A REVIEW: FACTORS AFFECTING SELF EFFICACY MEDICATION ADHERENCE OF BLOOD SUGAR CONTROL AMONG PATIENTS WITH DIABETES MELLITUS TYPE 2

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ABSTRACT:
Background: *Type 2 Diabetes Mellitus (T2DM) is a metabolic disease group and characteristics of hyperglycemia that occurs due to abnormalities in insulin secretion, insulin action, or both. T2DM is also a chronic disease that will carry for life. The T2DM prevalence is globally estimated in 2019 and 2030 in Indonesia at seventh. The T2DM treatment can be achieved by self-efficacy to dial the genesis rate of DM complicating. Self-efficacy is a person's ability to carry out a behavior required to obtain certain results, identified as an important predictor of several health behaviors, including medication adherence.*
Objective: *The purpose of the review of the article is to review and briefly describe some of the factors that can affect self-efficacy, medication adherence to blood sugar control in type 2 diabetes mellitus patients.*
Materials and Methods: *The method used in the review article was done by locating the sources or literature in primary data form and official books, both national and international journals published in the last 10 years (2010-2020). The source search process article uses online media through a secured web PubMed and Google Scholar. 22 articles will be analyzed in this review.* **Result:** *Some of these articles have found factors affecting the self-efficacy and medication adherence with T2DM is gender, accuracy in drug selection and medication adherence, long suffered, age, adherence treatment, social support, and drug storage.*
Conclusion: *From some of the factors obtained from journal sources, it has been found that gender is the most significant factor affecting the increase in self-efficacy, The ability to medication adherence for type 2 diabetes patients to blood sugar control.*
Keywords: Self-efficacy, medication adherence, blood sugar control and diabetes mellitus type 2

INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a metabolic disease group with a characteristic of hyperglycemia that occurs due to abnormalities in insulin action or both.[1] The DM prevalence is globally estimated in 2019 and 2030 in Indonesia seventh in rank after China, India, the United States, Pakistan, Brazil, and Mexico with estimated DM patients at 10.7 million and 13.7 million in the age range 20 -79 years. Roughly 90% of those with T2DM out of all DM cases. T2DM is hyperglycemia that occurs because of the inability of the body's cell to fully produce insulin, causing insulin resistance.[2]

The cause of T2DM is not yet fully revealed. Genetic factors and environmental influences are predisposition factors for T2DM. The management of the disease requires the participation of doctors, nurses, nutritionists, and other health workers. Patients and families also have an important role, so it needs to be educated to provide insight into the journey of the disease, prevention, complication, and management of DM so that the goal of treatment can be achieved and can help reduce the rate of the DM. The goal of this treatment can be achieved by self-efficacy.[1]

Self-efficacy is a person's ability to perform the behavior necessary to obtain certain results, identified as an important predictor of some health behaviors, including medication adherence. Self-efficacy is the patient's individual belief in behaving in such a way that the patient will achieve the desired goals. Self-efficacy is also related to the level of compliance.[3] Obedience comes from the word "obedient" which means obedience, compliance, disciplined. Obedience is a complex and highly affected process of behavior by the environment in which the patient lives, the hospital staff, and the hospital system where the patient receives treatment.[4] Adherence to treatment is a major factor in the *outcome of* therapy, especially for degenerative diseases such as DM.[1]

According to studies conducted by Amer *et al*., 2018 about the Influence of self-efficacy management on adherence to self-care activities and treatment outcome among diabetes mellitus type 2 patients, using univariate analysis 28.8% of patients have high self-efficacy and controlled blood sugar. Self-efficacy was the only predictor of diabetes control.[5] Diabetes self-efficacy was significantly associated with glycemic control, medication adherence, diet, exercise, blood sugar testing, and mental health-related quality of life [6]. Research Huang *et al*., 2018 also said that self-efficacy was the strongest predictor for improving treatment adherence.[7] So, self-efficacy and medication adherence need to be improved to reduce the incidence and complications of DM.

Based on this, this review will discuss several factors that influence self-efficacy and medication adherence to blood sugar control in patients with type 2 diabetes mellitus. Thus, this article review aims to provide information regarding these factors and can be used as reference material in research.

