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A cross sectional study: Prevalence, screening and awareness of diabetes among people living in Borabanda slum, Hyderabad

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Abstract
Background: India is a home to around 40 million diabetics and the numbers are gradually increasing. Having a well-informed community with appropriate knowledge regarding the disease, symptoms, and complications, having positive attitudes towards control, prevention and treatment of diabetes and most importantly early screening can help reduce the menace.
Objectives: To assess the prevalence, risk, awareness and attitude of people regarding diabetes.
Materials and methods: The study was a cross-sectional study conducted in the Borabanda Slum, Hyderabad, among the patients who attended a health camp on Diabetes, through random sampling. Information was obtained through a well-structured questionnaire and face to face interview regarding socio-demographic, clinical characteristics, familial history and awareness regarding diabetes.
Results: A total of 326 respondents participated in the study. Out of 326, 182 (55.82%) were female and 144(44.17%) were male. Most of the respondents aged between 28-37 years, with 94 (28.83%) of the participants belonging to that particular age. Out of 326, most of the participants 259 (79.44%) were illiterates and 230 of 326 respondents had no knowledge regarding diabetes. The respondents also had a familial history of diabetes and also showed certain clinical symptoms of diabetes.

Keywords: diabetes, familial history, awareness, screening

Introduction

Diabetes is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. In 2000, India (31.7 million) topped the world with the highest number of people with diabetes mellitus followed by China (20.8 million) with the United States (17.7 million) in second and third place respectively [1]. The prevalence of diabetes is predicted to double globally from 171 million in 2000 to 366 million in 2030 with a maximum increase in India. It is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India, while China (42.3 million) and the United States (30.3 million) will also see significant increases in those affected by the disease. India currently faces an uncertain future in relation to the potential burden that diabetes may impose upon the country [2].

The crude prevalence rate of diabetes in urban areas is about 9% and that the prevalence in rural areas has also increased to around 3% of the total population. If one takes into consideration that the total population of India is more than 1000 million then one can understand the sheer numbers involved. Taking an urban-rural population distribution of 70:30 and an overall crude prevalence rate of around 4%, at a conservative estimate, India is home to around 40 million diabetics and this number is thought to give India the dubious distinction of being home to the largest number of diabetics in any one country [3].

Diabetes mellitus is a disease caused by deficiency or diminished effectiveness of endogenous insulin. It is characterized by hyperglycemia, deranged metabolism and sequelae predominantly affecting the vasculature [4]. The conventional risk factors of industrialization, urbanization, decline in traditional cultural practices, physical inactivity, obesity (general and central), early life influences, genetics are major risk factors contributing to this increase in prevalence [5]. Accordingly, diabetes related complications are also on the rise and contribute significantly to overall morbidity and mortality. The low levels of education and poor awareness of the disease in the country are enhancing its impact on the health of the population [6].

Inadequate knowledge, public awareness about diabetes symptoms, complication and its prevention, coupled with the lack of infrastructure for diabetic screening and high-risk group identification are some of the factors explaining the failure of early diagnosis. As a consequence, many young diabetics live up to an older age, developing and suffering from chronic morbidities and thus living a poor quality of life [7]. Studies have shown that an important step in tackling disease diabetes is, having a well-informed community with appropriate knowledge regarding the disease, symptoms, and complications, having positive attitudes towards control, prevention and treatment of diabetes [8]. Thus, it is important to assess prevalence, screening and awareness of Diabetes.

Methodology

A cross-sectional household study was conducted among people living in Borabanda slum attending the Diabetic camp. The participants were selected through random sampling. A

total of 326 people participated in the study. A structured questionnaire was used to assess the knowledge of diabetes and Random Blood Sugar screening tests were done to detect the same. Basic data regarding demographic data, History of diabetes, Risk factors, Clinical characteristics of diabetes and knowledge regarding diabetes were included in the questionnaire.

Statistical analysis was done using Statistical Products and Service Solutions (SPSS) version 20. Categorical data was appropriately coded and entered. Statistical measures obtained by using descriptive analysis including mean, standard deviation, proportions and percentages.

