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Prevalence of self-reported Type 2 diabetes mellitus and associated socio-economic-demographic factors among adults above 20 years in a residential area of Delhi

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ABSTRACT

Background: There is changing epidemiology of type 2 diabetes mellitus in India. Few studies have reported prevalence of self reported diabetes in Delhi. **Aims and Objectives:** To assess the prevalence of self–reported Type 2 diabetes mellitus (T2DM) and find out its association with socio-economic-demographic factors among adults above 20 years in a residential area of Delhi. **Materials and Methods:** This was a community based cross-sectional study done in a residential area of East Delhi. The subjects were identified by door to door survey based on available records and self-report. They were interviewed using a pre-tested interview schedule with items on socio-economic and demographic characteristics. Chi-square test was used for qualitative data. Multivariate logistic regression analysis was used to find out associated factors with T2DM. Odds ratio (95% CI) was calculated. 'p' < 0.05 was considered significant. **Results:** The self-reported prevalence of T2DM was 8.5% (461/5444) among 20 years and above population. It was more in males (9.1%) than females (7.8%), highest (25%) in primary educated, least (7.3%) in graduates and above ($p<0.001$). Age-specific prevalence was maximum (22.4% in 60-69 years), least (0.2%) in 20-29 years ($p<0.001$). Occupation wise, maximum (19.2%) was in retired and least (0.7%) in unemployed ($p<0.001$). The associated factors were: age 50 years and above (OR 6.99, 95% CI 5.4-8.9), males (OR 1.33, 95% CI 1.07-1.65), secondary education (OR 1.39, 95% CI 1.05-1.84), unemployed (OR 1.45, 95% CI 1.15-1.83), per capita per month income Indian Rupees (INR) 20001 and above (OR 1.39, 95% CI 1.10-1.75). **Conclusion:** Self-reported prevalence of T2DM was 8.5%, more among males, >50 years, retired, secondary educated and with per capita income per month of Rs 20001 and above. It is necessary to create awareness among the people to identify, manage and prevent T2DM.

Key words: Prevalence, Diabetes, Delhi

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INTRODUCTION

Diabetes is characterized by high blood glucose levels due to defect in secretion of insulin, its action or both. Diabetes affects several organs such as eyes, kidneys, nerves, blood vessels, and heart results in their dysfunction, damage, or failure.[1] Diabetes is emerging as a major non-communicable health problem globally with evidence of an epidemic in several low and middle income countries. It is reported to be the fourth or fifth leading cause of mortality in several high-income countries.[2]

According to International Diabetes Federation (IDF) Atlas of 2014, it has been estimated that worldwide, 387 million people suffer from diabetes and it is expected

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to increase in number to 592 million by 2035. A large number of people with diabetes (77%) are from low and middle-income countries. Globally, the number of undiagnosed cases of diabetes is expected to be 179 million and the most affected age-group is 40 to 59 years. It is estimated that one patient of diabetes died in every seven seconds in 2014 and there were 4.9 million deaths due to diabetes.[3] As per estimates, India had 32 million diabetic subjects in 2000, and it is projected to 80 million by 2030.[4]

The Indian Council of Medical Research (ICMR) conducted the first multicentric study in India during 1972-1975. The criterion of diabetes used was capillary blood glucose level more than 170 mg/dl. The results showed that 3.0% and 1.3% were the prevalence of diabetes in urban and rural areas respectively.[5]

Studies done during the 1980s showed a higher prevalence of diabetes in urban areas i.e. 5% in Kudremukh, Karnataka (Ramachandran A et al) and 3.1% in affluent families of Daryaganj, Delhi (Varma NPS et al).[6,7] There was a rapid increase in the prevalence of diabetes type 2 in India from studies conducted during 1990s and 2000s. In Chennai, Ramachandran A et al reported the prevalence of type 2 diabetes rose to 11.6% in the same urban area, which had a prevalence of 8.2% five years earlier[8,9] (Table 1). Other studies from different parts of India during 1990s, till early 2000s, showed wide variations in the prevalence of diabetes in the population ranging from 6.3% in Kashmir Valley (Zargar et al) in 2000 to 16.3% in Trivandrum (Raman et al) in 1999.[10,11] The prevalence of 'known' diabetes was 1.9%, and that of 'undiagnosed' diabetes was 4.3% in the Kashmir valley study.[9] Some of the prevalence studies done during 1990s to 2015 are shown in Table 1.

