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Research Article

### ADHERENCE TO TREATMENT IN TYPE 2 DIABETES MELLITUS PATIENTS RECEIVING MULTIPLE DRUG THERAPY

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**Abstract:**

**Background:** The point of the examination was to assess adherence to treatment and elements related with absence of adherence in patients with type 2 diabetes mellitus in numerous medication treatment.

**Strategies:** A forthcoming, cross-sectional examination dependent on a survey directed in 100 patients with type 2 DM in a tertiary college clinic. They were talked with utilizing their very own semistructured poll configuration to assess adherence to drug and the eating regimen/exercise program. The adherence poll to the morisky medication was utilized to figure the general adherence.

**Results:** 71% of the patients had comorbidities and ingested more medications. The normal of day by day changes made by the patients was  $4.1 \pm 2.23$  (normal + SD). Just 47% of patients were followed. Lack of education (11%), language (10%), muddled portions (8%), unfavorable medication occasions (6%), huge mobile burden (6%), mental sickness (6%) and money related (4%) were normal. Purposes behind non-adherence Surprisingly, the all out number of professionally prescribed drugs did not meddle with adherence. 58% of patients knew about the significance of medications, diet and exercise, yet 42% of patients didn't know about the outcomes of resistance. 65% of the patients clung to the dietary control and 43% of the patients pursued the activity program.

**Conclusion:** 53% of patients with type 2 DM under multidrug treatment did not cling to endorsed meds, which made it a significant deterrent to their administration. The most significant reason for the absence of adherence was not understanding the directions because of a few reasons, for example, ignorance, language issues, confounded timetables and less collaboration between the specialist and the patient because of overwhelming DPOs. Moreover, 42% of patients were unconscious of the outcomes of absence of adherence to treatment, diet and exercise. Accordingly, a multidimensional methodology with fitting meds and an accentuation on consistence with recommended meds, diet and exercise program ought to be executed. Wellbeing experts can assume a significant job in improving adherence by expanding communication with patients.

**Keywords:** Adherence, Morisky questionnaire, Polypharmacy, Type 2 diabetes.

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**INTRODUCTION:**

Adherence is the measure wherein a patient effectively pursues medicinal advice.<sup>1</sup> Adherence is more prominent in intense ailments and the World Health Organization has assessed that lone half of individuals with perpetual sicknesses hold fast to the medication. 1, 2 Patients with sort 2 diabetes are at first suggested changes in way of life pursued by at least one oral antidiabetic drugs and later in May incorporate injectable drugs.<sup>3</sup> Studies demonstrate that practically 45% of patients with sort 2 diabetes don't accomplish satisfactory glycemic control (HbA1c <7%) and poor consistence with medications and adherence is a significant factor.<sup>4</sup> Diabetes is an ailment identified with Lifestyle, most patients are available with different comorbidities and conditions, for example, hypothyroidism, heart disappointment, osteoporosis, a few kinds of malignant growth, intellectual debilitation, dyslipidemia, greasy liver malady, breaks, hearing misfortune, hypertension, low Testosterone levels in men, heftiness, obstructive rest apnea, and periodontal disease.<sup>5-7</sup> Most patients utilize different prescriptions from numerous sources, prompting muddled dosing timetables and polypharmacy. The exorbitant and improper utilization of medications or polypharmacy is perceived as a general medical issue by expanding the frequency of unfavorable medication responses, conceivable duplication of treatment, decrease in consistence with treatment, more complexities and crises, hospitalization, therapeutic intercession or extra careful, diminished personal satisfaction and higher wellbeing costs.<sup>8,9</sup> Of these, unfriendly responses to drugs and occasions are extremely normal and are viewed as the main source of death<sup>10</sup>. The different reasons for poor adherence to diabetes treatment are the multifaceted nature of the treatment, the negative social condition, the level of occurrence of the patient's day by day life, the surprising expense of treatment, the dread of antagonistic impacts, the absence of trust in the treatment. Treatment and mental issues, and factors, for example, age, information of medications and morbidity<sup>11,12</sup>. One of the principle challenges in the treatment of sort 2 DM is to guarantee that patients accept oral antidiabetic prescriptions as endorsed. Rather than evolving meds, increment the portion or include another medicine; Improved adherence ought to be investigated to accomplish the ideal helpful objective.<sup>1</sup> In created nations, far reaching ponders on adherence to constant maladies are being completed, however the Indian association needs information in this field. In this manner, it was viewed as helpful to complete an investigation of this sort, given the variable education and financial conditions pertinent to the Indian situation. The goal

of the investigation was to evaluate adherence to treatment and study variables related with nonadherence in patients with type 2 diabetes mellitus (DM) in multi-medicate treatment.

