Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20184835

A study on non-compliance to treatment in a Chennai based diabetic population

U. Yashila Prithika¹, Christina Mary P. Paul²*, Vishwanath Simha Nethaji¹, S.Vishnu¹, Wajeeha Rumaiza¹, Sangeetha Manoharan¹, M. Meghna¹, K. Viyek¹

¹ACS Medical College, ACS Medical College, Velappanchavadi, Chennai, Tamil Nadu, India

Received: 04 October 2018 Revised: 03 November 2018 Accepted: 04 November 2018

*Correspondence:

Dr. Christina Mary P. Paul,

E-mail: christinapaul82@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: India is world's diabetic capital. Treatment compliance is most important to manage the disease effectively. This study was done to estimate the prevalence of treatment non–compliance among the adult diabetic population and to identify certain risk factors that may be associated with it.

Methods: The study was done on 300 diabetics who were chosen through stratified random sampling from urban and rural areas. Information was collected through a questionnaire that had questions on background information of the subject and then on diabetes and treatment compliance. The data entry and analysis were done using statistical package for social sciences (SPSS) version 22. The final data was summarized into percentages and 95% C.I was calculated for the prevalence rates. Cross tabulations were done for various variables. Chi-square values were calculated wherever appropriate and p values were based on the 2 –tailed values. Associations were assessed and 95% confidence interval of odds ratios were found using Epi Info version 7.1.2.

Results: The overall prevalence of non-compliance to treatment in diabetics was found to be 29.7% with a 95% CI of 24.5-34.8%. Treatment non-compliance among diabetics was significantly higher among male subjects, subjects from joint families, subjects with family history of diabetes and also subjects with BMI in the normal range.

Conclusions: This study shows the high prevalence rates of treatment non–compliance among the diabetic population emphasizes on the need for effective public–private partnerships to effectively reduce the disease burden of diabetes.

Keywords: Non-compliance, Diabetes, Urban, Rural, Obesity

INTRODUCTION

At present, India is considered as the diabetic capital of the world. There are approximately 3.5 crore diabetics in India, and this figure is expected to increase up to 5.2 crore by 2025. Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with

long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels.² Studies have shown that increasing patient knowledge regarding diabetes and its complications has significant benefits with regard to patient compliance to treatment and to decreasing complications associated with it.¹ Usually diabetic patients in India are not prepared adequately for self-care. These patients often find it sufficient to take care of themselves at home, with

²Department of Community Medicine, ACS Medical College, Velappanchavadi, Chennai, Tamil Nadu, India

very little medical accessories. The poor economic background is an obstacle for getting continuous therapy. Ignorance and in-adequate medical facilities are some of the other contributing factors.3 In a limited resourcecountry like India, the preponderance of economic instability, low literacy level, and restricted access to healthcare facilities might have led to the increase incidence of medication non-adherence.4 Medication compliance has been defined by the International Society for Pharmaco-economics and Outcomes Research as the "extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen".4 Treatment effectiveness decreases with non-adherence to prescribed medications thereby, increasing healthcare costs of diabetes. 4 Hence a study was taken up to estimate the prevalence of non-compliance to treatment among diabetics and also to identify the factors associated with non-compliance to treatment in a diabetic population.

METHODS

Study design

The study was done as a Community based Cross-sectional study, with both descriptive and analytical components. The descriptive component was used to estimate the prevalence of treatment non–compliance in a diabetic population and the analytical component was used to find the factors associated with them.

Study setting and subjects

The study was done on adult (>18 years) diabetics residing in the rural and urban field practice areas of A.C.S. Medical College. The rural area comprised of Parivakkam, Pidarithangal and Kolapanchery villages and urban area comprised of Adayalempet, Chinna—nolumbur and Erikkarai areas.

Sample size and sampling unit

Based on literature review the prevalence of non-compliance was 54.66% among diabetics in a South Indian population.⁵ With an allowable error of 11% of the prevalence which was 6.01. The minimum sample size to be studied was calculated to be 264 finally it was decided to study a sample of 300.

Selection and distribution of participants

Three hundred (300) adults with a known history of diabetes and who were willing to participate in the study were selected by stratified random sampling from the study areas (150 from rural and 150 from urban). Only one diabetic was selected from each family.