Table 1: Studies on prevalence of diabetes in India since 1990s

Authors	Year of publication	Place	Prevalence (%)
Ramachandran A et al.[8]	1992	Chennai	8.2
Ramachandran A et al.[9]	1997	Chennai	11.6
Shah SK et al.[12]	1999	Guwahati	8.2
Raman KV et al.[11]	1999	Trivandrum	16.3
Zargar AH et al.[10]	2000	Kashmir Valley	6.3
Iyer SR et al.[13]	2001	Mumbai	7.5
Misra A et al.[14]	2001	Delhi slum	11.2
Mohan V et al.[15]	2003	Chennai	12.0
Gupta R[16]	2004	Jaipur	16.8
Mohan V[17]	2005	Chennai	15.5
Prabhakaran D[18]	2005	Delhi	15.0
Reddy KS[19]	2006	National	10.1
Ravikumar P[20]	2011	Chandigarh	11.1
Mustafa N[21]	2012	Jabalpur	11-18 (range)
Gujral UP[22]	2015	Chennai	38.0

In order to obtain continuous surveillance of Non Communicable Diseases (NCD) risk factors in India, the World Health Organization (WHO) and the ICMR took up NCD Risk Factor Surveillance in five states of India in 2005. It represented different geographical locations (north, south, east and west/central India). The study included about 40,000 individuals aged 15 to 64 years with equal representation from urban, peri-urban (slum) and rural areas. The overall prevalence of self-reported diabetes study was 4.5 per cent. Urban area showed the highest prevalence (7.3%), followed by peri-urban/slum (3.2%) and rural areas (3.1%).[23]

There is a significant change in the epidemiology of diabetes over the past few years in India. Such changes can be known from more recent epidemiological studies. Since there is increase in the non-communicable and lifestyle diseases, there is a need to study the changes in the prevalence of diabetes in urban areas of India. Moreover, estimates of the prevalence would help in providing recent data for diabetes type 2. Few studies have been done in Delhi to estimate the prevalence of known diabetics in the general population. The present study was aimed to assess the prevalence of self–reported Type 2 diabetes mellitus (T2DM) and find out its association with socio-economic-demographic factors among adults above 20 years in a residential area of Delhi.

MATERIALS AND METHODS

This was a community based cross-sectional observational study conducted during October to December 13. The present study was conducted in Dilshad Garden, East Delhi due to familiarity and ease of access to the researchers. The residential buildings were built and developed by Delhi Development Authority (DDA). There were 21 blocks in the area named as per English alphabets. The large blocks were pockets 'I', 'J & K' and these blocks were selected for the present study. For the purpose of the present study, target population refers to all persons aged 20 to 80 years residing in the study areas.The total population in the study areas was 6654 (1397 in 'I' and 5257 in 'J and K' pockets) residing in 2030 flats. The target population (20 years upto 80 years) was 5444 (81.8%) (1150 in 'I' and 4294 in 'J and K' pockets).

Sample size calculation

The following information and formula was used to find out the prevalence of T2DM subjects.Anticipated population proportion of T2DM= P (7%, based on the WHO and the ICMR NCD Risk Factor Surveillance, self-reported Diabetes in urban areas of India).[23]

Type I error (a = 5%)

Precision required on either side of the proportion (d) = (10% of P)

Formula:

N= $4PQ/d^2$ Where P= estimated proportion of known diabetics in community (i.e. 7%)

Q= (100-P)

d= 10% of P i.e. 20% of 7 = 0.7

N= (4 X 7 X 93)/(0.7 X 0.7) = 2604/0.49=5314

However, it was decided to survey the total population of 6654 in the study areas to get desired sample size aged 20-80 years.

The subjects were identified by door to door survey based on available records and self-report. They were interviewed using a pre-tested interview schedule with items on socio-economic and demographic characteristics, history of diabetes, recorded diagnosis in health cards, treatment etc.

Chi-square test was used for qualitative data. Multivariate logistic regression analysis was used to find out socio-economic and demographic factors associated with T2DM. Odds ratio (95% CI) was calculated. 'p' < 0.05 was considered significant.

RESULTS

Characteristics of study population and prevalence of T2DM is shown in Table 2. Age-group wise, the maximum number of subjects (23.2%) in the study population was aged 20-29 years and least (5.8%) were aged 70-80 years. Age specific prevalence rate was maximum (22.4%) in the age group 60-69 years and least (0.2%) in 20-29 years. The prevalence showed an increasing trend with increasing age with a slight dip in 70-80 years (17.5%) and it was statistically significant (p<0.001). The overall prevalence of known T2DM was 8.5% (461/5444) in age group 20-80 years.