**METHODS:**

This was a forthcoming report, in view of a cross-sectional study and was completed in the outpatient department of medicine in Mayo Hospital Lahore.

**Inclusion Criteria:**

The investigation included 100 outpatients with type 2 DM at any rate a half year of both genders, more seasoned than 20 years and who got more than one antidiabetic operator. Just educated volunteers were selected in this investigation.

**Exclusion Criteria:**

Patients more youthful than 20 years and who had been analyzed under a half year before this investigation were excluded Patients directed by a solitary medication for type 2 DM were additionally barred from the examination. Patients were educated that they met the incorporation criteria on the procedure and the composed educated assent regarding the volunteers. Members were met with the assistance of a semistructured and open poll intended to acquire the accompanying data: statistic qualities, instructive status, insights regarding drugs, including over-the-counter meds, consistence with meds, diet control, practice physical observing of blood glucose, consciousness of the sickness, long haul entanglements, significance of adherence to medicine and different measures. The survey was recently tried in a pilot contemplate in five patients and fitting alterations were made. The accessible restorative records have likewise been assessed to check the patient's learning about their meds. The poll of four inquiries for the use of the Morisky medication was likewise given to the members to assess the adherence to the medicine and the patients who reacted adversely to the four inquiries were viewed as follower to the endorsed treatment.<sup>13</sup> Patients were met while hanging tight for a discussion therapeutic The information acquired were assembled and investigated.

**Statistical analysis:**

The qualities are communicated as records, means and rates. The t test was utilized to build up the relationship between's the quantity of meds taken and the adherence to the recommended treatment.

**RESULTS:**

Of the 154 grown-up patients with sort 2 DM who visited OPD over the span of this investigation, 22

were analyzed under a half year sooner, 4 did not take any eating regimen and exercise medications and 9 did not give their assent, so No were incorporated into the examination. Of the staying 119, 19 were in a solitary antidiabetic specialist, so postulations were likewise avoided. The examination included 100 patients who at long last met the consideration criteria, of which 64 were men and 36 were ladies. Just 16% were ignorant (it was viewed as that they couldn't peruse and compose) and the normal age was  $61.12 \pm 12.17$  (mean  $\pm$  SD) years. Most of patients took antidiabetic medications of 2-3 ( $2.5 \pm 0.79$ , that is, mean  $\pm$  SD) alongside different medications. The statistic variations are appeared Table 1.