METHOD

In the step of compiling this review article, the technique used is the literature study technique by finding sources or literature in the form of primary data in official books, national journals, and international journals published in the last 10 years (2010-2020). The literature search is carried out in June-July 2020. The sourcing source process using online media through a trusted website such as PubMed and google scholar. Searching with the keywords: *self-efficacy AND medication adherence AND diabetes mellitus type 2 AND blood sugar*.

SEARCH RESULTS

427Articles was identified through search on data-based via PubMed (n = 117) and google scholar (n = 310). And then, screened articles by title (n = 253). The article was rejected as an unsuitable subject as 204. Total 49 Articles have full-text access. Articles that don't contain the information.

required as 26. Hence, 22articles appearing in the last analysis

RESULTS

The results of the study of the various sources of the journal found several factors affecting the increase in self-efficacy, medication adherence to sugar control for patients with type 2 diabetes mellitus among the types genitals, precision in the selection of drug and medication adherence, long-suffering, age, medication adherence, social support, and drug storage.

References	Location	Method	Parameter	Result
Amer et al., (2018)[5]	Two healthcare facilities in Sudan	Cross-sectional	The patients are 20 years old and have diagnosed with type 2 diabetes mellitus at least 1-year-old	A total of 392 patients. The classified respondents with a high level of self-efficacy are 191 (48.7%). Additionally, high levels of education [adjusted OR 0.5 (0.3-0.7), (p = 0.001)] and formal health education regarding diabetes [adjusted OR 2.4 (1.6-3.7), (p <0.001)], found related to be significantly associated with high-level diabetes self management efficacy. Patients who have high levels of self-efficacy to manage nutrition, exercise, and treatment activities are found to be more adherence to the general diet, exercise, and taking medication. Patients with a controlled illness are 87 (22.2%). The only diabetes control prediction tool is a self-efficacy management of diabetes [OR 2.1 (1.3– 3.5), (p = 0.002)]
Rebekah et al., (2014)[6]	At two adult primary care clinics in the Southeastern United States.	Cross-sectional	Eligible patients were clinic patients, age 18 years or older with a diagnosis of T2DM in their medical record, and a clinic appointment between June 2010 and August 2010 and can speak in English.	83% were Non-Hispanic Blacks, 69% were women, 26% had less than high school education, 60% were unemployed, 39% were uninsured and 80% had yearly income <$25,000. Self-efficacy was significantly had modest correlations with glycemic control, medication adherence, diabetes knowledge, diet, exercise, blood sugar testing, foot care, and mental health-related quality of life
Huang et al., (2018)[7]	Clinic at the midwestern state	Cross-sectional	Patients 20 years old and older who suffer from type 2 diabetes mellitus, at least one oral antidiabetic, and can speak English	Self reported health status ($\beta = 0.17$, $p = 0.015$) and treatment self-efficacy ($\beta = 0.53$, p , 0.001) are associated positive with conserving diabetic treatment. The health literature is not associated with diabetes treatment adherence ($\beta = -0.04$, $p = 0.586$) or HbA1c ($\beta = -0.06$, $p = 0.542$). Lower treatment for diabetes ($\beta = -0.26$, $p = 0.008$) and the higher amounts of prescribed drugs ($\beta = 0.28$, $p = 0.009$) correlate with higher HbA1c.
Adisa et al., (2011)[8]	At the University Hospital College (UCH) endocrinology outpatient clinic, Ibadan in southwestern Nigeria	Cross-sectional	Adult type 2 diabetes mellitus patient diagnosed in an endocrinology clinic or public/private RS in Nigeria and has been taking hypoglycemic drugs for more than 3 months.	About sixty percent of patients there to treatment. Form 58.8% of cohort that rate fast plasma glucose (FPG), 59.7% has an FPG above 110 mg / dL. The mean FPG for patients is 139.05 (SD = 70.5) mg / dL, male and female significantly differed in their mean FPG, 146.55 (SD = 85.0) mg / dL compared 133.33 (SD = 57.6) mg / dL respectively (p = 0.032). Also the mean FPG values for adherent patients, 137.09 (SD = 59.3) mg / dL is lower than those for non-adherent peers, 143.92 (SD = 87.6) mg / dL, but the difference is not statistically significant (p = 0.095). Financial

