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Prevalence of diabetes mellitus and co-morbid conditions among people aged 30 years and above in a rural area of Jammu

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Abstract

Background: Considering the epidemic of diabetes mellitus in recent decades, a prevalence study was carried out in rural adult population to observe the trend of the diseases. **Materials and Methods:** In a two step simple random sampling, Langotia subcentre was selected in Miran Sahib Zone of R S Pura block for the conduct of the study. A predesigned pretested oral questionnaire was used to screen the entire population aged 30 years & above. The suspects were confirmed as diabetic using fasting blood sugar levels (=>126) as per WHO definition. **Results:** The prevalence in the study was found to be 8.15%. It was more in females (10.8%) than males (5.82%). Hypertension was found to be the most commonly associated co-morbid condition. **Conclusion:** The study shows a rising prevalence of diabetes mellitus even in apparently normal population of rural area too.

Keywords: Prevalence, Diabetes mellitus, Co-morbid conditions.

Introduction

Diabetes mellitus is one of the ancient diseases known to mankind and described in Egyptian manuscript from 1500 BC mentioning too great emptying of urine.[1] The disease is an emerging global health problem with 80% of diabetic patients living in low and middle income countries and 50% of them undiagnosed. India has estimated number of cases equal to 63 million which is likely to touch 100 million by 2030 unless urgent preventive steps are taken.[2]

The disease is showing an upward trend with urban prevalence increasing to 12-19% in 2000 AD. Correspondingly in rural areas also the prevalence has increased from 1% to 4-10% while in another study it was reported that the rural prevalence of diabetes mellitus was 13.2%.[3-5] Early identification of high risk individuals on basis of clinical symptoms and further their diagnosis by blood glucose levels would help in knowing the hidden burden of diabetic patients and hence their early management to prevent complications caused by this silent threat.

Prevalence studies are important for planning of public health services with specific reference to National Diabetes Control Program. It was with this aim that a prevalence study was conducted in rural adult population of Jammu.

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Materials and Methods

The present study was carried out in Miran Sahib Zone of R.S Pura block which is a field practice area of Department of Community Medicine, Govt. Medical College, Jammu. Ethical committee clearance was sought before the study was started.

Using simple random sampling out of eight zones in R S Pura Block, Miran Sahib Zone was selected. It has 5 sub-centres and using simple random sampling again, Langotian subcentre was chosen for the conduct of the study. In each of the house falling under the Langotian subcenter all the adults aged 30 years and above was met personally and administered a predesigned and pretested questionnaire. The houses found locked during the study were excluded. They were enquired about symptoms like increased frequency of urination, increased thirst, excess hunger with loss of weight, frequent superficial infections, slow healing after minor trauma, family history of diabetes and in case of females; history of child birth with weight 4kg and above was asked. The persons with positive answer to any of the questions were then subjected to fasting blood sugar estimation using a Glucometer. The person was diagnosed as diabetic in accordance with WHO criterion for fasting blood glucose level (≥126).[6] The persons were also enquired about any co-morbid condition like hyper tension, Coronary Vascular Disease, Dyslipidemia etc.

The socio economic status of the studied population was evaluated using modified Uday Pareek Scale. The literacy level of the studied population was also recorded. The occupation of the studied population was categorized as per WHO expert committee guidelines.[7]

Results

Out of total population of 5346 catered by Langotian subcentre, the adult population (aged 30 years and above) enumerated was 2085 (39%). It included 1116 males and 969 females.

It was found that maximum prevalence of 18.57% was in 50-59 year age group followed by 13.18% in 60-69 year age group. The least prevalence of 1.13% was seen in 30-39 year age group (Table 1 & Figure 1).

Table 1: Age wise prevalence of Diabetes Mellitus in study population

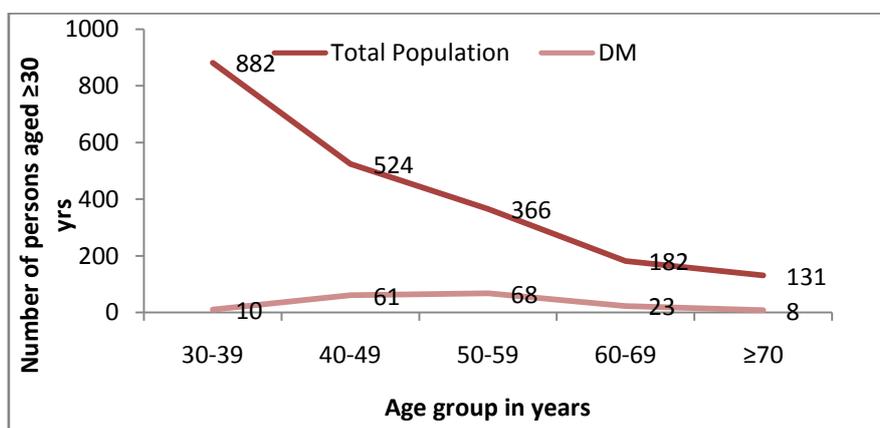| Age group In Yrs	Diabetic	Total Population Aged ≥30 yrs	Prevalence %
30-39	10	882	1.13
40-49	61	524	11.64
50-59	68	366	18.57
60-69	23	182	13.18
≥70	08	131	6.10
TOTAL	**170**	**2085**	**8.15**