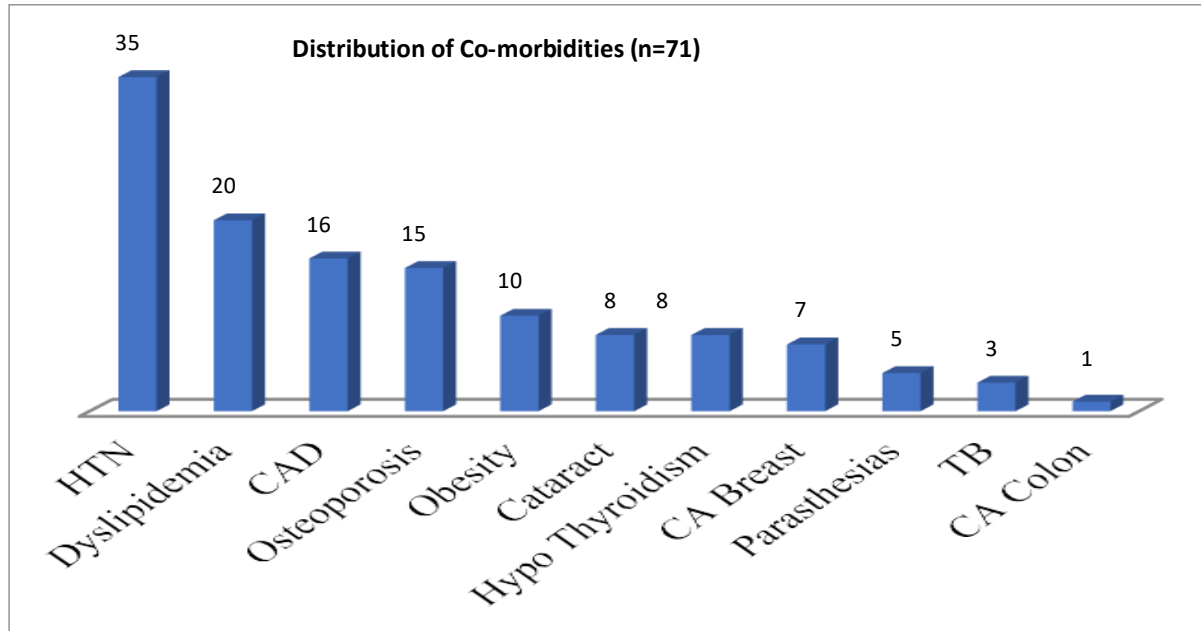
Of the 100 patients, 71 had different comorbidities alongside type 2 D; 28 with a solitary comorbidity e 43 with at least 2 conditions. 35 patients with hypertension, 20 with dyslipidemia, 16 with ischemic coronary illness (DHI), 15 with osteoporosis, 10 with heftiness, 8 had waterfalls, 8 had hypothyroidism, 7

had bosom disease, 4 had paraesthesia, 3 had tuberculosis and 1 had colon malignancy (Figure 1).

The normal number of drugs taken by every patient every day was  $4.13 \pm 2.23$  (mean  $\pm$  SD). The regularly endorsed antidiabetic medications were metformin, glimmeperide and gliptolini and 10 patients got infusions (Figure 2). Different medications endorsed most as often as possible to these patients were statins, headache medicine, angiotensin receptor blockers, angiotensin-changing over protein inhibitors, calcium and multivitamins. A few patients have additionally been endorsed beta blockers, calcium channel blockers, thyroxine, methylcobalamin, alprazolam (Figure 3). Most patients reacted by counseling a specialist before taking any prescription, yet an extensive piece of this populace self-cured taking exhortation from different patients and relatives. They utilized propelled drugs, over-the-counter meds and sometimes utilized elective treatments, for example, Ayurvedic squeeze and severe juice.

**Table 1: Demographic variants.**

Variable	Category	Frequency (n= 100)
Age	21-30	02 (2%)
	31-40	07(7%)
	41-50	13 (13%)
	51-60	15 (15%)
	61-70	48 (48%)
	71-80	11 (11%)
	81-90	04 (4%)
Gender	Male	64 (64%)
	Female	36 (36%)
Education status	Illiterate	16 (16%)
	School	47 (47%)
	Graduate	23 (23%)
	Post graduate	14 (14%)



**Figure 1: Percentage of patients with other co-morbidities.**

Similarly as with the Morisky instrument, just 47% of the investigation members clung to the endorsed medicine (ie, the patients who reacted adversely to the four inquiries) with 53% of the non-individuals. The significance Control of eating regimen and exercise was known in 58% of patients, however just 65% of patients clung to eat less carbs control and 43% of patients pursued the activity program. In any case, 42% of patients realized that following eating routine and treatment was significant, however they were uninformed of the results of absence of adherence to meds and changes in way of life. 29% of the patients did not take an interest in the treatment since they couldn't comprehend the timetables

because of lack of education, language issues or medications excessively muddled. Of these, 11 patients did not know the prescriptions that were taken and others didn't know the portion and recurrence of organization. 5 patients had genuine unfavorable impacts and totally halted generally prescriptions. Different reasons for absence of adherence (Figure 4) were overwhelming walking loads that prompted poor patient medicinal correspondence, mental sicknesses and non-explicit reasons. The substantial mobile burden that prompted poor patient correspondence, mental ailments and non-explicit reasons were different reasons for absence of adherence.

