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PREVALENCE AND DETERMINANTS OF DIABETICS IN INDIA: EVIDENCE FROM NFHS- III

Social Science

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ABSTRACT

The parts and organs must communicate with each other to ensure that a constant internal environment is maintained and function of the body properly. To study the regional variations of diabetics among the currently married women To examine the diabetics and the socio-economic and demographic characteristics. To study predictors of diabetics with Fitted Model of Logistic Regression for Socio-Economic and Demographic Characteristics and Diabetics. The present study is being made to analyse from National Family Health Survey (NFHS- III) conducted during 2005-06. Total number of sample was 87892 from the collected sample. The results of fitted model of binary logistic regression shows that levl of education of the respondents wealth Index, Age and Body Mass Index were significantly associated with Diabetics respondents.

KEYWORDS

Diabetics, Body Mass Index, Determinants, NFHS

BACKGROUND

The parts and organs must communicate with each other to ensure that a constant internal environment is maintained and function of the body properly. The nervous system generally allows rapid transmission of information between different body regions. Conversely, hormonal communication, which depends on the production and release of hormones from various glands and on the transport of those hormones via the bloodstream, is better suited for situations that require more widespread and longer lasting regulatory actions. In addition, both systems interact:

Endocrine disorders are often quite complex, involving a mixed picture of hypo secretion and hyper secretion because of the feedback mechanisms involved in the endocrine system. The most common endocrine diseases in India are common which includes Diabetics, Asthma and thyroid related disorders. Impaired thyroid gland function is accompanied by signs and symptoms that mimic those of other common diseases, such as fatigue, dyspnea, and weight gain, palpitations associated with anemia, cold intolerance and tiredness.

Group of diseases marked by high levels of blood glucose resulting from defects in insulin production, insulin action, or both diabetes can lead to serious complications and premature death. More than 220 million people worldwide have diabetes. More than 80 percent of diabetes deaths occur in low- income and middle-income countries The disease can cause long-term complications including kidney problems, nerve damage, blindness, and early coronary heart disease and stroke. To control their blood sugar levels and reduce the risk of developing diabetes complications, children with this condition need regular injections of insulin.

People with diabetes can take steps to control the disease and lower the risk of complications. Diabetes and its complications have a significant economic impact on individuals, families, health systems and countries. WHO estimates that in the period 2006-2015, China will lose 558 billion US dollars in foregone national income due to heart disease, stroke and diabetes alone (WHO, 2011). In India, with a population of 1.21 billion, an estimated 108 million people suffer from endocrine and metabolic disorders. Of these 108 million, 42 million suffer from thyroid disorders. (Kochupillai, 2000) With this back ground this paper is being made an attempt to study the prevailing of diabetics in India and to some extent to find the factor affecting those diseases.

OBJECTIVES

- To study the regional variations of diabetics among the currently married women
- To examine the diabetics and the socio-economic and demographic characteristics
- To study predictors of diabetics with Fitted Model of Logistic Regression for Socio-Economic and Demographic Characteristics and Diabetics

MATERIALS AND METHODS

The present study is being made to analyse from National Family Health Survey (NFHS- III) conducted during 2005-06. The survey provides information on Diabetics as Do you have Diabetics? Those are taken for the analysis.

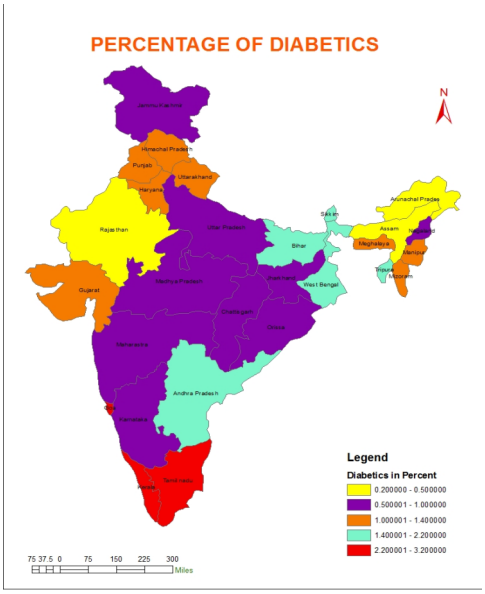
Total number of sample was 87892 from the collected sample sizes and particularly those who were answered for the above questions were taken for the analysis to find accurate information. To find the predictors of Diabetics Fitted Model of Logistic Regression for Socio-Economic and Demographic Characteristics and Diabetics was used.
The variables such as socio-economic variables; Place of residence, level of education, wealth index, occupation of the respondents, Place of occupation, Demographic Variables; age Total children ever born (CEB) Body Mass Index (BMI) Awareness; frequency of reading news paper, listening radio and watching television, were used to facilitate for easy interpretation. In addition to the above, comparison were interpreted with significance level and Beta values and expected Beta values.

