Investigation into Patient Medication Adherence in Type 2 Diabetes Mellitus Patients at A Community Pharmacy Located In Tamilnadu

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ABSTRACT

Achievement of patient medication adherence remains challenging in Type 2 Diabetes management particularly population belongs to villages in South India.The aim is to assess adherence to anti diabetic drug therapy and self-management practice among type-2 diabetic patient by using Morisky-8-Item Medication adherence questionnaire at a community pharmacy located in South Indian village.: The results of morisky based questionnaire shows almost 84.8% of the respondents belongs to low adherence (>2). 15.2% having medium adherence and none having high medication adherence. The reasons including duration of disease, economy, co-morbidities, short consultation of time, multiple drug therapy and poor patient-health care professional relationship. However, short consultation of time and poor patient healthcare relationship are potentially modifiable to improve medication adherence in patients with diabetes.

Keywords: Morisky, Type 2 Diabetes

INTRODUCTION

Type 2 diabetes mellitus is a metabolic disorder associated with elevations in blood glucose as well as other important risk factors such as blood pressure, cholesterol, and coagulation.[1] the prevalence of this condition is high and it continues to climb, as a result of an aging population and rising obesity rates across the world.[2] In fact, it is predicted that the global prevalence of diabetes will increase by 65% over the next 20 years.[2] The risk of death from cardio vascular disease is approximately three fold for patient with type-2 diabetes; and the risk of death from all cases is increased by 75% compared to patient without diabetes.[3] However, achievement of optimal glycemic control, predicated on rational use of available anti- diabetic regimen, good adherence to prescribed treatments and successful self-management by patients.[4,5]

Unfortunately, the requirement for multiple chronic medications is almost inextricably linked to problems with medication adherence. Indeed, among people with type 2 diabetes, the prevalence of non- adherence is high[6-8] and appears to be an important cause of increased morbidity and mortality.[9-14] The literature describes numerous strategies for addressing non-adherence in patients with type 2 diabetes as well as many other chronic conditions. However, no single or combined strategy has resulted in more than small to modest benefits in rigorous trials.[15-22]

Additionally, for every published successful intervention, it is often possible to identify one failed approach where very similar strategies were employed. This observation is very important to recognize because the literature is full of recommendations from well-respected organizations suggesting multifactorial,[23,24] Multidisciplinary,[25] and patient-focused strategies.[26,27] Unfortunately, it remains unclear whether adherence intervention can consistently improve adherence rates by this magnitude. Thus, the cost-effectiveness of adherence- enhancing interventions remains unknown.[28] poor adherence to treatment of chronic disease is worldwide problem of striking magnitude.

Recently, the world health organization stated that only 50% of patient diagnosed with chronic illness were fully compliant with their treatment regimen, in developing country the rate are even lower. It is undeniable that many patient experiences difficulty in following treatment recommendations.[29]

The status of patient adherence to anti diabetic therapy and self management practice was not yet been known in South India. Therefore, the purpose of this study is to identify patient, medication and environmental factors associated with non adherence to anti diabetic drug and self management practice.

MATERIALS AND METHOD

Study design

A Prospective study was carried out for 6 months in which patient's data were collected from the private community pharmacy. The consent from patients was obtained from 150 subjects before included in the study and the same was given in both Tamil and English.

Patient selection

Inclusion criteria: All Type 2 diabetic patients undergoing with drug treatment.

Exclusion criteria: Severely ill patients and age above 85 years were excluded from the study.

Design of questionnaire

A separate questionnaire format for incorporating patient details was designed. The format contains the details such as name, age, sex, marital status, level of education, monthly income, diabetic duration, co-morbidities, pattern of drug use, reason for missing dose, factor for non-adherence, factor for non-disclosure were included in the questionnaire.

Design of patient interview format

A patient interview form was designed in order to enter morisky 8-item medication adherence reported by the patients. In each interview the reported medication adherence details were transferred into the patient interview format.

Analysis of data

The data collected by from the all type of diabetic patients through the designed questionnaire format during the medication interview were thoroughly analyzed the medication adherence and quality of life in diabetes mellitus.

RESULTS AND DISCUSSION

Presently, there is no simple measure accepted as the gold standard to measure the medication adherence. However, the morisky medication adherence scale is well validated and one of the most widely used, self-reported measures of adherence used in our study. Several reasons might exist for the low adherence according to the morisky scale (>2) among respondents in our study. The reasons including duration of disease, economy, co-morbidities, short consultation of time, multiple drug therapy and poor patient-health care professional relationship.

