	100

Demographic variables were tabulated by frequency and percentage distribution of participants. Total of 507 participants were included in the study with the age range of 18 to 92 years. Youngest age was 18 years and olds was 92 years. There were 249 (49.11%) surviving from at list one of the morbidity. Maximum number of patients were aged 35-84 year surviving the from diabetes. Total 90 % participates from Above Poverty Line they are suffering from diabetes. Total 239 (47.11%) participates are male and 21 (38.88%)

females diabetes. As per occupation, the majority of the 163(32.14%) were Farmer, 74 (14.59%) services 217 (42.80) HW, 35(6.90%) Students.

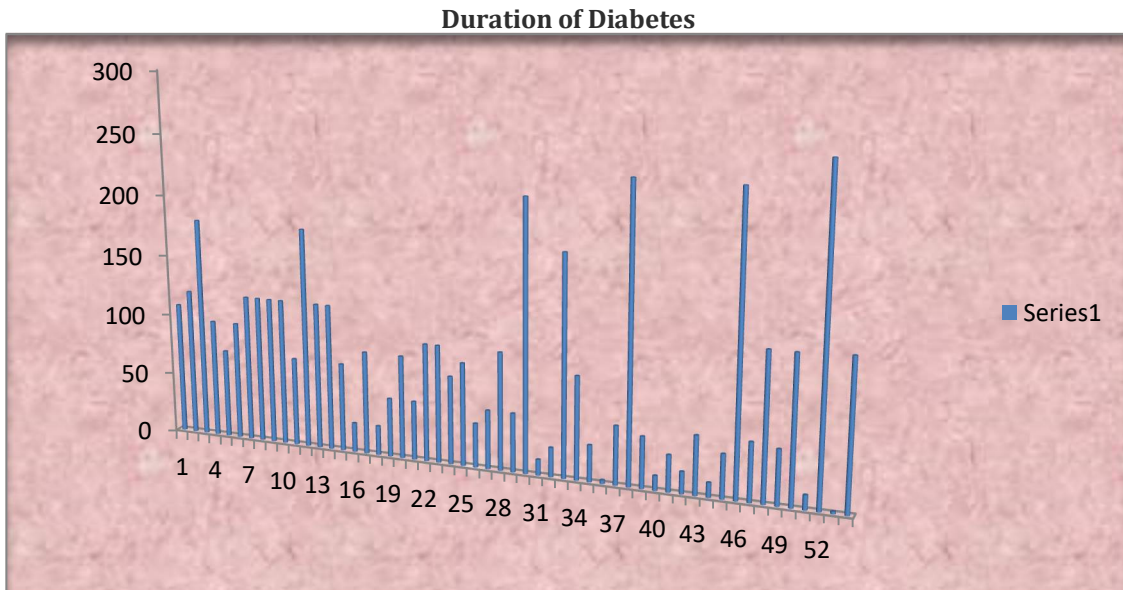


Fig: 1 Duration of diagnosis of diabetes in month

In survey, the prevalence of diabetes was 10.65 % in rural area of western maharashtra .Out of that 61.11 % male and 38.88 % female suffering from diabetes The participates average duration of diagnosis of diabetes 114.8 in month. We were observed normal participates i.e. they are not suffering from diabetes propostion of consumption of tea is less as camper to the diabetes suffering participates. We had assed minimum time of physical activities of participates in diabetes suffering participates 135.5±139.33 in minutes as compared to the normal participates 182.98±174.21 There was not statistical differences in physical activities between normal participates and diabetes suffering participates corresponding p value 0.0532. But there should be need to do physical activity or daily physical activity to control diabetes.

Table No: 2 Associations of Diabetes with Tobacco Chewers

	Tobacco chewers	Non tobacco chewers	P Value
diabetes participates	7(8%)	41(48%)	0.2876 Ns
Normal participates	2(2%)	36(42%)	

There were not statistical association in diabetes suffering participating and Normal participates among tobacco chewing corresponding p value 0.1424. But there will be risk to generate other types of morbidity.

DISCUSSION

Diabetes is more common in developing country, which is one of the common rezones for changing the life styles [12]. In India diabetes is widespread health problem. Ramachandran etal. Distinguished between urban and rural areas observed a higher diabetes prevalence in urban than rural areas [17, 18, 19]. In our study total 1152 households out of that 25,90 women and 27,89 men respectively . A total of 507 participant included in the study with the age of 18 to 92 years old. The prevalence of diabetes was 10.65 % in adopted village, out of that 60 % male suffering from diabetes .

The National Family Health Survey, IV survey [20] conducted in 2014–2015. Total fifteen Indian state and union territories included for the survey. In Andaman and Nicobar Islands had the highest prevalence of diabetes (26 and 14.5% among male and female, respectively), where as Haryana had the lowest prevalence of diabetes (8.2%) for male and Bihar (6.1%) for women. The prevalence was higher in urban area as camper to the rural areas.

In the Indian Council of Medical Research (ICMR) conducted largest nationally representative epidemiological survey in India on diabetes and pre-diabetes, the collated data from 15 states/UT of the country. The prevalence of diabetes ranged from 3.5 to 8.7% in rural to 5.8 to 15.5% in urban areas and the prevalence varied from 4.3% in Bihar to 13.6% in Chandigarh [21]

Gujral UP, et al. compared type 2 diabetes, pre-diabetes, and their associated risk factors in Asian Indians in India and in the U.S. [22] Prevalence of type two diabetes was reported to be higher in Indians living in Chennai (38%) as compared to those they residing in San Francisco and Chicago, US (24%).

LIMITATION

In this study sample size should be small due to time factor. There are non of genetic factors considered in this study.

