

Improving the Adherence of Type 2 Diabetes Mellitus Sufferers with Pharmacy Care: A Scientific Assessment of Randomized Managed Trials

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Abstract

Background: Medication adherence (MA) is associated with better disease control (glycated haemoglobin, blood pressure, and lipid profile), lower rates of death and diabetes-related complications, higher quality of life, and lower health-care resource utilisation in adults with type 2 diabetes mellitus (T2D).

Methods: Patients with Type 2 diabetes who came to clinics for routine care were asked about pharmacy care to capture comorbidity (hypertension and hyperlipidemia/dyslipidemia), diabetes-related complications, duration of diabetes, HbA1c, blood pressure, lipids, number and types of medications used.

Results: There is, however, a scarcity of research on the impact of diabetes-related distress, depression, and health-related quality of life on MA.

Conclusion: The World Health Organisation emphasises that the impact of interventions aimed at improving adherence has far-reaching consequences than specific medical interventions.

Keywords: Medication adherence, Type 2 diabetes mellitus, managed trials, improve adherence of Type 2 diabetes.



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1. Introduction

To prevent and reduce the risk of acute and long-term complications, patients with T2DM require continuous medical care in addition to self-management and lifestyle modification education. Drug therapy is a critical component of diabetes care. Glycemic control in type 2 diabetes requires consistent use of the prescribed medications. Metformin, Glinides, -Glucosidase inhibitors, Insulin, Thiazolidinediones, and Sulfonylureas are among the pharmacological agents used to control blood sugar levels in T2DM patients. Although these drugs can significantly reduce diabetes-related morbidity and mortality, the extent of treatment benefits may be limited by poor adherence to prescribed medications. Chronic disease non-adherence has been defined as taking 80% of the prescribed treatment. Diabetes treatment adherence has

been reported to be suboptimal, ranging from 23 to 77%. Non-adherence rates for metformin, glyburide, and insulin use among Iranian patients with T2DM were 39.7, 35.3, and 28.8%, respectively [1]. Poor medication adherence was associated with a higher HbA1C profile, more manifestation of diabetes-related complications such as retinopathy, neuropathy, and nephropathy, poor quality of life, higher healthcare costs, more prior primary care contacts, and higher morbidity in diabetic patients.[2]

Poor medication adherence in people with diabetes is a complex behaviour that can be caused by a variety of factors such as being too busy; travelling; skipping meals; stress/emotional problems; public embarrassment; depression; medication cost; memory; knowledge, attitudes, and beliefs about diabetes; worrying about side-effects of diabetes medications; social support; interaction with health care providers; complexity of medication regimen; duration of the illness; concern about diabetes medicines; However, more information about the determinants of medication adherence is needed in order to develop tailored and effective interventions to promote medication adherence in T2DM patients.[3]

2. Literature review

Diabetes mellitus is a major metabolic chronic disease that affects people of all ages all over the world. Better medication adherence (MA) is linked to better disease control (glycated haemoglobin [HbA1C], blood pressure, and lipid levels). [4]

Lower utilisation of health-care resources in patients with type 2 diabetes mellitus (T2D). This has resulted in lower health-care costs, lower hospitalisation rates, fewer diabetes-related complications, improved quality of life, and a lower death rate. [5]

The complexity of the drug regimen, fear of side effects, and misconceptions about T2D as an illness are all common reasons for this. Other possible reasons include financial constraints and a lack of social support for refilling prescriptions, physical and psychological barriers to daily medication adherence, and, in particular, increased comorbidity, such as T2D complications, visual impairment, diabetic foot problems, health literacy, and cognitive decline.[6]

Medication adherence is commonly defined as the degree to which patients follow the instructions for prescribed medications. Pill counts, pharmacy claims, or refill records, as well as subjective assessment of patient-reported adherence, are all used to assess MA. However, there is no universal agreement on what constitutes adequate adherence; many people consider pill counts or refill rates of 80% to be adequate. Nonetheless, because self-reported measures of MA have been shown to be reliable and valid, they are increasingly being used in clinical trials.[7]

