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## BARRIERS OF ADHERENCE TO THERAPEUTIC REGIMEN AMONG TYPE II DIABETIC PATIENTS AT MANSOURA UNIVERSITY HOSPITAL

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### Abstract:

The chronic metabolic disorder diabetes mellitus is a fast-growing global problem with huge social, health, and economic consequences. It is estimated that in 2010 there were globally 285 million people (approximately 6.4% of the adult population) suffering from this disease. Therefore, the aim of the study was to determine DM patient's Adherence to therapeutic regimen. **Methods** A descriptive –correlational design will be used in the study. Barriers of diabetic patients' adherence to therapeutic regimen was designed after the literature review. Convenient sample of this study composed of 100 adult patients of both sexes who met inclusion criteria using standard questionnaires were studied to determine the demographic characteristics, medical history and the patients' barriers of adherence. **Results** The results revealed that the majority of patients about (53.1% ) forget their medication as a barrier to adherence to medication. About (28.1 %) cannot adhere to medication due to medication cost and only about (18.8 %) of them use medication when feeling ill. . About (66.7 %) of patients with type II diabetes mellitus cannot stop smoking due to life stresses and about (33.3 %) of them have no desire to stop it. The majority of patients cannot adhere to follow up due to transportation difficulties about ( 94.7 %),and about ( 2.6 %) of patients cannot adhere to follow up due to lack of waiting places and long waiting time . The majority of patients about (77.5 %) can not adhere to dietary regimen because they are not prepared to change their habits in diet ,and about (2.5 %) can not adhere to dietary regimen because they use it only when feeling ill and also about ( 2.5 %) can not adhere to dietary regimen because no one tell them about the food that they have to avoid. The majority of patients (68.8 %) can not adhere to exercise due to inability to practice exercise and about (3.1% ) cannot adhere to exercise because there is no suitable place for practice .

**Key words:** Adherence , Therapeutic Regimen , Adherence.

### Introduction:

Diabetes mellitus defines a group of metabolic disorders characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. It is one of the most common metabolic syndromes, since there are 200 million diabetic individuals in the world; this creates a need to understand the etiology of the

disease and the factors influencing its onset. Several pathogenic processes are involved in the development of diabetes; these range from autoimmune destruction of the B-cells of the pancreas with consequent insulin deficiency to abnormalities that result in resistance to insulin action. Deficient action of insulin on target

tissues and hyperglycemia are the basis of the abnormalities in carbohydrate, fat, and protein metabolism, causing diabetes' characteristic clinical features, micro and-macrovascular complications and increased risk of cardiovascular disease<sup>(1)</sup>

The new classification system (American Diabetes Association 2004) identifies four types of diabetes mellitus: type 1, type 2, "other specific types" and gestational diabetes. Type 1 diabetes mellitus (T1D) is characterized by cell destruction caused by an autoimmune process, usually leading to absolute insulin deficiency. This form of diabetes, which accounts for only 5–10% of all diabetes, is a juvenile-onset diabetes; it results from a cellular-mediated autoimmune destruction of the cells of the pancreas by CD4 and CD8 T cells and macrophages infiltrating the islets. In this case insulin therapy is required for survival, to prevent the development of ketoacidosis, coma and death.<sup>(2)</sup>

Medication nonadherence, defined as a patient's passive failure to follow a prescribed treatment regimen and do not follow prescribed treatment regimen.<sup>(3,4)</sup>

The compliance of patients with prescribed treatment has increasingly become an area of interest and research over the last 30 years. Patient's failure to adhere

to medication regimens is a major problem. The factors that hinder adherence are complex and different as patient's ability to understand their treatment routines or the reasons of them, side effects, functional barriers, simple forgetfulness, unclear instructions, patients inability and not readiness or any combination of these can influence adherence to therapeutic regimen, and the potential for positive outcomes. Indeed, problems of noncompliance have been considered a major factor in delaying the progress of therapeutic process.<sup>(5)</sup>

The nurse as a member of the health team plays a vital role in developing patients adherence to therapeutic regimen. The role of clinical nurses is patient education before discharge to develop better medication adherence.. Continious nursing interventions that affect adherence early can improve positive long-term health outcomes. These interventions include patient education, patient reminders to have medications (e.g., using a pill box for each day of the week and time of day), clinical visits, telephone calls, and explaining clearly the therapeutic regimen.<sup>(6,7)</sup>

**Aim of study:**

Assess barriers of adherence to therapeutic regimen among Type II diabetic patients .

**Research questions:**

What are the barriers of Type II diabetic patients' adherence to therapeutic regimen ?

**Subjects & Methods**

**Study Design:-**

A descriptive – correlational design will be used in the study.

**Setting:-**

This Study will be conducted in endocrine department at Specialized-Medical Hospital at Mansoura University.

**Subjects**

100 adult patients diagnosed as diabetes mellitus type II according to statistical formula .