				constraints (34.4%) are the main barrier to optimalization with medications. There is a significant relationship between gender and patients interactions with the doctor and that is contributing factor to non-adherence (p = 0.038)
Gao et al., (2013)[9]	Health care center in Shanghai, China	Cross-sectional	Received care at a primary health care center and had a diagnosis of type 2 diabetes	Diabetes self-care has a direct effect on glycemic control (β = −0.21, p = .007). No immediate observable effect for self-efficacy, social support or PPC on glycemic control. There is a significant direct positive path of self-efficacy (β = 0.32, p <0.001), social support (β = 0.17, p = 0.009) and PPC (β = 0.14, p = 0.029) to self care diabetes. Everything has a indirect effect on HbA1c (β = -0.06, β = -0.04, β = -0.03 respectively). Besides, the PPC is positively associated with social support (γ = 0.32, p <0.001).
Park et al., (2010)[10]	A medical clinic in Daegu city	Analytic methods	Patients > 65 years who were admitted to the Daegu city clinic. and has been taking a diabetic drug for more than 6 months	The acceptance of medical treatment based on Morisky's self-report is significantly higher in patients at the tertium hospital (61.1%) than in private clinic patients (43.2%) (*P* <0.01). The results have shown that the storage of drugs and self-efficacy factors affect adherence to treatment in hospital patient's tertiary symptoms (*P* <0.05). High medication incorrect drug storage cases (odds ratio [OR], 5.401), and in the case of high self-efficacy (OR, 13,114). In patients of the private clinic, the financial level (*P* <0.05), recognition of the severity of diabetes complications (*P* <0.05), and self-efficacy (*P* <0.01) is associated with treatment adherence. It significantly lower conformity of treatment to patients with lower financial conditions than those lower (OR, 0.410), and significantly higher treatment adherence in patients with higher perceived severity (OR, 2,936) and patients with higher self-efficacy (OR, 4.040).
Waari et al., (2018)[11]	At Kenya national hospital	Cross-sectional	Patients with type 2 diabetes are over 18 years, has consumed oral antidiabetic, insulin, or both, and has been listed in the diabetes family for at least aa month	The prevalence of treatment adherence was low for 28.3% [95% CI: 23.1, 33.5], medium to 26.2% (95% CI: 21.1, 31.3) and high for 45.5% (95% CI: 39.6, 51.3) of reseach participants. Glycemic control good (HbA1c <7%) for 107 (36.9%) reseach participants. Discontent with the support of family members (OR = 2.99, CI = 1.12-7.98), patients with a disease duration of 2-10 years (OR = 2.07, CI = 1.01-4.22), have been treated for diabetes mellitus (OR = 2.94)), CI = 1.60-5.41), challenges in drug access (OR = 1.76, CI = .01-3.05) and discontent with the attending physicians (OR = 3.58, CI = 1,36 - 9.43) are factors found related to adherence to a bad drug.
Srikartika, et al., (2016)[12]	Hospital Regional Public Service Agency (BLUD RS) Banjarbaru City	Analytical descriptive	Patients with a diagnosis of type 2 diabetes and written on the BPJS participant sheet, received a patient type 2 diabetes treatment, replaced drugs at the BPJS	There is a significant link between the MMAS-8 and MPR (p-value 0.004). Only 39.6% of adherence patients use drugs and redeem drugs. *Chi-square* analysis shows there is a significant relationship between gender (p-value 0.011) to adherence. *Adjusted Odd*

