

AWARENESS ABOUT PRESCRIBED MEDICATIONS AND LIFESTYLE MODIFICATION IN PATIENTS WITH TYPE2 DIABETES MELLITUSMahaboob Pasha¹, Archana Dambal², S. T. Kalsad³, Sunanda Halki⁴**HOW TO CITE THIS ARTICLE:**

Mahaboob Pasha, Archana Dambal, S. T. Kalsad, Sunanda Halki. "Awareness about Prescribed Medications and Lifestyle Modification in Patients with Type2 Diabetes Mellitus". Journal of Evidence based Medicine and Healthcare; Volume 2, Issue 44, November 02, 2015; Page: 7931-7939, DOI: 10.18410/jebmh/2015/1067

ABSTRACT: BACKGROUND: Diabetes mellitus is one of the most common non-communicable diseases in India. It is one of the diseases in which patient self-care has an important role in long-term outcome. Patient self-care directly depends on level of awareness about the disease, especially knowledge regarding prescribed medications. **AIMS AND OBJECTIVES:** This study was conducted to know the level of awareness about prescribed medications and lifestyle modification in type 2 diabetes mellitus patients. This study was conducted in a government hospital in Belagavi over a period of two consecutive months. Out patients with type2 diabetes mellitus were interviewed and data collected. **RESULTS AND OBSERVATIONS:** The knowledge regarding diabetes mellitus is less among the patients. Awareness, particularly to prescribed drugs & lifestyle modification advice was poor. Complications of diabetes were less in those who were aware about the disease & prescribed medications. **CONCLUSION:** These findings may suggest poor awareness of diabetes/prescribed medications/lifestyle modification. However further research on the topic and clinical trials to overcome the same may give some clues to overcome the problem.

KEYWORDS: Awareness, Diabetes mellitus, diabetes complications, Educational status, diet modification, Diabetes Type 2.

INTRODUCTION: Diabetes is not a new disease. It is one of the first diseases described ¹. Since its description in 1500BCE, there's been tremendous understanding of the disease and accordingly, the developments in treatment of the same. However the management of diabetes mellitus also depends on patient's ability to self-care. Hence, patient education can be considered as an essential part of diabetes management. Several studies from the foreign countries have found that those who are aware about diabetes mellitus have comparatively better long term glycemic control² and it is obvious that those who have better glycemic controls will have lesser complications.^{2,3}

CURRENT STATS: The burden of diabetes is rising every year. As of 2010, an estimated 285 million people had diabetes among which about 90% were type 2. In 2013, the statistics raised to 381 million (International Diabetes Federation)⁴ & in 2014 studies estimated about 387 million people having diabetes worldwide & a predicted 592million diabetics by 2035.⁵

India is the diabetes capital of the world with a projected number of 109million diabetics by 2035 in India alone.⁶ India has about 62 million people affected by diabetes and 77 million people with prediabetes.^{6,7} Rather we can say, >7% of India's population is diabetic. More recent

ORIGINAL ARTICLE

studies (2015) indicate that the prevalence of diabetes to be 22.2 per 1000 person-years, & prediabetes to be 29.5 per 1000 person-years. The studies also reported that about 58.9% of prediabetics developed diabetes mellitus.⁸

Most of the patients attending government health care facilities are socioeconomically backward and have poor literacy rates. This is a known fact to the doctors from government hospitals. It is often noticed that, these patients do not understand and follow health advice,⁹ especially, lifestyle modification and prescription. This can be attributed to lack of awareness of disease among patients, their literacy/educational status, time spent on each patient by treating doctor, communication skills of the doctor etc. Lack of awareness about the disease (esp. prescribed medications and lifestyle modification) is associated with poor compliance to medication leading to poor control of diabetes mellitus, subsequently increasing the complications of their disease & also favoring doctor shopping behavior among them.