3. Methodology

Patients with Type 2 diabetes who came to clinics for routine care were asked about pharmacy care to capture comorbidity (hypertension and hyperlipidemia/dyslipidemia), diabetes-related complications, duration of diabetes, HbA1c, blood pressure, lipids, number and types of medications used, and MA in addition to a questionnaire on demography (age, sex, ethnicity, religion, marital status, educational level, occupation, monthly income), smoking status, and frequency of exercise. [8]

T2D was defined as present when the following criteria were found in the patients' case records: Diabetes mellitus diagnosed using World Health Organisation criteria in 1999, current treatment consists of lifestyle changes or oral antihyperglycemic agents or insulin. Hypertension is diagnosed when the systolic blood

pressure is greater than 130 mmHg or the diastolic blood pressure is greater than 80 mmHg on two consecutive readings obtained by the clinic physician. A blood pressure of 130/80 mmHg was considered controlled, and this was the mean of two readings taken in the rested position with the arm at heart level, using an appropriate size cuff. Hyperlipidemia refers to an increase in concentration of one or more plasma or serum lipids, usually cholesterol and triglycerides, and the term dyslipidemia is used for either an increase or decrease in concentration of one or more plasma or serum lipids (low-density lipoprotein cholesterol >2.6 mmol/L, triglycerides >1.7 mmol/L, and high-density lipoprotein cholesterol <1.1 mmol/L). Body mass index is calculated as weight divided by height squared. Low-density lipoprotein-cholesterol ≤ 2.6 mmol/L and HbA1c $\leq 6.5\%$ are regarded as the other treatment targets.[9] These clinical data were retrieved from the patient's medical record using a case record form T2D patients.

4. Results

Non-adherence is caused by a variety of factors, including out-of-pocket expenses, literacy, a lack of awareness, and insufficient family or community support. Medication adherence is further complicated by multiple diseases and polypharmacy in older adults. Uneven distribution of health providers between urban and rural areas, as well as cultural norms, are barriers to medication adherence. [10]

Lack of physical activity, poor dietary intake, and smoking are identified as major risk factors for developing T2DM. T2DM treatment includes pharmacological agents as well as lifestyle changes. Poor T2DM treatment adherence results in serious medical conditions such as gangrene, nephropathy, retinopathy, neuropathy, heart attack, and stroke. [11]

Diabetes type 2 is associated with negative emotions such as anxiety, depression, and distress, and these emotions have been linked to poor clinical outcomes such as medication nonadherence [12] and glycemic outcomes. Diabetes distress reflects negative feelings about the disease and refers to the emotional response to the struggles, concerns, and worries associated with diabetes's broader demands [13]. Diabetes distress becomes a part of many patients' diabetes experience over time, and it is usually context-specific [14]. The daily hassles and demands of disease management, concerns about poor glycemic control, fears about diabetic complications, inadequate support from significant others, stigma [15], and financial difficulties all contribute to the distress. Patients experience burnout when diabetes distress persists and is not identified and managed, resulting in feelings of helplessness, hopelessness, and frustration with T2DM care. Burnout can be physiologically triggered after an acute hyperglycemic crisis. Diabetes-related distress is associated with poor self-management in patients [16].

5. Discussion:

T2DM patients were concerned about the nature of their physicians' care and social support. Furthermore, having uncomfortable social situations and feeling lonely with T2DM were found to be significantly associated with poor medication adherence. This finding suggests that, from the patients' perspective, living with T2DM may be synonymous with feeling isolated and lacking social support from significant others, despite evidence that psychosocial support is beneficial in adaptive behaviours by T2DM patients. [17].

Patients' social networks, which include health care professionals, family, friends, neighbours, colleagues, and fellow T2DM patients, can help them take positive stances, build resilience, relieve distress, and improve their well-being [18]. Furthermore, care and support from formal and familial contacts have a positive effect on medication adherence behaviour in T2DM patients because they encourage optimism [19].

6. Conclusions

T2DM and its complications are becoming more common throughout the world. Adherence to medications by patients can reduce morbidity and mortality. For a variety of reasons, the overall percentage of medication adherence among T2DM patients is less than optimal. Patient forgetfulness was the primary cause of poor adherence. Health awareness campaigns may play an important role in increasing patient adherence. More research is needed to investigate the impact of awareness campaigns on patient forgetfulness as a means of improving T2DM treatment adherence.

The World Health Organisation emphasises that the impact of interventions aimed at improving adherence has far-reaching consequences than specific medical interventions.

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