Review Article
ISSN: **3041-5357**
Journal homepage: https://diversity.researchfloor.org/

Journal of Diversity Studies

State of the art of people living with type 2 diabetes mellitus and their adherence to treatment

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ABSTRACT

Type 2 diabetes mellitus currently represents a truly significant public health problem. Furthermore, a significant number of these individuals do not seek medical consultation and even fail to adhere to treatment. Therefore, their continued presence of the disease leads to health complications and even death.

Objective. *To describe the state of the art of people living with type 2 diabetes mellitus and their treatment adherence.*

Methodology. *A search was conducted using various internet sources, such as PubMed, Redalyc, and Crossref Metadata Search, using the keywords type 2 diabetes mellitus, adherence to type 2 diabetes treatment, treatment adherence, and living with diabetes.*

Results. *Of 100 articles that were searched to report their findings on [Type 2 DM] and in turn how adherence to treatment for this pathology was presented, 18 of the total searched articles were selected as the most relevant, where they denote factors that influence good adherence or non-adherence to treatment.*

Conclusion. *Treatment adherence in a disease such as diabetes is of utmost importance. Therefore, it is up to the patient to manage their condition and adhere to their treatment, despite various factors that hinder adherence, such as socioeconomic status, quality of life, and, consequently, age.*

Keywords: *treatment adherence in type 2 diabetes, treatment adherence, type 2 diabetes mellitus, living with diabetes.*

Citation: Laura Denisse González Islas, Karina Tovar Angeles, Odette Islas Ávila, Josefina Reynoso Vázquez, Olga Rocío Flores Chávez, David Pérez Becker and Jesús Carlos Ruvalcaba Ledezma [2025]. State of the art of people living with type 2 diabetes mellitus and their adherence to treatment. *Journal of Diversity Studies.* **DOI: https://doi.org/10.51470/JOD.2025.4.2.26**

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Article History: *Received 09 May 2025 | Revised 20 June 2025 | Accepted 15 July 2025 | Available Online August 05, 2025*

Introduction

Diabetes Mellitus type 2 represents today a real and transcendent public health problem, in addition to this a significant number of these people do not go to medical consultation and even do not show adherence to treatment, so that their permanence with the disease evokes complications in their health and the passage to death, it has greater prevalence in the world, being one of the most common causes of death in the population, as well as affecting the activities and quality of life of those who suffer from it.[1,2]

Surely this can be modified thanks to the therapeutic adherence that the patient has to carry out with respect to his treatment, through an adequate intake of his medications and interventions by the health team, decreasing the risk of suffering complications in the short, medium and long term. [3]

As for the pathophysiology of type 2 diabetes mellitus, it derives from an inadequate functioning of the communication of insulin action and insulin secretion, which generates a greater load on blood glucose levels. Also involved in this mechanism are the so-called B cells, which are affected and thus insulin secretion is reduced, making it difficult for the body to maintain proper glucose levels, on the other hand, IR begins to increase glucose production in the liver and thus glucose retention is affected in muscle, liver and adipose tissue. The dysfunction of the B cells and the IR ends up generating a more advanced progression of the disease leading to chronic complications. [4]

Diabetes can be diagnosed in two types: type 1 and type 2, each with its degree of incidence and affectation, however, for both types according to the criteria established by the American Diabetes Association and the World Health Organization, the diagnosis can be made in the following three circumstances. [5]

In addition to clinical symptoms, the patient has plasma glucose >/= 200 mg/dL, fasting plasma glucose >/= 126 mg/dL and plasma glucose at 120 minutes on oral glucose tolerance test.

The high prevalence of obesity has led to an increase in the incidence of type 2 diabetes in all age groups. Differential diagnosis between type 1 diabetes and type 2 diabetes is essential, as the pathophysiological factors causing hyperglycemia are different in each. [5] Insulin is the main treatment for type 1 diabetes but it is not sufficient to normalize the metabolic disorders caused by this disease and needs to go hand in hand with ultrafast-acting insulin analogues:[5] Such as insulin lispro, Insulin aspartate, Insulin glulisine; before meals and long-acting analogues such as: Insulin glargine, Insulin detemir.