CONCLUSION

It has been noted that the, prevalence of diabetes is increase with last decade. The researcher should focus all these disease as the need of the hour. The lifestyle diseases need to be screened and controlled at level of primary health care center for to avoiding burden on community. There should be need of conducting screening of diabetes program and also health awareness program me at rural level.

ACKNOWLEDGMENT

Authors are thankful to the team of Krishna Vishwa Vidyapeeth “Deemed To Be University”, Karad to collating data. I am specially giving thanks to Dr. S.V. Kakade for supporting statistical knowledge, statistical analysis.

Financial support and sponsorship: - Krishna Vishwa Vidyapeeth “Deemed To Be University”, Karad .

Conflicts of Interest:- There are no conflicts of interest.

REFERENCES

1. Geldsetzer P, Manne-Goehler J, Theilmann M, Davies JI, Awasthi A, Vollmer S, Jaacks LM, Barnighausen T, Atun R. (2018). Diabetes and hypertension in India: a nationally representative study of 1.3 million adults. *JAMA Intern Med.* 178(3):363–72.
2. Joshi SR, Saboo B, Vadivale M, Dani SI, Mithal A, Kaul U, Badgandi M, Iyennagar SS, Viswanathan V, Sivakadaksham N, Chattopadhyaya PS. (2012). Prevalence of diagnosed and undiagnosed diabetes and hypertension in India—results from the screening india’s twin epidemic (SITE) study. *Diabetes Technol Ther.* 14(1):8–15.
3. Pradeepa R, Mohan V. Epidemiology of type 2 diabetes in India. *Indian J Ophthalmol.* 2021 Nov;69(11):2932-2938.
4. World Health Organization. Diabetes. [Last accessed on 2021 Jun 04]. Available from: https://www.who.int/health-topics/diabetes#tab=tab_1.
5. International Diabetes Federation. IDF Diabetes Atlas. 4th ed. Brussels, Belgium: International Diabetes Federation; 2009.
6. International Diabetes Federation. IDF Diabetes Atlas. 5th ed. Brussels, Belgium: International Diabetes Federation; 2011.
7. International Diabetes Federation. IDF Diabetes Atlas. 6th ed. Brussels, Belgium: International Diabetes Federation; 2013.
8. International Diabetes Federation. IDF Diabetes Atlas. 7th ed. Brussels, Belgium: International Diabetes Federation; 2015.
9. International Diabetes Federation. IDF Diabetes Atlas. 8th edn. Brussels, Belgium: International Diabetes Federation; 2017.
10. World Health Organization. (2021). The top 10 causes of death. [Last accessed on 2021 Jun 04].
11. Tao Z, Shi A, Zhao J. (2015). Epidemiological perspectives of diabetes. *Cell Biochem Biophys.* 73:181–5.
12. Pradeepa R, Mohan V. (2017). Prevalence of type 2 diabetes and its complications in India and economic costs to the nation. *Eur J Clin Nutr.* 71:816–24.
13. Kshirsagar MV, Ashturkar MD. (2022). Prevalence of lifestyle diseases in Maharashtra: A comparison between NFHS-5 and NFHS-4 surveys. *J Family Med Prim Care.* 11(6):2474-2478.
14. Tabish SA. (2017). Lifestyle diseases: Consequences, characteristics, causes and control. *J CardiolCurr Res.* ;9:00326.
15. Gupta OP, Joshi MH, Dave SK. (1978). Prevalence of diabetes in India. *Advances in metabolic disorders.* 1;9:147-65.
16. Ommen AM, Abraham VJ, George K, Jose VJ. (2016). Rising trend of cardiovascular risk factors between 1991 and 1994 and 2010-2012: a repeat cross sectional survey in urban and rural Vellore. *Indian Heart J.* 68(3):263–9. 47.
17. Ramachandran A, Snehalatha C, Baskar ADS, Mary S, Kumar CS, Selvam S, Catherine S, Vijay V. (2004). Temporal changes in prevalence of diabetes and impaired glucose tolerance associated with lifestyle transition occurring in the rural population in India. *Diabetologia.* 47(5):860–5. 48.
18. Agarwal V, Singh G, Misra SK. (2017). Diabetes Sweeping Rural Areas: Findings from Community Based Study in Rural Agra, India. *Int J Med Public Health.* 7(4):207–13.
19. Kumar A, Kalra S, Unnikrishnan AG. (2016). Metabolic state of the nation: Results of the national family health survey-4. *Indian J Endocrinol Metab;*20:429–31.

Alate and Kakade

20. Anjana RM, Pradeepa R, Deepa M, Datta M, Sudha V, Unnikrishnan R, et al. (2011). Prevalence of diabetes and prediabetes (impaired fasting glucose and/or impaired glucose tolerance) in urban and rural India: Phase I results of the Indian Council of Medical Research-India DIABetes (ICMR-INDIAB) study. *Diabetologia*. ;54:3022-7.
21. Anjana RM, Deepa M, Pradeepa R, Mahanta J, Narain K, Das HK, et al. (2017). Prevalence of diabetes and prediabetes in 15 states of India: results from the ICMR-INDIAB population-based cross-sectional study. *Lancet Diabetes Endocrinol*;5:585-96.
22. Gujral UP, Narayan KM, Pradeepa RG, Deepa M, Ali MK, Anjana RM, et al. (2015). Comparing type 2 diabetes, prediabetes, and their associated risk factors in Asian Indians in India and in the U.S: The CARRS and MASALA studies. *Diabetes Care*. 38:1312-8.

CITATION OF THIS ARTICLE

Mahendra Alate, S. V .Kakade. Prevalence of Diabetes in Adopted Village of Western Maharashtra. *Bull. Env.Pharmacol. Life Sci.*, Vol 13 [1] December 2023: 147-151