



Relationship between Treatment Satisfaction and Adherence to Treatment among Patients with Type 2 Diabetes Mellitus in a Primary Healthcare Clinic

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Introduction

In the recent 2015 National Health and Morbidity Survey (NHMS, 2015) it was reported that prevalence of type 2 diabetes mellitus (DM) in Malaysia is 15.2% for adults aged 18 years and above; this was more than double its figure in 1996.¹ This increasing burden of illness poses a lot of challenges as the disease is linked to higher rates of mortality and morbidity such as heart attacks, strokes, kidney failure, eye and nerve complications, complications of pregnancy and amputations, all of which can lead to premature disability and death.² The pharmacological approach of using anti-diabetic medications was found to successfully control type 2 DM in patients who are symptomatic or have extremely high glucose levels. There were patients who failed to achieve full glycaemic control, even though they had been subjected to the greatest treatment regimen. Poor adherence to medications could be one of the reasons for treatment failure. Several factors influence patient adherence. Satisfaction to treatment has become one major determinants of patients' overall health-related decision-making, helping to determine whether or not patients take their medications.³

Our study aimed to assess medication adherence and its relationship with treatment satisfaction specifically on medications among patients with type 2 DM. The study focused on a public primary health clinic providing healthcare services to patients with chronic illnesses. The clinic is located in the government administrative area of Kuala Lumpur, Malaysia.

Methods

This cross-sectional descriptive study was carried out at a clinic. This clinic offers a range of outpatient services including general consultation, diagnosis, treatment and pharmacy. The clinic is being managed and is based on a fully integrated total hospital information system known as the FiSiCien System. Number of patients attended to was on average 23,000 per month.

Data collection was conducted for four months from October 2016 until January 2017. Selection was random and patients were approached when they came for their scheduled appointment and were waiting to see the doctor. Patients who were diagnosed with type 2 DM at least six months prior, Malaysian adults aged at least 18, those who took at least one oral hypoglycaemic or at least an insulin injection were included.

Patients were invited to participate in this study and were informed about the background, scope, confidentiality, benefits and risks of the study. An information sheet about the study was given. Enrolment of the patients was upon the signing of a written consent. Patients were made anonymous and their personal information was securely and confidentially kept. Patients who agreed and had signed a consent form were requested to complete a semi-structured questionnaire. Data collected included patients' demographic and medical details. Medical information provided by the patients such as presence of other illnesses, list of current medications and clinical outcomes eg. glycated haemoglobin (HbA1c), fasting blood glucose (FBG) levels and

blood pressure were counter-checked with patients' medical records in the FiSiCien System. The system also allowed the authorised researcher to access laboratory test results.

Patients were assisted and requested to self-report and fill in the Morisky Medication Adherence Scale (8 items) (Morisky-8)³ and Diabetes Medication Satisfaction (Diab-Med-Sat)⁴ questionnaires. The completed questionnaires were collected. Patients' data and scores calculated for medication adherence and satisfaction were analysed using the Statistical Package for the Social Science Version 21 (SPSS Ver.21).

Results

Demographic and Clinical Data

A total of n=200 patients were included in the study. Males comprised 51.5% while females comprised 48.5%. The majority of patients (72.5%) were between 50 to 65 years old (range 30-78). As for education, approximately 54% of the patients completed secondary school, followed by 40.5% who finished tertiary education and only a few who had primary level education or who did not attend school. Many of the patients (55.0%) were employed while 45% were unemployed. In terms of monthly income, 20% of the patients earned more than RM5000, 25.5% earned between RM3,000 to RM5,000, 34.5% less than RM3,000 and 20.0% reported that they had no income.

As for clinical data, the majority of patients (n=142, 71%) were obese (BMI more than or equal to 27.0 kg/m²). The average duration of illness of the respondents in this study was 7.8 years (± 6.2), but almost half (40%) of the patients were newly diagnosed at, or less than, 5 years ago. The majority of patients (78.5%) did not achieve the clinical target level of HbA1c of below 6.50%. Only 21.5% had good control of HbA1c level. A majority (77.5%) of the patients did not meet the clinical target of the FBG level which was less than, or equal to 6.0 mmol/L. Only 23.0% of the patients had met the target. The study revealed that the majority of patients were on combination therapy (67.5%) while 32.5% were on monotherapy. The majority of patients (65.6%) were on oral anti-diabetic medications while about 28% were on the combination of oral and insulin. Only 6.5% of patients used insulin alone. Metformin together with gliclazide was the most commonly prescribed combination. The vast majority of patients (91.0%) had co-morbidities disease mainly hypertension and dyslipidemia. A large number of the subjects were prescribed with 1 to 5 medications (65.5%). The range of medications per prescription was from 1 to 8 with mean (SD) of 4 (± 1.5).