			BLUD depot at Kota Banjarbaru Hospital, and redeemed drugs at least twice during the study time.	*Ratio* (AOR) indicates that the men were 5.7 (aOR 5.7; 95% CI: 1.3-25.7) times more adherence than female patients by considering the age, duration of diabetes, and medication received. The most reasons for non-adherence are late in redeeming drugs (86.4%) and forgetting to take medication (77.3%).
Ridayanti, et al., (2019)[13]	Puskesmas Cempaka Banjarmasin	Cross-sectional	Patients participating in the BPJS Health program and age> 45 years old	Indicated high self efficacy respondents (82%) have adherence control behavior (p= 0.027, PR = 2.91). Respondents who get monotherapy treatment (81%) and combination (58) have adherence control behavior (ρ = 0.155). Respondents who have the drug frequency often (72%) have adherence control behavior (p= 0.211). Respondents who have long suffered short (82%) have adherence control behavior (p= 0.027, PR = 2.91).
Almira et al., (2019)[14]	Teluk Dalam Puskesmas Banjarmasin	Cross-sectional	Patients who participate in the BPJS (Social Security Administering Body) program, and get a two-way combination of therapy oral anti-diabetes drugs.	Indicates that respondents are not elderly (86.1%) have higher antidiabetic behavior (p = 0.004, PR = 0.243), male respondents (70%) and women (76.7%) have adherence to taking anti-diabetes drugs. have high level of non diabetic bahavior (p = 0.843), those with good knowledge (90.6%) have high levels of non diabetic behavior (p = 0.001, PR = 5.926), and those with good motivation (83.8%) have higher antidiabetic behavior (p = 0.023, PR = 3,320).
Bulu et al., (2019)[15]	Dinoyo Malang Health Center	Cross-sectional	Willing to be a respondent, patients take diabetes medications constantly, 45-65 old, patients who have oral therapy (DM drugs, Glibenclamide, metformin), and able to read and write.	Proving less than half (47.3%) of diabetes mellitus type II adherence to moderate medication and more than half (60.0%) of diabetes mellitus type II has abnormal blood sugar levels. Whereas the result of the *Spearman rank correlation* got *p-value* = (0.004) <(0.050).
Nanda *et al.*, (2018)[16]	Puskesmas Mojo, Pucang Sewu, and Keputih Surabaya	Case-control study design	Female patients are 45-59 years old, they copy complete medical records of routine blood sugar tests, and they are willing to be research respondents.	Patients with unregulated blood sugar showed that 46.2% adherence and 53.8% nonadherence on his anti-diabetic drugs. We have 92.3% non-adherence and 7.7% non-adherence to the diabetic. The *chi-square* test shows there is a connection between adherence to the rule of blood sugar level in diabetes mellitus would be at p = 0.015 and an OR value of 14 with a 95% CI (1.385-141.485) which would put the wayward respondents taking a 14 risk of developing a bad blood sugar regulation compared with the patient who would take the anti-diabetic drug.
Nurhidayati *et al.*, (2019)[17]	Puskesmas Karangnongko	Cross-sectional	30 years old patients, prescribing anti-diabetic drugs, an elementary school minimum, diagnosed with type 2 diabetes mellitus, are willing to be respondents.	Indicating the average age of respondents is 53 years old, the youngest is 40 years old and the oldest is 63 years, female respondents (75.0%), elementary school (50.0%), unemployment (56.8%), suffering from diabetes mellitus <5 years (75.0%), fast blood sugar> 126 mg/dl (88.6%), other existing health problems (61.4%), a drugs use biguanide (79.5 %). The health trust in the study is at a minimum of 65, a maximum of 141, and an average of 112.66 ± 21,824. Medication adherence is a minimum of 3, a maximum of 8, and an average of 6.34 ± 1.413. The *Pearson*

				correlation test suggests there is a correlation to healthcare with conformity to drugs (p= 0.000). The relationship health trust with drug-taking compliance shows a moderate positive correlation with coefficient correlation or value of r= 0.489. A health trust has a bearing type 2 medications in the Karangnongko Center.
Adikusuma & Qiyaam (2016)[18]	West Nusa Tenggara Hospital.	Cross-sectional	The patients suffer from a 45-65 years old DM type 2 and have received the oral antidiabetes at least 6 months before the measurement of adherence	It shows the level of compliance between DM type 2 and nonadherence with 50% and a negative correlation between patient treatment of DM type 2 to HbA1c levels (r = 0.081, p = 0.619).
Anindita et al., (2019)[19]	Cempaka Village.	Cross-sectional	DM patients who have been exposed to knowledge about physical exercise, can communicate well orally, understand Indonesian or Banjar language, and are willing to be research respondents	From this study, it was found that as many as 7 respondents who had poor self-efficacy but were adherence to carrying out physical exercise, were due to the factor of the duration of suffering from diabetes, where most of the respondents had diabetes for more than 5 years.
Ramadhani et al., (2016)[20]	Padang Sari Village	Cross-sectional	All elderly dm type 2 in Padangasari Village	The supporting family relationship with the self-efficacy type 2 diabetes mellitus (*p-value* 0.008) with a value of r = 0.258, no relation between the characteristics of the respondents and self-efficacy, except the gender. The factor that does most to contribute to the self-efficacy of older people with type 2 diabetes is the gender with value (*p-value* = 0.023; B = 2.235).
Saibi et al., (2020)[21]	District Health Center, East Jakarta	Cross-sectional	Patients with the diagnosis of DM type treated drug Central report indicates the target of east Jakarta April 2019 - June 2019, patients are willing to participate in the research, accepting prescription medication for antidiabetic drugs and dispensing minimum medications for 4 months.	Indicated that 71 respondents (40.6%) had a moderate level of adherence in their use of antidiabetic drugs. The primary reason for respondent nonadherence is boredom (43.6%). There is a significant relationship between adherence levels and blood sugar levels.
Alfian, 2015)[22]	RSUD Dr. H. Moch. Ansari Saleh Banjarmasin	Cross-sectional	Patients diagnosed with diabetes mellitus aged 18-65 who got her oral anti-diabetes drugs.	Indicating that the level of medication adherence in patients with diabetes mellitus the treatment is low adherence level (42.7%), moderate adherence level (39.1%), and high adherence level (18.2%). With an average blood sugar fast and two hours after a consecutive meal of 156.04 ± 63.15 mg / dL and 210.90 ± 80.76 mg / dL. There is a correlation that point is that responding to a drug having a blood sugar level two hours after a meal (p <0.05) with a negative correlation direction.
Juwita & Febrina (2018)[23]	Puskesmas in the city of Bukittinggi	*grounded theory*	Willing to be an informant, a patient with Diabetes Mellitus type 2 in Bukittinggi.	The primary concept of grounded theory is "Blood sugar behavior". The forms of blood sugar control behavior in this study consisted of a) the body's response to changes caused by DM, b) the form of motivation for DM patients, c) Physical activity of DM patients, d) dietary compliance, e) DM therapy management, f) Compliance with control, g) Healthy lifestyle of DM family, h) Impact of