Predominant respondents belongs to later adulthood (51-65 years) followed by adulthood (31-50 years), old age (65 &above years) and early adulthood (19-30 years).Gender distribution reveals almost equal male (49.2%) & female (50.8%) respondents included in this study. Predominant (n=121) respondents had diabetes mellitus for the past five year duration followed by 108 respondents having the past medical history of diabetes mellitus more than 5 years and up to 10 years and 21 respondents belongs to chronic diabetes mellitus (>10 years) Figure. 1.
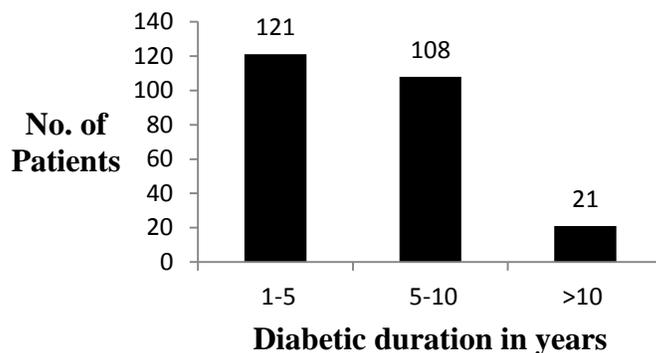
Figure.1 Duration of disease

In our study most of respondents (n=187) belongs to the age lesser than 55. Previous studies reported decline in medication adherence when the population belongs to both less than 55 years of age and those aged 55 to 64 years. However, medication adherence increased of those aged 65 to 74 and more than 75 years of aged 3 times and 5 times respectively while increasing in age in years.[33-34]Our study substantiates the published reports in the past in regard to the relationship between age and medication adherence.
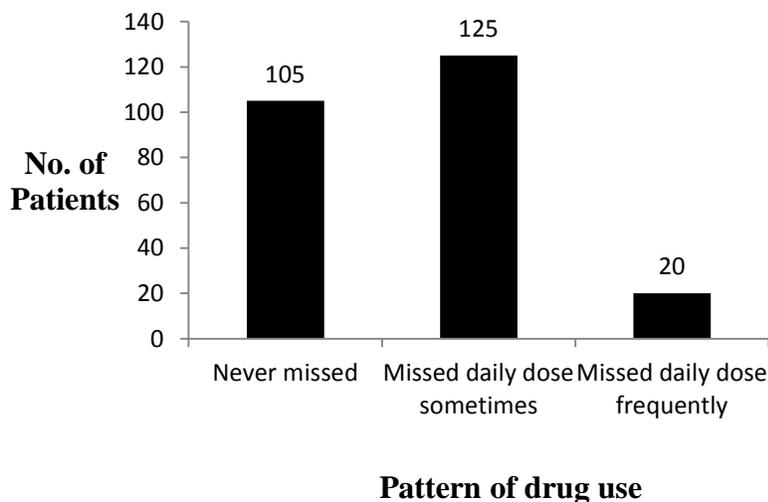

Pattern of drug use

Figure.2 Drug adherence details

The economic status of the respondents reveals that 89 having monthly income of more than Rs.10,000/- followed by 63 respondents with Rs.7,500 - 10,000 and each 49 respondents belongs to both Rs.5,000 - 7,500 and Rs. <5,000. The results of the drug adherence details indicate that predominant respondents (n=125) missing daily dose sometimes; however, 105 respondents never missed their doses. It was observed that 20 respondents missed daily dose frequently (Figure.2).Most of the respondents (n=105) unable to identify or understand the reason for missing their dose. But each of 68 respondents claimed the reason for missing the dose were forget fullness and being busy. Unfortunately 9 respondents took the decision to omit the dose (Figure. 3).

Predominant (n=131) respondents reported that short consultation of time is a factor for nondisclosure followed by unfriendly relation with health professional (n=74), lack of privacy (n=44) and one respondent reported none. The results of morisky based questionnaire shows almost 84.8% of the respondents belongs to low adherence (>2). 15.2% having medium adherence and none having high medication adherence (Figure.4). The details of morisky based questionnaire was given in Table.1.
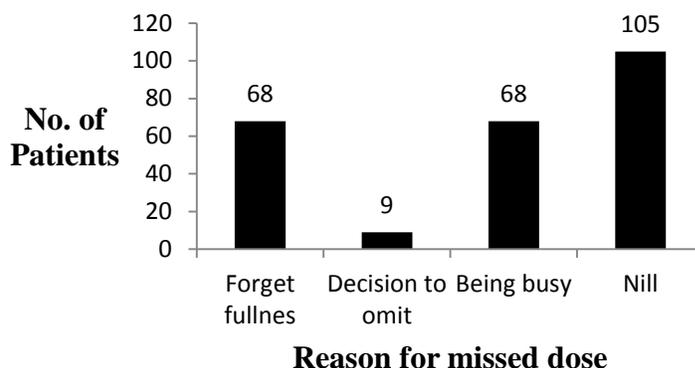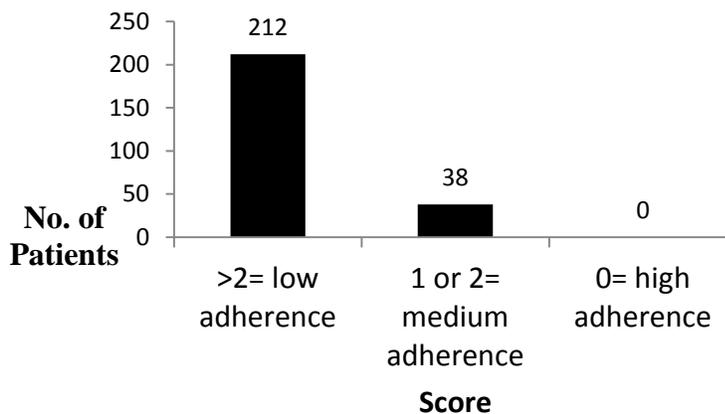