Gender wise, the study population consisted of 50.9% males and 49.1% females. The prevalence of known T2DM was 9.1% in males and 7.8% in females but the difference was not statistically significant (p=0.07).

Literacy wise, maximum number of study population (78.7%) were graduates and above, 45(0.8%) could only read and write and 52(1.0%) were illiterates. The prevalence was highest (25%) among the study subjects with primary level of literacy status and least (7.3%) in graduates and above.The prevalence of known T2DM showed a declining trend with increasing education after primary level and this was statistically significant (p<0.001).

Occupation wise, maximum number of study subjects (33.3%) were in private job, followed by household work (27.5%) and 8.2% were unemployed. The prevalence of T2DM was least (0.7%) in unemployed and maximum (19.2%) in those retired from service and this was statistically significant (p<0.001).

The prevalence of T2DM was significantly higher (9.3%) in joint family than nuclear family (7.8%) (p=0.04). Maximum

Table 2: Prevalence of known type 2 diabetics as per socio-demographic characteristics of the study population

Variables	No (%)		'p' value
	N=5444	Prevalence	
Age groups (years)			<0.001
20-29	1261 (23.2)	3 (0.2)	
30-39	1074 (19.7)	14 (1.3)	
40-49	1151 (21.1)	79 (6.9)	
50-59	1020 (18.7)	170 (16.7)	
60-69	624 (11.5)	140 (22.4)	
70-80	314 (5.8)	55 (17.5)	
Total	5444 (100.0)	461 (8.5)	
Gender			0.07
Male	2773 (50.9)	253 (9.1)	
Female	2671 (49.1)	208 (7.8)	
Literacy status			<0.001
Illiterate	52 (1.0)	7 (13.5)	
Read and write	45 (0.8)	11 (24.4)	
Primary	116 (2.1)	29 (25.0)	
Secondary	293 (5.4)	44 (15.0)	
Senior secondary	652 (12.0)	55 (8.4)	
Graduate and above	4286 (78.7)	315 (7.3)	
Occupation			<0.001
Unemployed	447 (8.2)	3 (0.7)	
Government job	732 (13.4)	60 (8.2)	
Private job	1813 (33.3)	83 (4.6)	
Business	497 (9.1)	54 (10.9)	
Household work	1496 (27.5)	173 (11.6)	
Retired	459 (8.4)	88 (19.2)	
Family type			0.04
Nuclear	3072 (56.4)	240 (7.8)	
Joint	2372 (43.6)	221 (9.3)	
Family size			0.94
1-4	3082 (56.6)	259 (8.4)	
5-8	2175 (40.0)	185 (8.5)	
9-12	187 (3.4)	17 (9.1)	
Religion			0.22
Hindu	4807 (88.3)	396 (8.2)	
Muslim	159 (2.9)	12 (7.5)	
Sikh	163 (3.0)	16 (9.8)	
Christian	225 (4.1)	25 (11.1)	
Jain	90 (1.7)	12 (13.3)	
Per capita income (INR)			0.09
Up to 10000	819 (15.0)	58 (7.1)	
10001-20000	3371 (61.9)	275 (8.2)	
20001-30000	1033 (19.0)	103 (10.0)	
30001-40000	191 (3.5)	22 (11.5)	
40001 and above	30 (0.6)	3 (10.0)	

(56.6%) were having family size of 1 to 4. The prevalence increased with increasing family size but not statistically significant (p=0.94).

Religion wise, 88.3% were Hindus and only 1.7% were Jains. The prevalence was highest (13.3%) in Jains and least in Muslims (7.5%) but the difference was not statistically significant (p=0.22).

Maximum (61.9%) of the study population had per capita family income/month of Indian Rupees (INR)10001 to 20000. The prevalence of T2DM was least (7.1%) in per capita family income per month upto INR 10000, and highest (11.5%) in INR 30001- 40000 group.

Table 3 shows multivariate logistic regression analysis of various socio-economic and demographic factors associated with prevalence of T2DM in the study population. The associated risk factors were: age 50 years and above (Odds ratio 6.99), male (Odds ratio 1.33), literacy level upto secondary (Odds ratio 1.39), unemployed (Odds ratio 1.45), per capita income INR 20001 and above (Odds ratio 1.39).