In contrast, in type 2 diabetes obese or non-obese patients, treatment with metformin lowers their HbA1c by 1-2% without increasing the risk of hypoglycemia as it is in type 1 diabetes. [6]

Changes in diet, physical activity, and behavioral therapies help to decrease weight and glycemic control; together they increase its effectiveness and the diabetic patient has a better quality of life even if the patient has this pathology.

Diabetes mellitus type 2 is a chronic disease characterized by insulin resistance, which brings with it different risks such as chronic hyperglycemia and alteration of macronutrient metabolic processes. Diabetes presents risk factors that over time have affected millions of people in the world, forming a significant burden of challenges and safe alternatives for patients in the different health systems in the state, country and world. [7.8] The symptoms of both types of diabetes are the same; they include feeling very thirsty, frequent urination, blurred vision, tiredness and unintentional weight loss. [9] The intensity with which the symptoms are presented are usually lower in type 2 diabetes compared to type 1, but they are still important and are possible alarming data. [9]

According to data from the World Health Organization, the global prevalence of diabetes has increased by more than 100% since 1980 affecting more than 400 million people worldwide. The increase of this disease has brought concerns about people's standard of living, since nowadays this disease is among the 10 leading causes of death in the world. [9]

The Mexican population over 20 years of age has shown an increase over the years. In 2012, the rate was 9.2% adding to 9.4% in 2016, according to the diagnoses of the disease, women present an even higher percentage of cases with percentage of 10.3% compared to 8.4% of men. [10] Diabetes presents a higher prevalence in male patients aged 60-69 years with 27.7% while in women of the same age 32.7% is observed. This increase in prevalence continues in women aged 70 to 79 years reaching 29.8%. [10]

In Hidalgo, 3,701 cases of type 2 diabetes (non-insulin-dependent) were documented in 2018; the reported figure amounted to 9,297 cases, according to the General Directorate of Epidemiological Surveillance. [10]

The constant increase in these figures can be seen related to the aging of the population which means a lower quality of life, as well as the increase in obesity brought about by changes in the patient's lifestyles in which factors such as low physical performance and an unhealthy lifestyle intervene. [10]

A diabetic person as the disease progresses and affects more strongly the functioning of the patient weakens everything that conforms it is why the type and amount of support needed is not only conformed by a pharmacological, non-pharmacological treatment but of certain also the people and what surrounds it, at this point, the family is an important pillar in the care and control of the diabetic patient. [10]

In diabetes, one of the most relevant factors that contribute to this pathology is the lack of adherence to treatment.

In Mexico, there are few studies that address adherence to treatment in diabetic patients, in addition to the fact that there are few strategies implemented to promote healthier habits in patients diagnosed with this disease. [11] According to projections of the World Health Organization (WHO), adherence to treatment is described as the level of patient behavior based on the medications prescribed, accompanied by a diet that leads to a change in lifestyle in order to reduce the risk of the disease. [11,12]

Most experts in the health sciences advise patients diagnosed with type 2 Diabetes Mellitus to be informed, educated and know everything about the disease they are presenting, since, if they do it themselves they make a big difference, which allows them to prevent or reduce the complications that may arise associated with this pathology. [13]

Good adherence to treatment for the physician treating the diabetic patient is to improve glucose, hemoglobin and glycemia levels; this is only achieved if the patient is committed to making the necessary adjustments in his or her lifestyle and clearly follows the physician's indications; if he or she does this as required, it will have a very noticeable impact on his or her health and well-being, either to preserve them or, on the contrary, to deteriorate them. The correct adherence for 5 years was a percentage of 77.4-77.7% for metformin and sulfonylureas. [13]

There are several factors that influence good adherence to treatment such as. [13] Sociodemographic factors, cultural conceptions of the disease, disagreements between the recommendations provided by the health professional, failure to attend medical check-ups, fear of insulin application, dissatisfaction with the quality of the health services provided, fatigue from taking so many drugs, and the long-term economic cost of the disease.