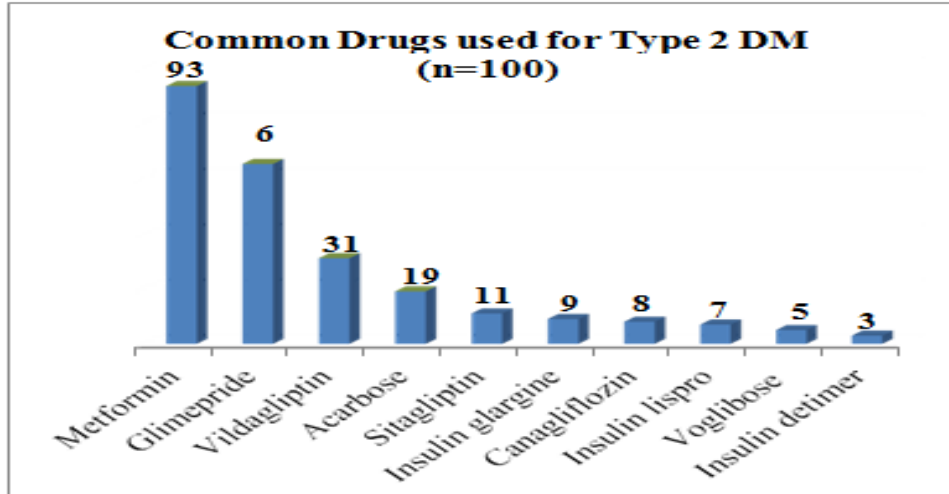


Figure 2: Common anti-diabetic drugs used.

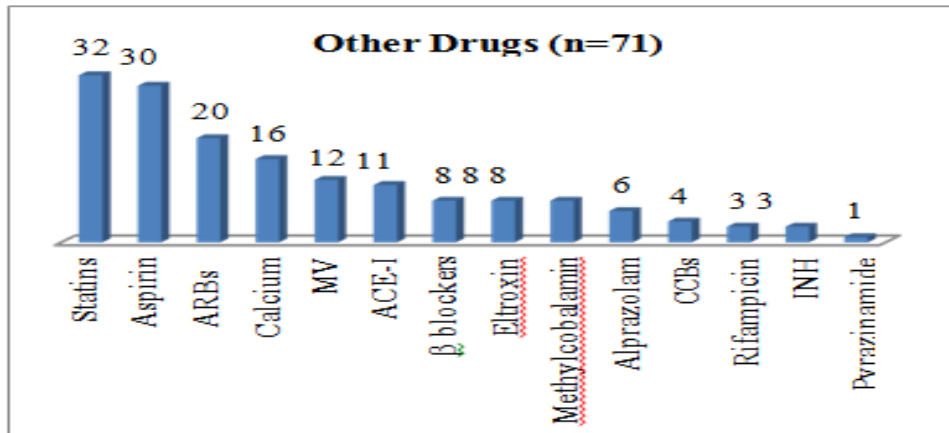


Figure 3: Drugs being used for other co-morbidities.

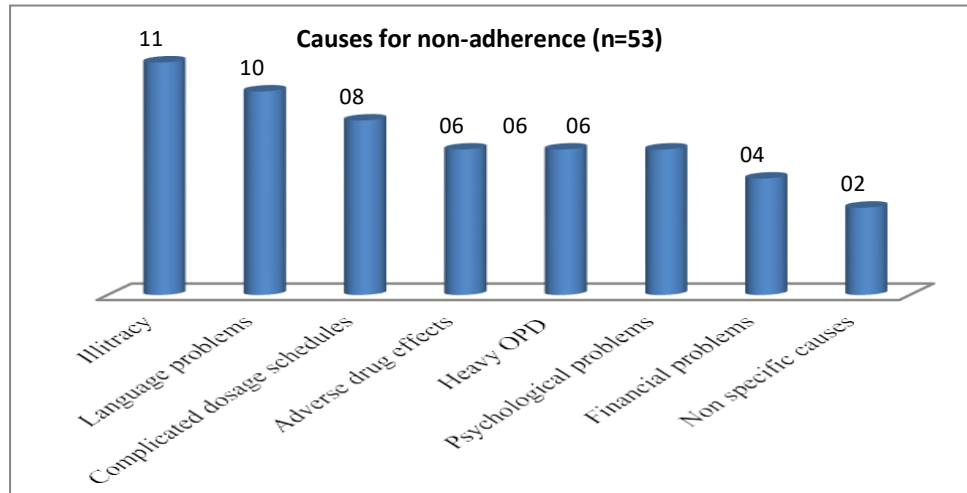
This examination demonstrated that the all out number of physician endorsed medications did not meddle with adherence to the medicine. In spite of the fact that the adherence was the best in the

gathering that took 2 to 5 prescriptions, there was no measurably critical contrast between the gathering of 2 prescriptions and those with at least 6 meds. (score  $z = -0.3531$  with worth  $p = 0.72634$ ) (Table 3).