DISCUSSION

The prevalence of known type 2 diabetes mellitus (T2DM) in the present study was 8.5% among adult population aged 20 to 80 years. This is closely similar to 8.7% prevalence reported by IDF in South-East Asia and 9% among adults aged 18 years and above, self reported prevalence of 8.6% in the United States in 1976-80, 8.3% in 1999-2000 among adults (20-74 years), 8.4% among Singapore population aged 18-69 years in 1992.[17,18,24-26] However, the prevalence is lesser than 12.1% reported from a nationwide urban survey conducted among adults aged 20 years and above in 2000.[27] Higher prevalence was also reported from other countries viz. 13.8% in Qingdao, China in 2006, 12.6% in Shanghai (2009), 10.3% in Sri Lanka (2005-06), and 9.8% in Hong Kong (1995-96).[28-31]

There are variations in the prevalence of diabetes reported from different parts of India. This could be related to the period of study, area (urban or rural), criteria used for diagnosis (self-reported or fasting and post-prandial blood glucose level from capillary or venous sample). Initial large scale nationwide survey conducted by Indian Council of Medical Research (ICMR) during 1972-1976 revealed that the prevalence of diabetes was 2.1% in urban population, and 5% in those above 40 years of age.[5] The second National Urban Diabetes Survey (NUDS) (2001) revealed a high prevalence of diabetes in South India (13.5% in Chennai, 12.4% in Bangalore, 16.6% in Hyderabad) as compared to East India (11.7% in Kolkata), North India (11.6% in Delhi), and West India (9.3% in Mumbai).[27] Another nation-wide study, the Prevalence of Diabetes in India Study (PODIS) by Sadikot SM et al (2004) reported that standardised prevalence of diabetes in urban Indian

Table 3: Multivariate logistic regression analysis of socio-economic and demographic factors associated with T2DM in the study population

Variables	No. (%)		Odds ratio	95% CI	'p' value
	N=5444	Prevalence			
Age (years)					
Upto 49	3486 (64.0)	96 (2.8)	6.99	5.49,8.90	<0.001
50 and above	1958 (36.0)	365 (18.6)			
Gender					
Male	2773 (50.9)	253 (9.1)	1.33	1.07,1.65	0.008
Female	2671 (49.1)	208 (7.8)			
Literacy level					
Upto secondary	506 (9.3)	91 (18.0)	1.39	1.05,1.84	0.02
Beyond secondary	4938 (90.7)	370 (7.5)			
Family type					
Nuclear	3072 (56.4)	240 (7.8)	1.19	0.93,1.52	0.16
Joint	2372 (43.6)	221 (9.3)			
Family size					
Upto 5	4150 (76.2)	351 (8.5)	1.05	0.79,1.40	0.72
6 and above	1294 (23.8)	110 (8.5)			
Occupation					
Employed	2539 (46.6)	142 (5.6)	1.45	1.15,1.83	0.002
Un-employed	2905 (53.4)	319 (11.0)			
Per capita income per month (INR)					
Upto 20000	4190 (77.0)	333 (7.9)	1.39	1.10,1.75	0.005
20001 and above	1254 (23.0)	128 (10.2)			
Religion					
Hindu	4807 (88.3)	396 (8.2)	1.30	0.97,1.74	0.07
Others	637 (11.7)	65 (10.2)			

population was 4.3%.[32] Subsequent study by Mohan V et al (2008) reported the prevalence of diabetes to be 7.3% in urban areas of India.[33] The Chennai Urban Rural Epidemiology Study (CURES) observed a high prevalence of diabetes (15.5%). It showed a trend of rising prevalence of diabetes in Chennai by 72.3% in a span of 14 years.[34]

Studies conducted in Delhi revealed a rising trend of prevalence of diabetes among adults aged 20 plus years from 3.1% in 1986 (Verma et al) to 4.1% in 1991 (Ahuja MMS et al), 10.3% in 2001among 18 plus years (Misra A et al), and 15.0% among 20-59 years in 2005 (Prabhakaran D et al).[7,14,18,35] The differences could be related to increasing prevalence of diabetes over the years and different criteria used for diagnosis of diabetes in the studies. Usually, the report based on known diabetes underestimate the actual prevalence since overt and undiagnosed cases are not taken into consideration. Verma et al used the criteria of known diabetes, whereas Ahuja MMS et al used combination of known and post prandial glucose level, Misra A et al used combination of known and fasting glucose level and Prabhakaran D et al used combination of known, fasting and post prandial glucose levels as the criteria.[7,14,18,35] The prevalence of 8.5% reported diabetes in the present study is also an underestimate since the undiagnosed cases were not screened for blood glucose levels.