ANALYSIS AND FINDINGS

TABLE:-1 DISTRIBUTION OF RESPONDENTS REPORTED BY DIABTICS AND STATES

STATES	DIABETICS	TOTAL
Jammu and Kashmir	15(0.7)	2044
Himachal Pradesh	27(1.2)	2255
Punjab	29(1.1)	2633
Uttaranchal	22(1.1)	2072
Haryana	30(1.4)	2134
Delhi	50(2.1)	2352
Rajasthan	7(0.2)	3044
Uttar Pradesh	62(0.7)	8968
Bihar	47(1.6)	2990
Sikkim	23(1.7)	1337
Arunachal Pradesh	6(0.5)	1127
Nagaland	20(0.9)	2329
Manipur	34(1.3)	2661
Mizoram	14(1.3)	1057
Tripura	25(1.9)	1336
Meghalaya	15(1.3)	1168

Assam	14(0.5)	2629
West Bengal	110(2.2)	4973
Jharkhand	22(1.0)	2295
Orissa	29(0.9)	3256
Chhattisgarh	19(0.7)	2724
Madhya Pradesh	49(1.0)	4923
Gujarat	34(1.2)	2828
Maharashtra	60(0.9)	6328
Andhra Pradesh	83(1.6)	5146
Karnataka	34(0.8)	4348
Goa	53(2.5)	2136
Kerala	83(3.2)	2616
Tamil Nadu	125(3.0)	4183
Total	1141(1.3)	87892



The above table reveals that the prevalence of diabetics among women in India with the available data from NFHS –III, the highest proportion of diabetic cases were reported in Kerala followed by Tamilnadu, Goa and Delhi with the percentages of 3.2, 3.0, 2.5, and 2.1 respectively. In contrast, the lowest proportions of the diabetic cases were identified in Rajasthan, Assam, Arunachal Pradesh, Uttar Pradesh and Chhattisgarh with the percentages of 0.2, 0.5, 0.5, 0.7 and 0.7 respectively. The analysis and proportion indicates that the state which have more socially and economically rich had experienced higher proportion of diabetics than those state have socially and economically low.

TABLE:-2 DISTRIBUTION OF RESPONDENTS BY SOCIO-ECONOMIC CHARACTERISTICS AND DIABETICS

SOCIO- ECONOMIC CHARACTERISTICS	DIABETICS	TOTAL
Place of residence		
Urban	749(2.0)	38364
Rural	392(0.8)	49528
Religion		
Hindus	815(1.2)	65328
Muslims	171(1.5)	11501
Christians	103(1.6)	6565
Others	52(1.2)	4498
Level of Education		
No education	290(0.9)	34093
Primary	187(1.4)	13550
Secondary	533(1.6)	32459
Higher	131(1.7)	07785
Wealth index		
Poorest	37(0.3)	11135
Poorer	82(0.6)	13409
Middle	129(0.6)	16798
Richer	284(1.4)	20596
Richest	609(2.3)	25954
Occupation		
Not working	795(1.5)	52826
Clerical, Professional, sales etc.,	166(1.9)	8781
Agricultural and allied activities	182(0.7)	26214
Place of Occupation		
At home	99(1.3)	7681
Away	250(0.9)	27537

Table 2 explains that the socio-economic characteristics of the respondents and diabetics as concern, rural respondents had comparatively lower proportion of diabetics to unban respondents. the higher proportion of the diabetics cases were reported among the respondents of Christians (1.6 Percent) followed by Muslims (1.5 percent) Hindus and others including Sikhs, Buddhist etc., (1.2 percent). Those who do have education of secondary and higher secondary had experienced higher proportion (more than 1.6 percent) of diabetes compared to other categories. It is note that the respondents who have no education had experienced lesser proportion diabetics cases were reported with 0.9 percent. It is to note from the anlaysis that highest percentage of cases reported among the respondents of richest category followed by richer, middle and poorer and poorest. It was also observed from the table that those respondents working as a clerical and other service sector they have more reported as a they were affected by diabetics compare d to those who worked in agricultural activities. Further, those who were worked at home have more diabetic's complaints that those who worked away from home. As the economic status and physical activities of the respondents increases may likely to change living condition and so that proportion of diabetics reported among the respondents varied.

TABLE:-3 DISTRIBUTION OF RESPONDENTS BY DEMOGRAPHIC CHARACTERISTICS AND DIABETICS

DEMOGRAPHIC CHARACTERISTICS	DIABETICS	TOTAL
Age group (in Years)		
Less than 25	78(0.3)	23374
26-35	238(0.7)	34075
36-45	585(2.4)	24647
46 and above	240(4.1)	5796
Total children ever born		
No child	52(0.6)	8523
2 children	1089(1.4)	79369
Body Mass Index(BMI)		
Less than 18.50	118(0.5)	22175
18.50-24.99	442(0.9)	46668
25.00+	581(3.1)	19048

The above table shows that the younger age's respondents experienced diabetics compared to other age groups. When age increases the diabetics was common (Bjùro et al., 2000). The higher proportion reported diabetics were in the age group of above 36 years. Similarly, the respondents having 2 children and above in their married life had experienced in higher proportion of diabetics complaints than the respondents those who do not have a child at all. In 2014, more than 1.9 billion adults, 18 years and older, were overweight. Of these over 600 million were obese. Overall, about 13 percent of the world's adult population (11percent of men and 15 percent of women) were obese in 2014. In 2014, 39 percent of adults aged 18 years and over (38percent of men and 40 percent of women) were overweight. The worldwide prevalence of obesity more than doubled between 1980 and 2014. In 2013, 42 million children under the age of 5 were overweight or obese.