The CODE-2 study (Cost of Diabetes in Europe: Type 2) revealed that only 28% of patients treated for this disease manage to maintain good glycemic control. However, diabetes control goes beyond taking medication; it has been proven that there are other aspects to be taken care of as well (frequent glucose monitoring, following an adequate diet, taking care of foot health, regular ophthalmological examinations). [14] Zuart-Alvarado R, et.al (Mexico,2010); carried out a study in which they evaluated adherence to hypoglycemic agents in diabetic patients in a family medical unit in Chiapas with the help of the Morisky-Green test. The average age of the participants was 58 and the results of the Morisky-Green test were that 80% of the population showed adherence to treatment. [15]

Noriega R. (Trujillo,2013); conducted a study that implemented a pharmaceutical intervention at home, addressing 12 patients in their own home. The results obtained interpret a high prevalence of diabetic patients who do not comply with the treatment in percentage of 83.3% as a result of the lack of knowledge that patients have about the characteristics of their treatment, obtaining a percentage of 2.17% of patients adherent to their treatment. [15]

People with diabetes and health education: El arte del cumplimiento para lograr una adecuada adherencia al tratamiento de esta enfermedad, es intervenir en la educacion al paciente, puesto que a pesar de ser una de las mas recurrentes en la poblacion, el desconocimiento y la falta de atencion genera una complicacion mayor hacia esta problemática, entre otros factores. [16]

Existen dos clasificaciones; la intencional y la no intencional, ambas asociadas a la adherencia; la intencional el paciente por su propio criterio decide no apegarse al tratamiento ni indicaciones que le prescribe el médico en cambio, la no intencional el paciente puede presentar por medio de factores externos causas o situaciones en el momento, que le hayan ocasionado el olvido de la toma de sus medicamentos sin razon de ser por voluntad propia. [16]

En base a un estudio realizado por Guzmán-Montero, et.al (2021) que tenia como objetivo saber el porcentaje de personas adheridas a su tratamiento farmacológico, los resultados fueron los siguientes: Se observó que los pacientes no se adhieren al tratamiento como debería de ser representando un 45.2% mientras que un 29% de ellos no responden a la adherencia, y por último, el 25% de pacientes refirió presentar adherencia al tratamiento. [16] Mismo estudio demostró el porcentaje de aquellos que entendian el término "Diabetes" arrojando que el 94.1% tenía el conocimiento necesario acerca de su enfermedad, y un 3.6% no tenía un conocimiento claro de la patología. [16]

Virus related to diabetes mellitus type 2

A study of 29 patients suffering from COVID-19 and type 2 diabetes revealed that about 69% had both preprandial and postprandial capillary glucose levels that were not considered to be normal. Also, 10.3% of patients experienced at least one episode of hypoglycemia during this treatment. [17]

Guo, et al. in a study found that of the total number of patients with diabetes who were already on insulin prior to COVID 19, 29.2% raised their dose upon discharge from hospital. Based on these results, the author concluded that glucose control was less in patients infected with COVID-19. [17]

Objective: Describir el estado del arte de las personas que viven con diabetes mellitus tipo 2 así como su adherencia al tratamiento.

Research question: What is the state of the art of people living with type 2 diabetes mellitus and their adherence to treatment?

Methodology: SA search for information was carried out in different internet sources such as: PubMed, Redalyc, Crossref Metadata Search, using the keywords; type 2 diabetes mellitus, adherence to treatment for type 2 diabetes, adherence to treatment, living with diabetes.