Higher prevalence of diabetes was reported from different parts of India such as urban areas of Tamilnadu (13.7%), Maharashtra (10.9%), Jharkhand (13.5%) and Chandigarh (14.2%) (Anjana RM et al, 2001).[36] Ravikumar P et al (2011) reported age-standardised prevalence of diabetes to be 11.1% from Chandigarh.[20] In Manipur, the prevalence was 16.6% (Shah A et al, 2013).[37]

Age group wise prevalence of diabetes

The prevalence of known T2DM in the present study showed an increasing trend from 0.2% in 20-29 years age group to 22.4% in 60-69 years age group and slight decline to 17.5% at 70-80 years. A similar result was also reported by Qiao Q et al (2003) from their analysis of 11 studies in 4 countries among adults in age group 30-89 years. They reported an increasing prevalence of diabetes with increasing age, reached peak at 70-89 years of age in Chinese and Japanese subjects while in the Indian subjects it peaked at 60-69 years followed by a decline at 70 years of age. The study revealed that Indians had the highest prevalence of diabetes among Asian countries and peak prevalence of prevalence of diabetes reached 10 years younger than Chinese and Japanese population.[38] The Decode Study Group (2003) analysed data of 13 European cohorts and found that age-specific prevalence of diabetes were less than 10% in subjects younger than 60 years, and between 10% to 20% at 60-79 years of age.[39] Secular trend analysis of prevalence of T2DM in Shanghai by Li R et al (2012) showed an increasing trend from 9.7% in 2002-03 to 12.6% in 2009, and the prevalence increased with increasing age.[29] Chang et al (2000) also observed a significant increase in the prevalence of diabetes with increasing age in Taiwan.[40] Lu FH et al (1998) from Taiwan observed that prevalence of diabetes and IGT increased from 1.2% in 20-29 years to 26.9% in 70 years and above age group.[41] The possible reason for a dip in the prevalence at 70-80 years could be related to survivor bias, reflecting deaths at earlier ages due to complications of diabetes.[36]

Multivariate logistic regression analysis in the present study showed that age 50 years and above was associated with higher prevalence of diabetes (Odds ratio: 6.99, 95% CI 5.49 to 8.90). This finding was similar to that reported by Zargar et al (2000) from Kashmir valley which showed that age 50 years above was associated with higher prevalence of diabetes (Odds ratio: 1.87).[10]

Sex-wise prevalence of diabetes

In the present study, the prevalence of T2DM was higher in males (9.1%) than females (7.8%) and males were at higher risk of suffering from diabetes than females (Odds ratio: 1.33; 95% CI 1.07-1.65). This is in conformity with several other studies reported in different countries. Kim et al (2006) reported a higher prevalence among males (8.1%) than females (7.5%) in Korean national health survey (2001) conducted among population aged 20 years and above.[42] Li R et al (2012) also reported that prevalence of T2DM was higher among males than females in Shanghai.[29] Aeklakorn et al (2011) observed a higher prevalence in males than females in Thai population.[43] A study in Tainan city, Southern Taiwan by Lu FH et al (1998) observed that prevalence of diabetes was higher in males (10.3%) than females (7.9%).[41] In urban Baluchistan, Pakistan, the prevalence of diabetes was 11.1% in males and 10.6% in females (Shera et al, 1999).[44] In Nepal, Ono K et al (2007) reported a higher prevalence of T2DM in males (11.8%) than females (7.9%).[45]

In the Indian setting, studies from urban India also reported a higher prevalence in males than females viz. Verma et al (1986) from Delhi (3.8% in males versus 2.3% in females), Ramachandran A et al (1992) from Chennai (8.3% in males versus 7.6% in females), Shah SK et al (1998) from Guwahati (8.7% in males versus 7.8% in females), Ashabai PV et al (1999) from Chennai (8.7% in males versus 5.7% in females), Kutty VR et al (2000) from Kerala (16.4% in males versus 9.2% in females), Misra A et al (2001) from Delhi (11.2% in males versus 9.9% in females), Gupta A et al (2003) from Jaipur (13.2% in males versus 11.5% in females), Gupta R et al (2004) from Jaipur (17.7% in males versus 14.2% in females), Mohan V et al (2005)

from Chennai (18.0% in males versus 13.4% in females), and Reddy KS et al (2006) from the national level survey (11.2% in males versus 6.2% in females).[7,8,12,14,16,17,19,46-48] Shah A et al (2013) also observed higher prevalence of diabetes among muslim males (17.4%) as compared to 15.2% in females in Manipur.[37]