Several studies on awareness of diabetes among general population were reported from developed world, whereas, from developing countries like India, few reports are available regarding the level of awareness of diabetes. Among them, very few have highlighted about awareness of prescribed drugs in patients & almost none have contrasted the importance of the same in long-term management of diabetes. So we tried to understand the patient's understanding of prescribed medications and lifestyle modification in diabetes with the help of this survey conducted in a government hospital in Belagavi.

MATERIALS AND METHODS:

Study Design: Cross Sectional Study: A questionnaire based interview was conducted by the investigator after the study subjects were enrolled into the study. Our study was conducted in out-patient department of Medicine, in a government hospital (BIMS) of Belagavi, Karnataka. It was conducted twice a week, for two consecutive months (study period).

Patients with type 2 diabetes mellitus diagnosed for at least 1 year and received medications from medicine OPD at least twice & among these patients, those who can read/understand either English/Hindi/Kannada /Marathi were enrolled into the study. These patients were explained about the study and consent is taken. Diabetes Patients with impaired speech/hearing/cognition & those who didn't consent were excluded from the study.

50 patients qualified for the study. However, 9 patients had stroke with impaired speech/hearing. 7 patients were diabetic since <1 year & were excluded. 4 patients didn't consent for the study. Hence, thirty patients qualified for the study (as per the inclusion criteria) during the study period. Each participant was interviewed by the investigator (avg. 20 mins) & data is collected using a prevalidated questionnaire. The questionnaire consists of four sections. Part 1: Socio demographic data, Part 2: Patients' history (diabetes) Part 3: Questions assessing knowledge about diabetes mellitus, Part 4: Questions assessing awareness of prescribed drugs and lifestyle modification.

Answering the questionnaire took about 20-25 minutes (avg.) for each patient. The questions were in native language of the patient. The questions were of yes/no type and multiple choice type. Some questions were open-ended. The data is tabulated and analysed and compared.

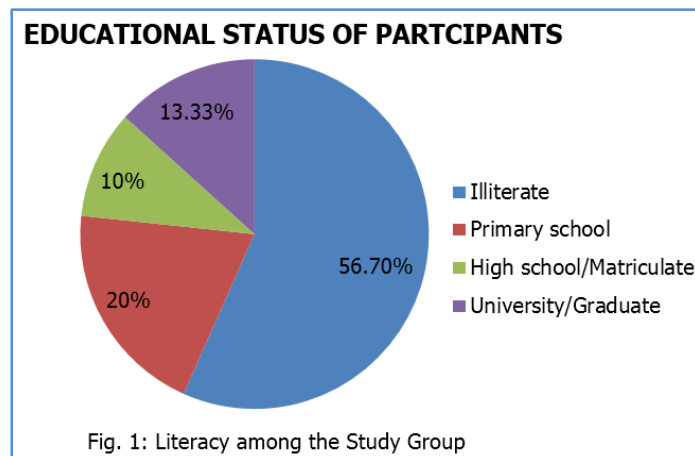
ORIGINAL ARTICLE

In case of any difficulty in understanding any part of questionnaire, the participant was free to seek clarification for the same. At the end of the survey, relevant health education pertaining to diabetes was given to the patients.

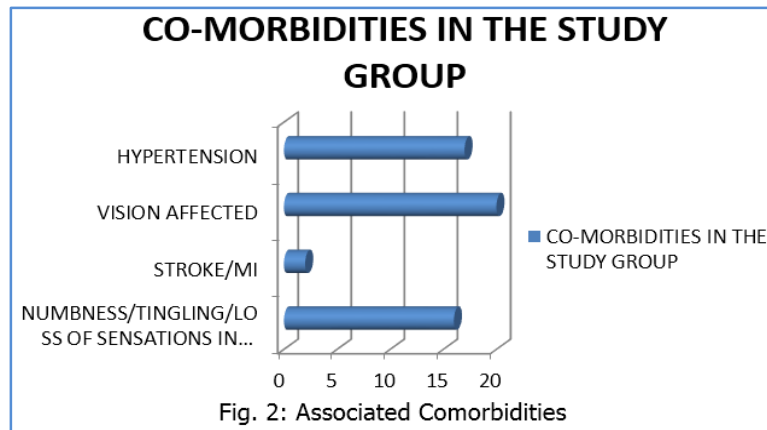
FINDINGS/RESULTS: Among the surveyed patients 46.7% were males and 53.3% were females. Most of the surveyed patients were in the 5th& 6th decade of life. Majority (56.7 %) of them were illiterate, 43.3 % of them were literate. Most of the patients were from low & middle income families.