Table 2: Morisky’s instrument Results.

Morisky’s instrument	No of patients who answered ‘No’ (n=100)
1. Did you ever forget to take your medication?	57 (57%)
2. Were you careless at times about taking your medication?	65 (65%)
3. When you felt better, did you sometimes stop taking your medication?	74 (74%)
4. Sometimes, if you felt worse when you took your medicine did you stop taking it?	69 (69%)

The patients who said ‘No’ to all four questions were considered adherent



**Figure 4: Common causes of non adherence. Table 3: Relation of no of drugs to adherence.**

No of drugs	Total no of patients	No of patients adherent to prescribed medication	Percentage adherent
2	33	13	39%
2-5	35	21	60%
>6	32	13	40%

Most of diabetic patients comprised of different medication treatments (2-3 antidiabetic drugs). Most of patients (71%) endured different comorbidities and took a few different meds. Basic comorbidities were hypertension, dyslipidemia, coronary illness, osteoporosis, corpulence, waterfalls, hypothyroidism, paresthesia,

#### DISCUSSION:

Tuberculosis and a few sorts of malignant growth. Numerous patients (43%) experienced different comorbidities. This perception was like that of past examinations on the example of dreariness in diabetic patients.<sup>5-7</sup> Common medications endorsed for different infections were statins, headache medicine, angiotensin receptor blockers, changing over chemical inhibitors of angiotensin. Calcium and multivitamins. Other beta blockers, calcium channel blockers, thyroxine, methylcobalamin, alprazolam, have additionally been recommended.

Poor patient consistence with prescriptions was an issue in practically 53% of patients in this investigation. The fundamental driver was the absence of comprehension of the specialist's assessment because of ignorance, phonetic issues, an

entangled dosing program, an overwhelming walking load that prompted poor correspondence with respect to the patient. Different reasons were mental ailment, budgetary issues and non-explicit reasons were the normal purposes behind not sticking to the treatment. Shockingly, the all out number of physician endorsed medications did not meddle with adherence to the medication, as different examinations have appeared, there are a few investigations that demonstrate that no medication diminishes adherence to treatment.<sup>8,9,14,15</sup> Although adherence was better in the gathering that took 3-5 meds, there was no factually huge distinction in the admission of 2 meds and in the individuals who took in excess of 6 prescriptions, recommending that the measure of meds may not be a significant factor. It adds to the absence of adherence. Past investigations likewise demonstrate that adherence is just around half in patients with unending diseases<sup>2</sup>. Just 5% of the patients had endured some sort of antagonistic response to the meds, the greater part of which had been innocuous in this examination. This is in concurrence with other wandering investigations, despite the fact that not with emergency clinic contemplates where the antagonistic impacts are commonly more severe.<sup>16</sup> No more serious danger of unfavorable impacts was

seen with the quantity of medications utilized at the same time, as revealed in different examinations. affirmed in our investigation .16

### CONCLUSION:

Patients with type 2 DM will in general have other unending ailments and ailments, for example, comorbidities. Likewise, these patients will in general take numerous meds and confused calendars, and this represents a test for adherence. Our examination demonstrated a low adherence of just 47%. The primary driver of absence of adherence were not ready to effectively comprehend the specialist's guidelines because of different reasons, for example, ignorance, language issues, entangled timetables and less connection with the specialist because of an enormous PDO. Maybe shockingly, the quantity of medications where the patient was available did not appear to influence the adherence. 42% of patients did not know the outcomes of not holding fast to treatment, diet and exercise. In this manner, a multi-item approach with suitable meds and an accentuation on consistence with endorsed drugs, diet and exercise program ought to be executed. Wellbeing experts can assume a significant job. in improving adherence to treatment by expanding collaboration with patients

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