Ramachandran A et al (2003) reported that the prevalence of T2DM was not significantly different among males (13.3%) and females (14.3%) in urban Indians.[49] Similar observation was also reported by Joseph A et al (2000) from Trivandrum (16.3% in either gender), from Chennai by Ashabai PV et al (2000) (2.9% in males versus 3.1% in females), from the national prevalence by Ramachandran et al (2001) (13.8% in males versus 14.0% in females), by Sadikot SM et al (2004) (4.7% in males versus 4.8% in females).[27,32,50,51]

Some studies showed higher prevalence of diabetes among females than males. Sekikawa A et al (1993) reported the prevalence of diabetes as 14.7% in males as compared to 18.0% in females in Japan.[52] Similarly, Quoc PS et al (1994) also reported that the prevalence of diabetes was higher among females than males in Hanoi, Vietnam.[53] In Sri Lanka, Katulanda P et al (2008) observed that sex standardized prevalence of diabetes was 9.8% in males as compared to 10.9% in females.[30]

Literacy status and diabetes prevalence

In the present study, the prevalence was highest (25%) among the study subjects with primary level of literacy status and least (7.3%) in graduates and above. The prevalence of known T2DM showed a declining trend with increasing education after primary level and this was statistically significant ($p<0.001$). This is consistent with the findings of Ravikumar P et al (2011) who observed a negative association of diabetes with increasing educational status.[20] However, a study among the police personnel by Kumar P et al in Bankura, West Bengal did not find any association of educational status (graduate and below graduate) with the prevalence of diabetes.[54]

Income status and diabetes prevalence

In the present study, multivariate logistic regression analysis showed that per capita income per month in the higher group viz. INR 20001 and above had odds ratio of 1.39, with 10.2% prevalence rate of diabetes as compared to7.9% in families with per capita income per month less than INR 20000. Similar observation was reported by ICMR-INDIAB study which showed that income status was significantly associated with diabetes (Anjana RM et al, 2011).[36] Abu SM et al (1997) also reported that in either urban or rural areas, the highest prevalence of T2DM was observed among the rich, and the lowest prevalence was observed among the poor socioeconomic classes.[55] Mustafa N et al (2012) observed that prevalence of diabetes was maximum (18%) in the high income group areas as compared to middle income group area (11%) in Jabalpur, Madhya Pradesh.[56] Kumar SS et al (1998) also observed that increasing socioeconomic status was associated with higher prevalence of T2DM in Assam with an odds ratio of 1.55.[57] Rao CR et al (2010) reported a high prevalence of diabetes (32%) in the high socio-economic status with an odds ratio of 3.29 from Karnakata.[58]

Agarwal P et al (2013) observed that prevalence of diabetes was highest in the middle socio-economic status (25.7%) as compared to low (10.0%) and high socio-economic status group (10.0%) in Ahmedabad city among subjects aged 30 years and more.[59]

Occupation and diabetes prevalence

In the present study, prevalence of diabetes was maximum (19.2%) in those retired from service, followed by 11.6% in those with household work and 10.9% among adults in business. Multivariate logistic regression analysis showed that unemployed were more at risk of suffering from diabetes than employed (Odds ratio: 1.45; 95%CI 1.15-1.83). The findings are different from the study conducted by Rao CR (2010) who did multivariate logistic regression analysis and identified that skilled or professional job were considered to have significant co-relationship with diabetes.[58] Other studies also reported similar finding (Misra A et al, 2001; Kutty VR et al, 2000, Gupta A et al, 2003).[14,47,48] The high prevalence among the retired persons in the present study could be related to the older age and other factors such as physical inactivity among the retired persons.

Limitation of the study

In the present study, prevalence was based on self-report by the patients and thus, the expected prevalence might be higher than that reported in the study.

CONCLUSION

The prevalence of known Type 2 DM in 20-80 years was 8.5%, highest (22.4%) in 60-69 years, higher in males (9.1%) than females (7.8%), highest in those educated upto primary level (25%), more in those with per capita income of INR.20001 and above (10.2%), maximum in retired from service (19.2%). The prevalence of T2DM showed an increasing trend with increasing age.

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