				lifestyle changes.
Mutiara et al., (2018)[24]	9 Puskesmas in Bandar Lampung, namely Kedaton Health Center, Gedong Air, Kupang Kota, Kampung Sawah, Kemiling, Beringin, Labuhan Ratu, Sukabumi, and Simpur.	Cross-sectional	People with diabetes mellitus type 2 who live in Bandar Lampung, aged <75 years and willing to take part in the research and fill out the *informed consent form.*	There were 90 respondents (78.26%) suffer minimal depression, 11 respondents (9.57%) suffer from mild depression, 8 respondents (6.95%) suffer from moderate depression and only 6 respondents (5.22%) suffer severely from severe depression. A total of 62 respondents had uncontrolled blood sugar levels (53.9%).
Agrawal & iwari (2020)[25[	At Diabetes, obesity and Thyroid Center, Gwalior	Cross-sectional	All diabetes patients (both Type 1 and type 2) having age more than 18 years and who was on diabetes medication were included.	Male preponderance was reported (68.4%). The majority were of the diabetes treatment for the last 1-5 months (78.8%). The most common response for the treatment interruption was long life medication period (73.7%) followed by the fact that the majority were not aware of the consequences of missing the doses (68%), 66.6% due to the side effect of the medication and 57.8% had financial problem.
Andarmoyo., et al(2019)[26]	Ponorogo Regency East Java Indonesia	Cross-sectional	Male or female aged ≥18 years; diagnosed with type 2 diabetes, received drug therapy, had attended a regular check-up at least one time and was willing to take part in the study.	A sample of 180 respondents was taken by purposive sampling technique. Variable X includes age, gender, education, occupation, income, and length of suffering. Variable Y was medication compliance with type 2 Diabetes Mellitus patients. Data collection used a Morisky Medication Adherence (MMAS-8) questionnaire and was analyzed using the Chi-Square test with a significant level of α<0.05. From the results of the study, it was found that the factors of age, sex, education, employment, income, and duration of suffering had a significant relationship with medication adherence for patients with type 2 diabetes mellitus.