Age Distribution	
Age(yrs.)	Percentage % (No. of patients)
30-40	6.6 (2)
41-50	16.7 (5)
51-60	26.6 (8)
61-70	43.3 (13)
71-80	3.3 (1)
81-90	3.3 (1)
Sex Profile	
Males	46.7(14)
Females	53.3(16)
Marital Status	
Married	66.7(20)
Single	6.7(2)
Widowed	26.7(8)
Educational Status	
Illiterate	40(12)
Primary school	36.7(11)
High school/ Matriculate	10(3)
University/Graduate	13.3(4)

Table 1: Socio-demographic details of patients

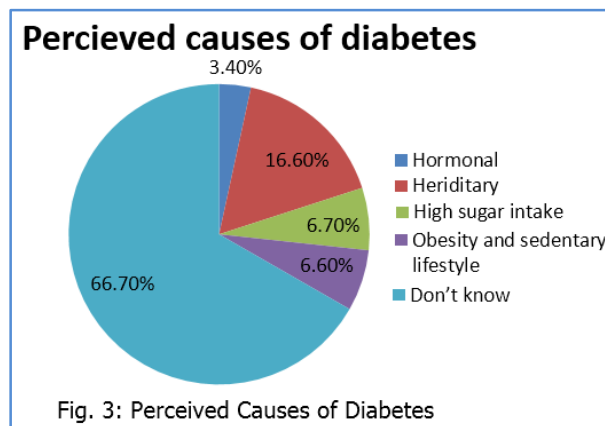


ORIGINAL ARTICLE



Most of the patients had associated co-morbidities and were on multiple medications for treatment.

Surprisingly, Only 16.7% patients described diabetes mellitus as a disease of “sugar” and excessive urination while others were unaware of the nature of their illness. Many patients (66.6%) expressed that they did not know when asked the cause of diabetes.



Only 23.3% of patients were aware about the drugs they were taking.

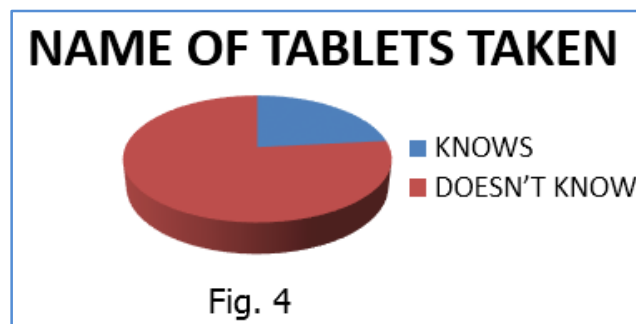


Figure 4: Responses To The Question, Can You Name The Medications Prescribed?

ORIGINAL ARTICLE

Identifies tablets taken, by name	
	% of patients
Identifies	23.3
Does not identify	76.7
Remembers dosage /strength of tablet taken	
Remembers	16.7
Doesn't remember	83.3
Lists at least 2 adverse effects of drugs taken	
Lists	23.3
Doesn't list	76.7