Once considered a high-income country problem, overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. The above table shows those respondents have more BMI reported in higher proportion diabetics complaints compared to those who have lower BMI.

TABLE:-4 DISTRIBUTION OF RESPONDENTS BY KNOWLEDGE AND DIABETICS

KNOWLEDGE	DIABETICS	TOTAL
News reading		
Not at all	545(1.0)	53773
Less than once in a week	153(1.3)	12055
At least once in a week	148(1.6)	09481
Almost everyday	294(2.4)	12499
Listening to Radio		
Not at all	572(1.2)	48527
Less than once in a week	184(1.3)	13662
At least once in a week	126(1.2)	10159
Almost everyday	258(1.7)	15520
Watching television		
Not at all	183(0.7)	24968
Less than once in a week	82(0.9)	9450
At least once in a week	124(1.2)	10538
Almost everyday	752(1.8)	42921

Table-4 reveals that Knowledge and awareness determine the kind of diseases and their prevention and control among the respondents. Almost 2.4 percent of the respondents had experienced diabetics compare to those respondents were reading a newspaper habit was nil. The remaining proportions of respondents those who were reading news paper less than a week or every day. In contrast, those who were watching television experienced higher proportion of diabetic's complaints. It may due to physical activities were less and so that the proportion of diabetics complains might be increased as activities. This clearly indicates that those who had awareness through mass media determining the experience of various diseases. Comparatively visual communications have more determination than the reading or listening on the experience of diseases among the respondents. It may be concluded form the analysis that due o reading habits and watching television the reported diabetics' percentages may be higher.

TABLE-5: FITTED MODEL OF LOGISTIC REGRESSION FOR SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS AND DIABETICS (No-0, Yes-1)

SOCIOECONOMIC AND DEMOGRAPHIC CHARACTERISTICS	B	S.E.	Exp(B)
Place of residence			
Urban			1.000
Rural (1)	.030	.137	1.031
Religion			
Hindus			
Muslims (1)	-.096	.212	.909
Christians (2)	-.148	.179	.863
Others	-.370	.270	.691
Level of Education			
No education***			
Primary (1)	.212	.276	1.236
Secondary (2)*	.505	.264	1.657
Higher (3) ***	.690	.199	1.993
Wealth index			
Poorest **			
Poorer (1)	.352	.264	1.422
Middle (2)	.385	.262	1.470
Richer (3)*	.523	.275	1.688
Richest (4)**	.928	.299	2.530
Occupation			
Not working**			
Clerical, Professional, sales etc., (1)	.116	.724	1.123
Agricultural and allied activities (2)	-.277	.724	.758
Place of Occupation			
At home			1.000
Away (1)	-.041	.129	.960
Age group (in Years)			
Less than 25***			1.000
26-35 (1)**	.645	.323	1.906
36-45 (2)***	1.607	.319	4.988
46 and above (3)***	2.023	.333	7.563
Total children ever born			
No child			1.000
2 children (1)	.195	.290	1.215
Body Mass Index(BMI)			
Less than 18.50***			
18.50-24.99 (1)	.283	.175	1.327
25.00+ (2)***	1.164	.188	3.203
News reading			
Not at all			1.000
Less than once in a week (1)	-.039	.199	.962
At least once in a week (2)	-.378	.234	.686
Almost every day (3)	-.266	.217	.766
Listening to Radio			
Not at all			1.000
Less than once in a week(1)	-.159	.171	.853
At least once in a week(2)	.029	.174	1.030
Almost every day(3)	.041	.143	1.042
Watching television			
Not at all			1.000
Less than once in a week(1)	.102	.218	1.107
At least once in a week(2)	.182	.208	1.200
Almost every day(3)	.133	.184	1.142
Constant	-7.195	.873	.001

Note: *p<0.05, p<0.01, and ***p<0.000 -2 loglikelyhood value 3523.897a

The results of fitted model of binary logistic regression shows that level of education of the respondents, wealth Index, occupation, Age and Body Mass Index were significantly associated with Diabetics respondents. It was also observed from the table that all the variables which had mentioned earlier passively associated. As concern, the level of education and wealth Index 1.993 and 2.530 times higher diabetics reported among the higher educated and richest group than the reference category. The analysis occupation showed that those who had engaged in agricultural and allied activities they were 1.123 and 0.758 time higher and lesser than the reference category (clerical , services etc and Not working) respectively.

Age and BMI of the respondents were positively associated while age increases diabetics cases reported also higher. The BMI of the respondents was 3.203 time higher diabetics among higher BMI to the reference category that is lower BMI.

As per the data analysis seems to be very low percentages of respondents were affected by diabetics but in general it would be more.

It is necessary to check the diabetic cases among the women by both Government and Non Governmental Orgnissation Awareness among women about diabetics and other serious problems caused by Diabetics

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