Inclusion and exclusion criteria

Adult diabetics residing in the study area and willing to give informed consent were included in the study.

Subjects who were below the age of 18 and those unwilling to participate were excluded from the study.

Ethical considerations

Ethical clearance was obtained from the institutional ethics committee of A.C.S. Medical College and informed consent was also taken from all the study subjects before the start of the study.

Definition and classification of main study variable

Treatment compliance: Extent to which patient acts in accordance with the prescribed interval and dose of the dosing regimen.⁴ This was assessed based on questions on whether they were regularly taking the prescribed medication at the right dosages and time intervals.

Obesity: subjects having a BMI >25 were considered as obese and those having a BMI of \leq 25 were considered as non-obese.

Data analysis

The data entry and analysis were done using statistical package for social sciences (SPSS) version 22. The final data was summarized into percentages and 95% C.I was calculated for the prevalence rates. Cross tabulations for various variables. Chi-square values were calculated wherever appropriate and p values were based on the 2 – tailed values. Associations were assessed, and 95% confidence interval of odds ratios were found using Epi Info version 7.1.2.

RESULTS

Diabetic profile

Among the diabetics 52.3% were aged above 55 years and 47.7% were equal to or less than 55 years. Only 29.3% of the diabetics were following regular exercise. Of the study subjects 44.3% reported to have had diabetes for more than 5 years. Out of the 300 subjects 164 gave history paresthesia which amounted to 54.7%. Only 10.6% of the participants were using Insulin therapy as part of the management and the rest were on Oral hypoglycemic drugs. Details can be seen in Table 1.

Prevalence of treatment non-compliance in a diabetic population

The overall prevalence of non-compliance to treatment in diabetics was found to be 29.7% with a 95% CI of 24.5-34.8. Details can be seen in Table 2. The most important reason quoted for non-compliance was that the subject didn't think it was important to take regular medication followed by financial difficulties. Details can be seen in Figure 1.

Table 1: Diabetic profile of the study subjects.

Variable (classification of the variable)	Number (out of 300)	Percentage (%)				
Duration of DM						
≤5 years	167	55.7				
>5 years	133	44.3				
Family H/O DM						
Yes	123	41				
No	177	59				
Regular exercise						
Yes	88	29.3				
No	212	70.7				
Disease affected personal life						
Yes	80	26.7				
No	220	73.3				
Insulin therapy						
Yes	31	10.6				
No	268	89.3				
H/O paresthesia						
Yes	136	45.3				
No	164	54.7				
H/O Foot ulcer						
Yes	16	5.3				
No	284	94.7				

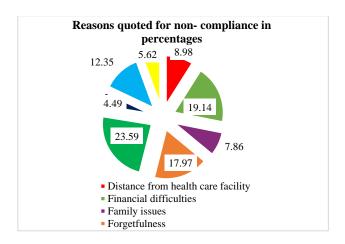


Figure 1: Most important reason for non – compliance as quoted by the patient.

Association between treatment depression in diabetes and certain suspected risk factors

Treatment non-compliance among diabetics was significantly higher among male subjects, subjects from joint families, subjects with family history of diabetes and also subjects with BMI in the normal range. The above-mentioned associations were also statistically significant. However none of the other associations were statistically significant. Details can be seen in Table 3.

Table 2: Prevalence of treatment non – compliance in a diabetic population.

Variable	Number of diabetics with the attribute (out of 300)	Percentage (%)	95% C.I
Treatment non-compliance	89	29.7	24.53-34.8

Table 3: Association between treatment non-compliance in DM and certain suspected risk factors.

Variable	Classification of variable (number of people in the group out of 300)	Number of diabetics with treatment non – compliance (out of 89)	Odds ratio (95%C.I Of odds ratio)	Chi– square value	P value
Gender	Male (92)	35	1.75 (1.04 – 2.95)	4.62	0.03 *
	Female (208)	54	1.00		
Type of family	Joint (160)	57	1.8 (1.12-3.11)	5.83	0.016*
	Nuclear (140)	32	1.00		
Family history of DM	Yes (123)	46	1.86 (1.13-3.0)	5.99	0.015*
	No (177)	43	1.00		
Obesity	BMI ≤25 (125)	49	2.18 (1.32-3.60)	9.33	0.0022*
	BMI>25 (175)	40	1.00		
Aware that it is a life – long condition	Not aware (46)	12	2.07 (0.98-4.36)	3.78	0.052
	Aware (254)	37	1.00		
Age	≤55 (143)	47	1.34 (0.82-2.2)	1.34	0.25
	>55 (157)	42	1.00		
Treatment modality	With insulin (32)	12	1.49 (0.69-3.19)	1.05	0.30
	Without insulin (168)	77	1.00		
Good family	No (32)	13	1.73 (0.81-3.67)	2.06	0.15
support system for DM	Yes (268)	76	1.00		