Adherence

Medication adherence scores from the eight items answered by the patients were summed to give a range of scores from 0 to 8. Subjects with a score of 8 were considered of having high adherence while subjects with a range score of 6 to 7 and below 6 were considered as having medium and low adherence respectively. Those who have high adherence are considered as adherent whereas those who have medium and low adherence are considered as non-adherent.

About 42% of patients had forgotten to take their medications on several occasions. Some patients (20%) did not take their medications for reasons other than forgetting in the past two weeks prior to taking the survey. Approximately 10% reduced the frequency or stopped taking their medication due to side effects without informing the doctor. About 17% of the patients sometimes forgot to bring along their medications with them when travelling or leaving home. A few patients (5%) did not take their medication a day before the interview.

The findings also revealed that 8.5% of the patients had stopped taking their medication when they felt that their symptoms are bearable and 24.5% felt stressed enough that they had to closely adhere to their treatment plan. With regards to remembering to take their medications, 9% of the patients had found it difficult in doing that once in a while, 8% of them had difficulties in doing so sometimes; 1% of patients usually found it difficult, while none of the patients faced difficulties consistently all the time. A majority (82%) did not demonstrate any difficulty in remembering to take their medication.

In summary, 63.0% of the patients were non-adherent (40.5% of the patients were found to have medium adherence and 22.5% of them had low adherence). Only 37% had high level of adherence. Overall, the mean

(SD) adherence score was 6.7 (± 1.47). The mean score suggested that medication adherence level among the study sample is medium.

Factors affecting adherence

The older age group of patients 57.9 ± 7.0 had low adherence. The test of association shows that the adherence level has significant association with gender ($p = 0.037$). Males had medium adherence whereas a majority of female patients had high adherence. Patients who were not working reportedly had high adherence, while those who were working had medium adherence. Patients who earned below RM3,000 per month had high adherence whereas majority of those who earned more than or equal to RM3,000 had medium adherence. Higher the BMI the poorer was the adherence level. Unsurprisingly, patients who had poorer control of HbA1c were reported to have medium adherence. Patients who had DM for a longer duration had better adherence.

Treatment Satisfaction

Satisfaction scores from 21 items were converted to percentages. Diab-Med-Sat consists of three domains of satisfaction namely burden, efficacy and symptoms (side effects). There are 11 items under the domain of burden and five items each under the domains of efficacy and symptoms. The mean score for satisfaction is 89%. Satisfaction by domain was 92% for burden, 78.5% for efficacy and 94% for symptoms.

Analysis of the responses to each item in Diab-Med-Sat show that the majority of the patients did not feel bothered at all by home monitoring (blood sugar testing), the number of times they need to take their medications, the need to adjust the dosing of their medications and did not feel that the medications interfered with their daily life. A majority (79%) was very satisfied with the ease and convenience of their diabetes medications. 91.5% of the patients reported that they did not feel any difficulty planning their daily activities and 88% did not feel any burden in taking the medications prescribed. In addition, the majority of the patients, 88.5% did not feel embarrassed or awkward when taking medications. 68% of the patients reported that their medications never interfered with their ability to be flexible with planning meals; they had no complains about recommended physical activity and diet. The findings also reveal that most of the patients (more than 62.5%) were very satisfied with their medications in i) keeping the blood sugar levels stable and helping them from feeling tired, and ii) maintaining physical and emotional well-being. 70.5% of the patients thought that their medications were helping to slow down or prevent long-term complications of diabetes mellitus. With regards to symptoms, most of the patients (more than 73%) reported that they did not have side effect such as unwanted weight gain, pain or discomfort, gas and bloating, diarrhea and symptoms of low blood sugar due to their diabetes medications.

Relationship between adherence and treatment satisfaction

There is a significant association between adherence and satisfaction ($r=0.34$, $p<0.05$). There is a positive correlation with a moderate strength. Hence, this shows that adherence has a positive correlation with satisfaction.

Conclusion

There will be an increased role for pharmacists to further educate and support patients with medication adherence. Pharmacists can also adopt a more active role in providing their patients with proper counselling. Other than assessing the extent to which the patients adhere to the medication, pharmacists can also engage themselves in any pharmacist-related interventions to improve adherence. More intensive collaboration is needed between all healthcare professionals for better treatment outcomes. The monitoring of progress of patients should also be performed continuously by healthcare professionals as these professionals should be the ones who are the most informed about the conditions of the patients. Services which encompass policy and practice to improve patients' satisfaction to treatment and adherence to their medications are prudent in improving patients' health and quality of life and to further reduce health care costs.

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