Analysis

A total of 326 participants were included in the current study

Table 1: Demographic Characteristics of Participants

		Frequency	Percentage
Gender	Male	144	44.17%
	Female	182	55.82
Age	18-27	60	18.40
	28-37	94	28.83
	38-47	78	23.92
	48-57	50	15.33
	58-67	35	10.73
	68-77	09	2.76
Education	Post Graduate	3	0.92
	Graduate	8	2.453
	Intermediate	2	0.613
	High School	20	6.13
	Middle School	34	10.429
	Illiterate	259	79.44
Size of the family	1-5	247	75.76
	6-10	72	22.08
	11-16	7	2.14
Occupation	Daily wage	204	62.57
	Govt Employee	17	5.21
	Private Employee	18	5.52
	Self-employed	5	1.533
	Others	82	25.133
Income of the family	Rs. 1000-5999/-	177	54.29
	Rs. 6000-10999/-	122	37.42
	Rs.11000-15999/-	27	8.28
	Rs.16000-20999/-	0	00
	Rs. 21000 /-Above	0	00

Out of 326, 182 (55.82%) were female and 144(44.17%) were male. Most of the participants were aged between 28-37 years, with 94 (28.83%) of the participants belonging to that particular age group. There were 78 (23.92%) people aged between 38-47 and 60 (18.40%) were between 18-27years, 50 (15.33%) were between 48-57 years, 35 (10.73%) were 58-67 years and the remaining were aged between 68-77 Years. Educational qualification was obtained, most of the participants 259 (79.44%) were illiterates, 34(10.42%) were educated up to middle school, 20(6.13%) had completed high school, 8(2.45%) were graduates, 3 (0.92%) were post graduates and remaining were educated up to intermediate. The size of the family of 247(75.76%) was 1-5 members, 72(22.08%) was 6-10 members and remaining had 11-16 members living together in a family. Occupation details were obtained, majority of the participants 204(62.57%) were daily wage workers, 82 (25.13%) were doing other works, 18(5.52%) of them were private employees, 17(5.21%) were government employees and remaining were self-employed. Income of the family was obtained as per Kuppuswamy classification, 177(54.29%) were earning between Rs.1000-5999/-, 122(37.42%) were earning Rs.6000-10999/-, 27 (8.28%) were earning Rs.11000-15999/-and none of them were earning above Rs.16000/-. The demographic characteristics are represented in table one.

Table 2: History of Diabetes

		Frequency	Percentage
Are you taking treatment for diabetes	No	303	92.9
	Yes	23	7.05
Does anybody in family suffer from diabetes	No	292	89.5
	Yes	34	10.46
What is the relationship?	Grand Parents	6	17.64
	Other Relatives	6	17.64
	Parents	17	50
	Siblings	5	14.70

History of Diabetes was obtained through a well-structured questionnaire, 303(92.9%) were not taking treatment for Diabetes and remaining were taking diabetes treatment. Family history of Diabetes: 292(89.5%) were not having family history of Diabetes and only 34(10.46%) were having a history of Diabetes. Relationship with family having Diabetes, 17(50%) were parents, 6(17.64%) were grandparents and other relatives and remaining were siblings. The history of Diabetes is presented in table two.

Table 3: Risk Factors

		Frequency	Percentage
Body Mass Index (BMI)	Below 18.5(Underweight)	49	15.03
	18.5-24.9(Normal range)	183	56.13
	Above 25.0(Over weight)	85	26.07
	30.0-34.9(Obese I)	7	2.14
	34.9-39.99(Obese II)	1	0.306
	Above 40.0(Obese III)	1	0.306
Are you suffering from Heart Disease	No	318	97.5
	Yes	8	2.45
Are you suffering from Stroke	No	321	98.46
	Yes	5	1.533

Risk factors related to Diabetes of the participants were obtained. The Body Mass Index of the participants majority 183(56.13%) were in normal range of BMI, 85(26.07%) were overweight, 79 (15.03%) were underweight, 7(2.14%) were Obese I and remaining were Obese II and Obese III. Presence of heart disease, most of the participants 318(97.5%) were not known heart diseases and remaining 8(2.45%) were known heart diseases. 321(98.46%) of participants were not known stroke and remaining 5(1.53%) were having stroke. The risk factors are presented in table three.