DISCUSSION

A community based cross-sectional study was done to estimate the prevalence of treatment non-compliance and depression in an adult diabetic population and also to determine the factors that were associated with them. The current study showed a high prevalence of treatment noncompliance (29.7%) but this might be getting better than rates in the past as a study done by Shobana et al in 1999 showed a non-compliance rate of 75% the reduction in the numbers could be because of increased awareness of the subjects and also better health care services. Males were found 1.75 times more non-compliant to treatment than females with a p=0.03, this was similar to the results of a study done in the coastal region of South India in which males were found to be more non- compliant than females.⁸ Non-compliance to treatment is 1.86 times more among individuals with family history of diabetes (51.68%) than those without family history with p=0.015, this could be because of the psychological component that could have made them numb to being compliant after seeing the chronicity of the disease in their relatives. Non-compliance is found to be 2.18 times more among non-obese, p=0.0022 indicating that obese individuals because of their increased risk, are more concerned, hence better adherent to diabetic management than nonobese.

The most important reason quoted by the subjects for their non- compliance to treatment was that they were not aware of the importance of regular medications (23.59), followed by financial difficulties (19.14).

This study has shown a high prevalence of treatment non–compliance (29.7%). Hence there is a definite need to improve patient compliance by creating better health awareness for not just the subjects but also the families on the ill–effects of treatment non–compliance. in this case non–compliance was more among subjects from joint families. Treatment non–compliance if not adequately tackled can increase the burden of a disease that is already on the increase.

ACKNOWLEDGEMENTS

Our sincere thanks to the health workers and field staff of A.C.S Medical College, who worked tirelessly during the data collection phase of the study in accompanying the interns to the households of the diabetic subjects included in the study.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of A.C.S. Medical College

REFERENCES

- Gulabani M, John M, Isaac R. Knowledge of diabetes, its treatment and complications amongst diabetic patients in a tertiary care hospital. Indian J Community Med. 2008;33(3):204-6.
- 2. Diagnosis and Classification of Diabetes Mellitus. Diabetes Care. 2011;35(1):64-71.
- 3. Diabetic compliance: A qualitative study from the patient's perspective in developing countries. IOSR J Nursing Health Sci. 2013;1(4):29-38.
- 4. Mateti U, Kanduri K, Konda S, Medi R. Medication adherence and determinants of non-adherence among south Indian diabetes patients. J Social Health Diabetes. 2015;3(1):48-51.
- 5. Divya S, Nadig P. Factors contributing to non-adherence to medication among type 2 diabetes mellitus in patients attending tertiary care hospital in south india. Asian J Pharmaceutical Clin Res. 2015;8:274-6
- Paul C, Stanly M, Archanalakshmi P. A Study on the Prevalence of Depression Among Women in the Reproductive Age Group (15- 49 Years) in A Rural Population. Paripex. Indian J Res. 2013;9(2):169– 72.
- 7. Shobhana R, Begum R, Snehalatha C, Vijay V, Ramachandran A. Patients' adherence to diabetes treatment. J Assoc Physicians India. 1999;47(12):1173-5.
- 8. Rao C, Kamath V, Shetty A, Kamath A. Treatment Compliance among Patients with Hypertension and Type 2 Diabetes Mellitus in a Coastal Population of Southern India. Int J Prev Med. 2014;5(8):992–8.

Cite this article as: Prithika UY, Paul CMP, Nethaji VS, Vishnu S, Rumaiza W, Manoharan S, et al. A cross-sectional study of awareness regarding dog bite and its management in rural community of Maharashtra. Int J Community Med Public Health 2018;5:5465-8.