DISCUSSION:

Diabetes mellitus is often diagnosed as having complications, even though travel with disease occurred years earlier.[17]. From the results of the study by Andarmoyo *et al.,* 2019 it was found that the factors of age, sex, education, employment, income, and duration of suffering had a significant relationship with medication adherence for patients with type 2 diabetes mellitus [26]. Diabetes self-efficacy was significantly associated with glycemic control, medication adherence, diet, exercise, blood sugar testing, and mental health related quality of life.[6]. Research articles are carried out across countries such as Indonesia, Nigeria, Midwestern, China, Sudan, and Korea. In these 22 articles, 18 Articles apply the sectional method of cross-sectional, 2 using a descriptive-analytic method, 1 using the case-control method, and 1 using the *grounded theory* method. Of the 22 articles, the majority parameters for diabetes mellitus are <65 years old. According to a study of the reviews data source, several factors can increase self-efficacy, medication adherence of blood sugar control a type 2 diabetes mellitus, including:

Gender

Research conducted by Adisa *et al.,* 2011 *states* that there is a significant link between gender and drug observance and the average difference in the value of fast plasma glucose (FPG), 146.55 (SD = 85.0) mg / dL and 133.33 (SD = 57.6) mg / dL with (p = 0.032).[8]. ResearchSrikartika *et al.,* 2016 Also states that the gender effect on adherence was Analyzed by the chi-square test. Based on male gender OR analysis, 4.8 times more adherence than females. The research also points out that age groups, last education, income work, DM drugs received, duration of suffering diabetes, and neither presence of complications have any effect on the compatibility of the drug use and taking.[12].

Research Almira *et al.*, (2012) indicate antidiabetic behavior on DM type 2 In the Gulf center in the gulf flood there is no relationship to gender after a chi-square test [14]. Meanwhile, it was researched by Ramadhani *et al.*, 2016 states that the most significant factor in the DM aged self-efficacy is gender.[20].

Accuracy in drug selection and medication adherence

Patients in the adherence category had controlled blood sugar levels, while fewer adherence patients affect uncontrolled blood sugar levels. After a Spearman correlation test indicated that the higher the compliance of the blood sugar level 2 hours after feeding (*postprandial*) would go lower.[22]. A decrease in blood sugar levels is affected by various factors, including the precision of the patient's choice of oral antidiabetic drugs, as well the frequency and dosage consistent with the patient's condition, lifestyle modifications, diet management, and treatment adherence factors [21].

Long suffered

Patients with type 2 diabetes mellitus with low self-efficacy tend to have nonadherence control behavior (53%), while those with type 2 diabetes mellitus sufferers with high self-efficacy tendency to have control adherence behavior (82%).[13] As much 7 respondents have poor self-efficacy but are adherence to physical training, due to the DM age factor in which most of those suffering DM over 5 years [19]. Duration of suffering is a risk factor that affects the compliance behavior of type 2 diabetes mellitus sufferers. Type 2 diabetes mellitus with a long life of (> 5 years) risk

2.91 times to have nonadherence risk behavior under type 2 diabetes mellitus than type 2 diabetes mellitus has a short duration of suffering (≤5 years)[13].

A factor that affects medication adherence is a treatment factor and the duration of the long illness.[16] The longer the duration of diabetes, the higher the value of the HbA1c [9]. In contrast with research result Adikusuma 2016 form analysis show that there is no positive correlation between patient medication adherence and HbA1c levels. [18].

Age

Factors that can affect blood sugar levels are not as a norm as regular exercise, diet, insulin, and age.[15]. Same opinion on research[14] age is one factor that can influence adherence to taking anti-diabetes drugs. The age group that has uncontrolled blood sugar levels is 45-60 years old [24].

Adherence treatment

Patients who do high medication adherence will be able to keep blood sugar levels normal and thus promote treatment for type II diabetes mellitus [15]. Following the research Nanda *et al.,*2018 the more adherence the patients are in control, but if the patient does not submit to his diabetic drug in any way, his blood sugar becomes uncontrollable.[16].

Social support

A person with strong social support will help to avoid nonadherence that impairs the quality and quantity of life [20]. Significant factors associated with conformity to poor treatment are patients with the duration of disease between 2-10 years, having been treated for diabetes mellitus, dissatisfaction with the family, the challenges of access to medicines, and satisfaction consultation with a doctor [11].

Drug storage

The storage of drugs and self-efficacy are factors that affect treatment adherence. Significantly higher treatment adherence to Patients with high disease severity and Patients with higher self-efficacy [10].

CONCLUSION

Multiple factors can increase self-efficacy, medication adherence for type 2 diabetes mellitus to blood sugar control. Such as Gender, accuracy in the selection of drugs and adherence treatment, long-Suffering, age, medication adherence, social support, and drug storage. Significantly factors that have a profound effect on self-efficacy and medication adherence for patients with diabetes mellitus type 2 on blood sugar controls that have been analyzed from a variety of genders.

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