Results

Among the main factors that impact non-adherence, from the articles that were reviewed, those that stand out are those that have to do with socioeconomic issues, their lifestyles, their culture and accessibility to partial health services, that is, where they have to cover the cost of medications.

Of 100 articles whose findings were sought to report on [Type 2 DM] and in turn how adherence to treatment for this pathology was presented, 18 were selected from the total search for articles that were most relevant, where they denote factors that influence good adherence, type 2 diabetes mellitus (which is, physiopathology, how it is detected, diagnosis and treatment), and why the patient does not have a good adherence to the pathology he/she presents.

In the country, it has been seen, read and reported that lately there are many shortages of drugs princiaplamente those that are indicated for type 2 diabetes mellitus, due to this problem the economic factor is reflected as patients have the need to buy their medication to control the indicative parameters of the disease (frequent monitoring of glucose, Consequence of a bad attention in the health services, when the patient is hospitalized it is impossible for him to have an adequate diet when there are scarce resources and cannot be adapted to each of the needs of the patients.

The culture of each of the patients is also influential, so many of them get carried away by their religion and the belief that the saint they believe in will take away the disease and decide not to continue with their treatment or attend their medical appointments.

People living with Type 2 DM, despair of so much medication they take and sometimes do not see satisfactory progress in terms of their illness and despair, discontent and anxiety win not knowing how to cope with treatment, in addition there are other diseases such as the pandemic by COVID-19, a disease that shook everyone, and impacted more uncontrolled in people with Type 2 DM, this captured by high levels of capillary glucose.

In an article cited by author Guo. Et al, 2020 [18] obtained that 29.2% raised the insulin dose when leaving hospitalization and 37.5% of patients who were already on medication were prescribed insulin after hospitalization, so the author concluded that glucose control was lower in patients who had had COVID-19.

Discussion

In the present article, the information detected in the network shows that [type 2 DM] is one of the diseases that due to its incidence-prevalence and its impact on mortality represents a very important disease in public health, given the different factors that can intervene in the treatment, it is pointed out that a significant number of these patients with this pathology do not have medical check-ups and therefore do not show adherence to treatment, their permanence with the disease evokes different complications in their health in the short, medium and long term. [1,2]

Another factor detected is the social condition that surrounds the patient with this disease, which is influenced by cultural conceptions of the disease, how other people who also suffer from the disease experience it, the fatigue of attending medical consultations and not having significant control, which leads to having to take insulin and, consequently, the patient feels dissatisfied with the quality of the health services provided. [10]

When analyzing the information detected by the authors in the present articles, in order to have good adherence to treatment in type 2 diabetes mellitus, it is necessary that the patient acquires the commitment to make changes in his lifestyle together with the indications given by his physician to treat the disease, clearly seeking the alternative that the aforementioned factors do not prevent this from being carried out in a good percentage for the patient. [13]

Conclusions

Adherence to treatment in a disease such as [Type 2 DM] is affected by various factors but the authors of the selected articles denote that the main factors that determine adherence or not are; The level of poverty [Socio-economic], because not all patients who are detected with this chronic disease cannot afford to pay for it, making it difficult for them to carry out their treatment as indicated by the physician, medications are expensive, the health sector in our country is completely devastated, it is outrageous because they do not have medications, health supplies and equipment, lifestyle and cultural factors intervene in adherence to treatment.

Patient education is essential for good adherence to treatment, likewise, the patient feels confident, knows the disease and the drugs that can be prescribed to maintain the appropriate parameters that allow him to lead a peaceful life, but it is important to consider that the high poverty and extreme poverty, as well as the level of schooling in our country is low and therefore, the ability to think, to analyze their reality is much more limited than those who have higher levels of schooling.

Conflict of interest: The authors declare that there is no conflict of interest for the publication of this article.

Artificial intelligence: The authors declare that they have not used any type of artificial intelligence resource in any of the sections of the manuscript.

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