Table 4: Clinical Characteristics of Diabetes

		Frequency	Percentage
Symptom of Urination	No	272	83.43
	Yes	54	16.56
Thirst	No	260	79.75
	Yes	66	20.24
Hunger	No	269	82.5
	Yes	57	17.48
Numbness	No	271	83.1
	Yes	55	16.87
Wound	No	299	91.7
	Yes	26	7.97
Random Blood Sugar(RBS)	Below 80	42	12.88
	80-110	155	47.54
	110-200	108	33.12
	200 Above	21	6.44

Clinical characteristics relating to Diabetes were obtained. The symptom of polyuria: 26(7.97%) were identified and remaining were not having the symptom of polyuria. 57(17.48%) were having the symptom of excessive hunger, 66(20.24%) were having the symptom of excessive thirst, 55(16.87%) were having the symptom of numbness and 26(7.97%) were having the symptom of wound. The clinical characteristics are presented in table four.

Table 5: Knowledge regarding Diabetes

		Frequency	Percentage
Have you heard about Diabetes?	No	230	70.55
	Yes	96	29.44
Can diabetes be cured	No	225	69.01
	Yes	101	30.98
Does diabetes has to take medicines everyday	No	226	69.23
	Yes	100	30.76

Knowledge regarding diabetes among participants was evaluated. Among participants, 230(70.55%) had not heard about Diabetes and the remaining 96(29.44%) had heard about diabetes. Majority, 225(69.01%) expressed that diabetes can be cured and 101(30.98%) expressed that diabetes cannot be cured. Majority, 226(69.23%) participants felt that it was not necessary for diabetes to take medications everyday whereas the remaining disagreed to that.

Discussion

The present cross sectional study was conducted among 326 people living in Borabanda slum, Hyderabad by using simple random sampling through a face to face interview to evaluate the demographic variables, history of diabetes, risk factors related to diabetes, clinical characteristics of diabetes and knowledge regarding diabetes followed.

The sample had majority of 182 females compared to males, and mostly in the age group from 28-37 years. Most of the participants were illiterates and go for daily wage work. Majority of the family size was 1-5members and income of the family was Rs.1000-5999/- which indicates most of the participants belong to low socio economic group.

History of diabetes showed that 23 people were taking treatment for diabetes and 34 of the participants were having family history of diabetes out of this 17 of the participant's parents were having diabetes. It indicates that family history of diabetes is one of the major risk factor of diabetes.

The risk factors related to diabetes revealed 85 participants were overweight and very few like 8 of them were suffering from heart diseases and 5 of the participants were suffering from stroke which indicates as prevention of diabetes is primarily dependent on risk factors like family history and improving knowledge about the risk factors of diabetes and steps to promote health must receive urgent attention

The clinical characteristics of the participants was evaluated and it showed that 54 of the participants were complained of polyuria, 57 complained of polyphagia and polydipsia, 55 complained of numbness and 26 were having wounds. This indicated that 33% of the participants were showing the clinical features of diabetes. The Random Blood Sugar values revealed that 108 participants blood sugar levels was 110-200mg/dl and 21 participants blood sugar levels was above 200mg/dl. Screening is an effective method to diagnose diabetes in early stage and prevent the complications. This type of community screening programs like diabetic camps may reveal the potential for disease and provide a means to enhance public awareness of the seriousness of diabetes and its complications.

Knowledge regarding diabetes, majority of the participants were lacking of awareness regarding diabetes, curability of diabetes and taking of medicines every day. It is likely that the results of the study represent only the tip of the iceberg, in-depth community based studies have to be undertaken to assess the awareness about diabetes. Community level awareness programs need to be launched to increase awareness [10].

Conclusion

The present study was the Diabetic camp conducted on World Diabetes Day in Borabanda slum, to know the prevalence of diabetes, screen the participants and test them to know the random blood sugar levels. This showed that family history of diabetes is the one of the risk factor and increased body mass index was one of the high risk to get diabetes. The clinical features of diabetes were screened and RBS revealed that 1/3rd of participants were positive to the symptoms and two third of the participants being unaware of basic facts regarding diabetes. However, it emphasizes the need for carrying the right message regarding diabetes right down to the masses and also extending diabetes education activities to urban areas as well where the prevalence rates of diabetes have already begun to rise [9]. In conclusion, this study reflects that screening tests during the early stages is poor in urban India. This emphasizes the need for increasing diabetes screening and awareness activities in the form of mass campaigns in both urban and rural areas of India.

Limitations

The study was limited to selected area and may have not been generalized. Responses were obtained for one shot screening and will be biased.

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