Figure 1: Age wise prevalence of diabetes mellitus cases in study population

The current study showed that female prevalence was almost twice that of males (10.8% vs. 5.82%) as shown in (Figure 2).
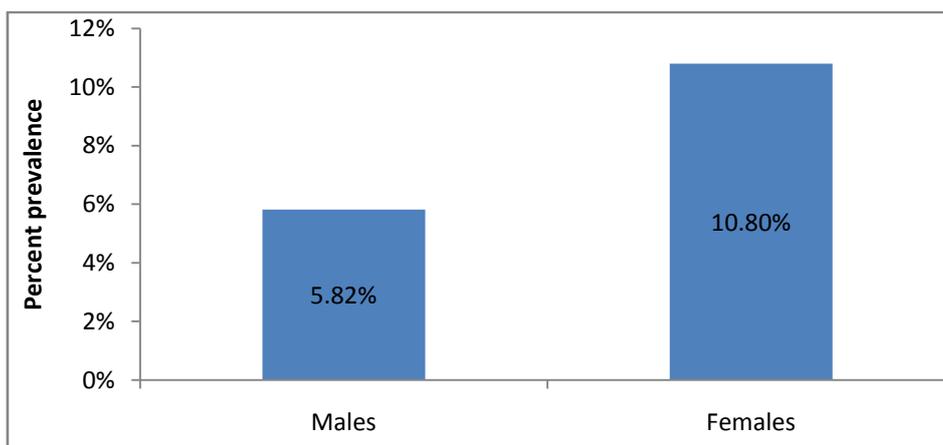

Figure 2: Prevalence of diabetes mellitus in different sexes

On the basis of Modified Uday Pareek Scale, it was seen that diabetes mellitus was more common in the upper middle class (11.47%), followed by middle class(8.67%) and then the lower class(8.2%), however the association was not found to be statistically significant (p=0.12) (Figure 3).

Figure 3: Prevalence of Diabetes Mellitus in different Socio-economic class

The current study shows higher prevalence (59.27%) in people with literacy levels of senior secondary school and above (p<0.01). Lower prevalence (2.05%) was found in people with primary level of literacy. The most probable cause seems to be the change in the lifestyle of people with higher literacy levels (Figure 4).
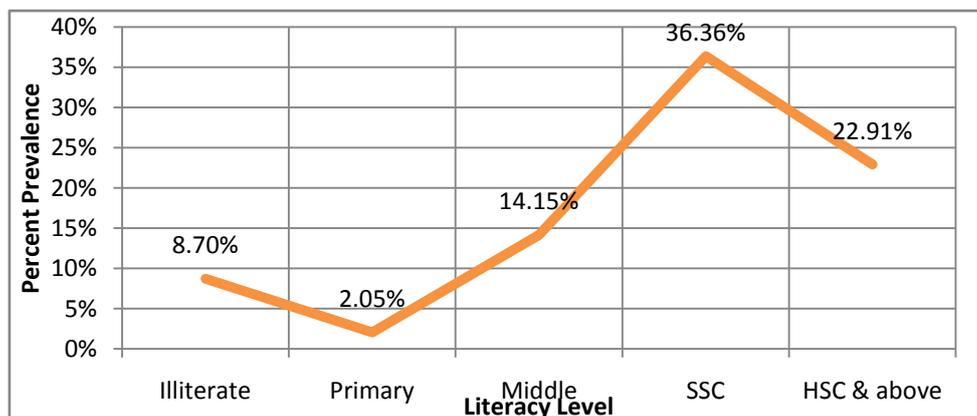

Figure 4: Diabetes mellitus prevalence in people with different Literacy levels.

As expected, 13.68% prevalence was found in people who were sedentary workers followed by 6.48% in moderate and 5.19% in heavy workers (Table 2).

Table 2: Prevalence of diabetes in different occupational groups

Occupation*	Diabetic	Total population aged ≥30 years	Prevalence %
Sedentary Worker	68	497	13.68
Moderate Worker	98	1511	6.48
Heavy Worker	4	77	5.19
Total	170	2085	8.15

* Classified according to WHO expert committee

Out of total 170 diabetic patients in the study population, 9.41% had hypertension while 5.89% had both hypertension and coronary heart disease as co-morbid conditions (Table 3).

Table 3: Prevalence of co-morbid conditions in diabetes patients

Disease	Male	Female	Total (%)
Only Diabetes Mellitus	51	93	144 (84.70)
DM with Hypertension	9	7	16 (09.41)
DM with Hypertension and Coronary Heart Disease	5	5	10 (05.89)
Total	65	105	170 (100)

Discussion

The prevalence of diabetes mellitus in the current study was found to be 8.15%, of which 2.58% were the new cases and 5.56% were known diabetic. Similar findings were reported by F Kelestimur *et al* [8] and Bjertness E *et al* [9] in rural areas among the same age group- the prevalence being 6.8% and 9.8% respectively.

Sadikot SM *et al* [10] found a lower prevalence of 2.7% in rural areas in people aged 25 years and more.

In the current study, females had a higher prevalence i.e 10.8% as compared to males (5.82%). Kinra S *et al* [11] in a rural study reported a prevalence of 6% in men, which is similar to our findings but they reported a lower prevalence of 5% in females.

Recent studies like Zhao X *et al* [12] are reporting a higher prevalence to the tune of 10% in rural areas; the most probable reasons for which could be sedentary life, high dietary fat intake, increased alcohol intake etc.

Regarding the co-morbid conditions, it was found that 84.7% of the diabetic patients had no co-morbidity while 15.53% had hypertension and coronary heart disease and in 9.4% of cases, hypertension alone was present.

Hypertension was found to be significantly associated with diabetes mellitus in studies done by Vijayakumar G *et al* [13], Zaman FA *et al* [14] and Bharati DR *et al* [15].

Conclusion

The study is showing an emerging trend of rising prevalence of diabetes in the rural areas of the country. The disease is associated with other morbid conditions, of which hypertension is prominent.

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