Table 2: Awareness of Prescribed Drugs

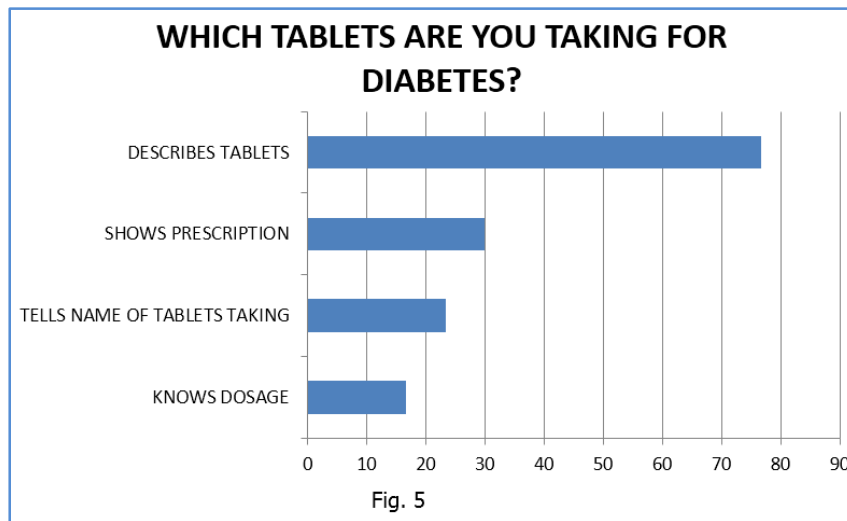


Figure 5: Responses obtained for the question, "which tablets are you taking for diabetes?"

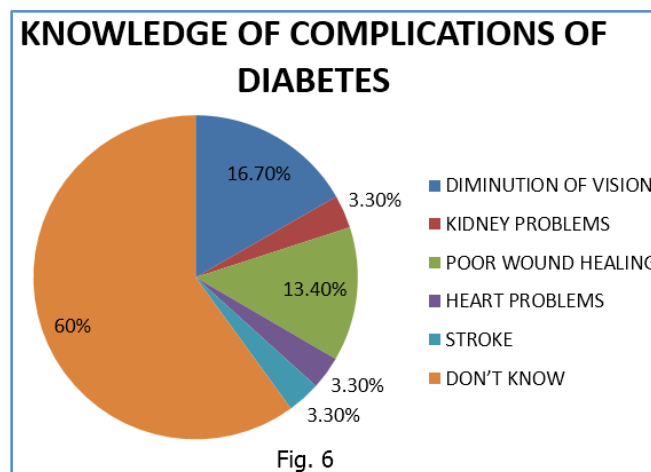


Figure 6: Awareness of Long Term Complications of Diabetes.

ORIGINAL ARTICLE

Majority of the patients (60%) were unaware of long-term complications of diabetes. Those who were aware, listed; eye problems (diminution/loss of vision), poor wound healing, foot problems (tingling/burning/numbness), stroke and heart problems as the common complications. However, 90% of patients answered 'yes' when asked, 'are you taking your medications regularly?' Only 23 % of them exercised regularly. Regular Blood glucose monitoring among the patients was poor, about 86% patients were not maintaining record(s) of their plasma glucose levels.

We also noted that the Practice of doctor shopping was common among patients, 60% patients visited >2 doctor for the diabetes care, among them about 20% patients consulted >5 doctors in the past 1 year.

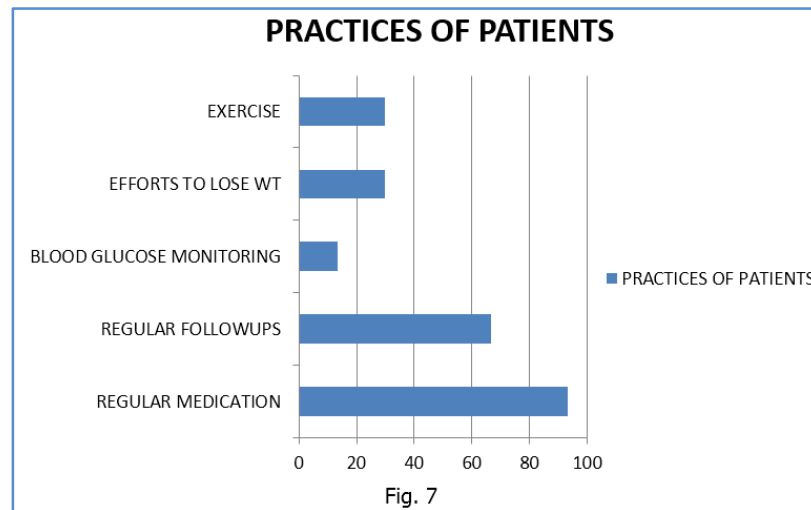


Figure 7: Practices of Patients in Diabetes.