Figure 3: Reason for missing dose

Figure.4 Patient medication adherence

Table.1 Morisky based questionnaire

S. No	Morisky based questionnaire	Patients response	
		Yes	No
1	Do you sometimes forget to take your medicine?	138	112
2	People sometimes miss taking their medicines for reasons other than forgetting thinking over the past2weeks were there any days when you did not take your medicine?	85	165
3	Have you ever cut back or stopped taking your medicine without telling your doctor, because you felt worse when you to took it?	102	148

4	When you travel or leave home, do you sometimes forgetto bring along your medicine?	125	125
5	Did you take all your medicine yesterday?	221	29
6	When you feel like your symptoms are under control, do you sometime stop taking your medicine?	69	181
7	Taking medicine everyday is a real inconvenience for some people.do you ever feel hassled about sticking to your treatment plan?	66	184
8	How often do you have difficulty remembering to take all your medicine? A=0; B-E=1 Never/rarely, Once in a while, Sometimes, Usually, All the time	160	90

The first year after starting a chronic medication possess the highest risk for medication non-adherence for all types of chronic diseases, on average 50% of new medication users while fail to consume at least 80% of prescribed doses during their first year of therapy.[35,36,37] Almost 84.8% of respondents in our study having low medication adherence may be due to half of the respondents having diabetes mellitus for the past 1-5 years. Rates of non-adherence to anti diabetic therapies appear to follow this general observation quite easily. However, research papers often cite wide ranging estimates. A systematic review of anti-diabetic therapy found adherence rates between 36% and 93%.[38]

9.6% (n=24) of the respondents reported a factor for non-adherence in our study. Higher rate of non-adherence (38.6%; n=84) reported by respondents due to multiple drug therapy. Previous surveys have found that people took ~75% of medications as prescribed, across a variety of medical disorders.[41,42] increasing adherence related to poly therapy and multiple daily dosing schedules also matched reports from other medical disorders.[39,40] Conversely, other studies reported the study population those who are taking more than 7 medication of any type were more likely to report high adherence compared with dose taking 1-6 medications. This could be result of better organization of medication with prolonged duration of disease, organization systems such as pill organizer or more frequent visits to the family physicians for medication refills that might reinforce adherence. Two patient self-report studies and a database study reported similar findings to our study, with patients reporting better adherence to their antihypertensive medication when they were taking more medication of any type.[41,42,43]

Hypertension (50.40%) and Obesity (8.80%) as the most frequent co-morbidities among the patients studied. It is consistent with the established theory of metabolic syndrome, which is strongly associated with cerebrovascular disease in type-2 diabetes.[44,45,46]

This study reports revealed that adherence to antidiabetic medication in type-2 diabetic patient is problematic, Only 42% of the patients were never missed their daily medication, but the previous studies reported higher medication adherence with antidiabetic therapy in US, Nigeria, South Africa etc.[47-51]

In this study, 58% (n=45) of the respondents missed their medication claimed to have disclosed this to healthcare provider during consultation. The main factors cited for non-disclosure were

short conclusion of time and unfriendly relation with health professional, resulting in inadequate physician-patient interaction during consultation. This may arise due to shortage of health professional, high physician work local and poor work environment in India. Generally, the fact that self-management practices were generally long among respondents studied indicates the need of patient education is critical if successful self-management and to be achieved. Our results should be viewed with consideration of several limitations. While our inner city population is of particular interest due to its high burden of diabetics'morbidity, the generalizability of our observations to other settings is unknown, and should be explored in future work.

Limitations

The use of a self-reported medication adherence scale represents a potential limitation of most studies in this field. However, the morisky medication adherence scale is well validated and one of the most widely used self-reported measures of adherence. The modest sample size limits our ability to detect weaker associations.

CONCLUSION

In summary, we found that co morbidity, multiple drug therapy, short consultation of time and poor patient - healthcare professional relationship were significant predictors of poor medication adherence. However, short consultation of time and poor patient healthcare professional relationship are potentially modifiable to improve medication adherence in patients with diabetes.

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