The knowledge regarding diet modification in diabetes was poor, common perceptions regarding diet were to avoid sweets/high sugar diet, fruits (banana, watermelon, mangoes etc.), fatty foods & to consume more of wheat/millet/vegetables.

What modification in diet is beneficial in diabetes?	
Diet modification	Percentage of patients
Avoiding sweets	90
Avoiding fruits (banana, melon, mango etc.)	46.7
Avoiding fatty food	40
Avoiding fasting	33.3

Table 3: Perceived beneficial diet modification(S)

DISCUSSION: Diabetes mellitus refers to a group of common metabolic disorders that share the phenotype of hyperglycemia.¹⁰

The two broad categories of diabetes mellitus are designated Type1 and Type2. Type1 is the result of complete /near total insulin deficiency. Type 2 diabetes mellitus is a heterogeneous

ORIGINAL ARTICLE

group of disorders characterized by variable degrees of insulin resistance, impaired insulin secretion and increased glucose production.¹⁰

Type 2 DM is more prevalent and forms about 80-90% of diabetes mellitus cases. Hyperglycemia in type 2 DM patients can be controlled by using lifestyle changes, diet modification, oral antidiabetics &/or insulin. In these, patient self-care is important to get good results. Patient self-care directly depends on level of awareness about the disease, especially knowledge regarding prescribed medications.

In our study, only 16.7% patients described diabetes mellitus as a disease of "sugar" and excessive urination while others were unaware of the nature of their illness and sought the help of their caretakers in describing their illness. About 66.6% patients expressed that they did not know when asked the cause of diabetes.

Only 23.3 % of patients were aware of the drugs prescribed for their disease. Relevant knowledge about diet modification in diabetes in majority of patients in our study group is poor.

A study conducted in south India concluded that about 75% of study population (diabetes patients+nondiabetics) was not aware of long-term effects of diabetes mellitus.¹¹

In our study group, only a few patients were aware of risk factors for diabetes. Knowledge of complications was even poorer with 60% of the patients being unaware of long-term complications of diabetes. The most common complications as listed by patients included eye problems (diminution/loss of vision), poor wound healing, foot problems (loss of sensation/tingling/burning/numbness/diabetic foot), stroke and heart problems.

The above findings indicate lack of awareness of the disease/prescribed drugs/health advice given to them. These may indicate lack of health advice given to patients by their physicians or inability of patients to understand the sufficient health advice given to them. Practice of doctor shopping was a common finding, 60% patients visited >1 doctor for the diabetes care, among them 20% patients consulted >5 doctors for complaints related to diabetes.

Several other studies had similar findings and concluded that overall knowledge and awareness about diabetes was poor¹¹⁻¹⁴. A recent study by M. Deepa et al. concluded poor level of awareness about diabetes & need of diabetes awareness/education programmes.¹⁴

CONCLUSION: The level of awareness about diabetes with respect to prescribed drugs in patients is poor. Diabetes patients need to be educated about their disease and diabetes self-care.

Acknowledgement: We are thankful to all the patients who participated in the study.

Source of funding: Self.

Ethical Clearance: Ethical clearance taken from our college (BIMS) ethical committee.

REFERENCES:

1. Brian C, Ignacio Ripoll, Leutholtz: Exercise and disease management. 2/e, 2011, ISBN 978-1-4398-2759-8.
2. Mc Pherson ML, Smith SW, Powers A, Zuckerman IH: Association between diabetes patients' knowledge about medications and their blood glucose control. *Res Social Adm Pharm.* 2008 Mar; 4(1): 37-45.
3. Duke SA, Colagiuri S, Colagiuri R: Individual patient education for people with type 2 diabetes mellitus. *Cochrane Database Syst Rev.* 2009 Jan 21; (1): CD005268.
4. N.nwin, D.Whiting, L Gariguata, G. Ghyoot, and D. Ganeds: Diabetes Atlas, International diabetes federation,Brussels,Belgium,5/e,2011.
5. International diabetes federation: key findings 2014 update. *IDF diabetes Atlas.* 6/e.
6. Indian heart association,
<http://indianheartassociation.org/why-indians-why-soth-asians/overview>.
7. R. M. Anjana, R. pradeepa, M. Deepa: Prevalence of diabetes and prediabetes (impaired fasting glucose &/ impaired glucose tolerance) in urban and rural India: Phase 1 results of the ICMR-INDIAB study. Doi: 10.4103/09733930.60005.
8. Anjana RM, Shanthi Rani CS, Deepa M, Pradeepa R et al.: Incidence of Diabetes and Prediabetes and Predictors of Progression Among Asian Indians: 10-Year Follow-up of the Chenna Urban Rural Epidemiology Study (CURES). *Diabetes Care* August 2015 vol. 38 no. 1441-1448.
9. Leslie R, Summer L. W, Kelly B. H, M. R. Di Matteo: The challenge of patient adherence. *Ther Clin Manag.* 2005 Sep; 1(3): 189-199. [PMCID: PMC1661624].
10. Dan L. Longo, Editor, Anthony S. Fauci, Editor, Dennis L. Kasper, Editor, Stephen L. Hauser, Editor, J. Larry Jameson, Editor, Joseph Loscalzo, Editor: *Harrison's principles of internal medicine*, 18/e, ch-344, p5853.
11. C. Muninarayana, G. Balachandra, S. G. Hiremath, Krishna Iyengar, & N.S Anil: Prevalence & awareness regarding diabetes mellitus in rural Tamaka, Kolar. *Int J Diabetes Dev Ctries.* 2010 Jan-Mar; 30(1): 18-21. Doi: 10.4103%2F0973-3930.60005.
12. Mohan D, Raj, Shantarani, Datta M, Unwin NC, Kapur A, Mohan V: Awareness and knowledge of diabetes in Chennai—the Chennai urban rural epidemiology study. *J Assoc Physicians India.* 2005 [PMID15987011].
13. Devi Kasinathan, N. Rajagopalan Girijakumari, Prabhu NM, Manikandan R, K Muthuswamy: Awareness of type2 diabetes and its complications among Sivaganga district population in Tamilnadu: A cross sectional survey. *J Adv Sci Res,* 2013, 4(1): 38-42.
14. M. Deepa, A. Bhansali, R. M. Anjana, R Pradeepa et al.: Knowledge and awareness of diabetes in urban and rural India: The Indian council of medical research India Diabetes study (phase I). *Indian J Endocrinol Metab.*2014 May-Jun; 18(3): 379-385.
Doi:10.4103/2F2230-8210.131191.

AUTHORS:

1. Mahaboob Pasha
2. Archana Dambal
3. S. T. Kalsad
4. Sunanda Halki

PARTICULARS OF CONTRIBUTORS:

1. Junior Resident, Department of General Medicine, Belagavi Institute of Medical Sciences, Belagavi.
2. Assistant Professor, Department of General Medicine, Belagavi Institute of Medical Sciences, Belagavi.
3. Professor and Head, Department of General Medicine, Belagavi Institute of Medical Sciences, Belagavi.

4. Assistant Professor and Statistician, Department of Community Medicine, Belagavi Institute of Medical Sciences, Belagavi.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Mahaboob Pasha,
Dialysis Unit, Department of General Medicine,
Belagavi Institute of Medical Sciences,
Belagavi-590001.
E-mail: docpasha01@gmail.com

Date of Submission: 08/10/2015.
Date of Peer Review: 09/10/2015.
Date of Acceptance: 19/10/2015.
Date of Publishing: 28/10/2015.