**Inclusion criteria:**

- Type II adult diabetic patients from both sexes aged 18 years to 60 years old.
- Willing to participate in the study and give consent.

**Exclusion criteria:**

All type I diabetic, all type II diabetic patients who refused to be apart of the study ,patients with psychosis and mental disabilities.

**Tools:**

**Tool 1: Barriers of Patient's adherence questionnaire :**

This tool will be developed by the researcher based on thorough Literature review and used to assess barriers of adherence including ( medication barriers ,diet barriers ,exercise barriers ,follow up barriers ).

**Methods:**

1. Official written permission to conduct the study will be obtained by the researcher from responsible authorities at specialized Medical hospital.
2. Verbal explanation of the nature and aim of the study will be performed to medical &nursing staff.
3. Informed Consent will be obtained from patients after explaining aim of the study and confidentiality of data which will be ascertained.
4. A pilot study will be conducted on 10 patients to assess the tool for its clarity and feasibility and its applicability. Necessary modification will be done.
5. Patient's privacy will be considered.
6. Data will be tabulated and proper statistical analysis will be used.
7. Tools will be developed after through reviews related literature.
8. Tool will be tested for reliability & validity.
9. Human rights and Ethical consideration , Prior to pilot study, written consent approval was obtained from each participating patient prior to his /her inclusion into the study .clarification of the nature and purpose of the study will done on the interview with each client .The investigator emphasized participation is absolutely

voluntary and confidential. Anonymity, privacy, safety and confidentiality will be absolutely assured throughout the whole study and the right to withdraw from the study at any time.

**Results:**

The data collected were analyzed statistically and the results are categorized into 4 main parts which are: barriers to medication adherence, barriers to smoking cessation, barriers to follow-up visits, barriers to dietary regimen adherence, barriers to exercise adherence

**Table (5.1):** barriers to medication adherence (No = 32):

Barriers to medication adherence	N	%
Medication forgetfulness	17	53.1%
Medication cost	9	28.1%
Use when feeling ill	6	18.8%
Total	32	100%

**Table 5.1:** This table shows distribution of patients with Type II diabetes mellitus according to barriers to medication adherence. The table shows that the majority of patients about (53.1% ) forget their medication as a barrier to adherence to medication. About (28.1 %) cannot adhere to medication due to medication cost

and only about (18.8 % ) of them use medication when feeling ill

**Table (5.2):** barriers to smoking cessation (No = 27):

Barriers to smoking cessation	N	%
Life stressors	18	66.7%
No desire to stop it	9	33.3%
Total	27	100%

**Table (5.2) :** This table shows that about (66.7 %) of patients with type II diabetes mellitus cannot stop smoking due to life stresses and about (33.3 %) of them have no desire to stop it.

**Table (5.3):** barriers to follow-up visits :- (no= 38)

Barriers to follow-up visit	N	%
Transportation difficulties	36	94.7%
Lack of waiting places	1	2.6%
Long waiting time	1	2.6%
Total	38	100%

**Table (5.3):** shows distribution of patients with Type II diabetes mellitus according to barriers to

follow-up visits. It shows that the majority of patients cannot adhere to follow up due to transportation difficulties about ( 94.7 %),and about ( 2.6 %) of patients cannot adhere to follow up due to lack of waiting places and long waiting time .

**Table (5.4):** barriers to dietary regimen adherence: (n=40).

Barriers to dietary regimen adherence	N	%
Use when feeling ill	1	2.5%
Not prepared to change	31	77.5%
No special food preparation at home	7	17.5%
No one tell me about the food that I have to avoid	1	2.5%
Total	40	100.0%

**Table (5.4) :** shows distribution of patients with Type II diabetes mellitus according to barriers to dietary regimen adherence. .It shows that the majority of patients about (77.5 %) cannot adhere to dietary regimen because they are not prepared to change their habits in diet ,and about (2.5 %) cannot adhere to dietary regimen because they use it only when feeling ill and also about (2.5 %) cannot adhere to dietary regimen because no one tell them about the food that they have to avoid.

**Table(5.5):** barriers to exercise adherence: (n=64 ).

Barriers to exercise adherence	N	%
Tiredness after exercise	3	4.7%
Unsuitable place	2	3.1%
No one encourage me	15	23.4%
Unable	44	68.8%
Total	64	100.0%

**Table(5.5):** shows the distribution of patients with Type II diabetes mellitus according to barriers to exercise adherence. It shows that the majority of patients (68.8 %) can not adhere to exercise due to inability to practice exercise and about (3.1% ) cannot adhere to exercise because there is no suitable place for practice

**Discussion:**

Patients noncompliance to therapeutic regimen is one of the most serious problems facing health care today<sup>(8,9)</sup>.

The findings of this study revealed that the commonest reasons reported by patients for non-compliance to medication taking were forgetting their medication ( about 53% of patients ) ,followed by the cost of medication and taking medication only when feeling ill. Forgetting medication may be due to absence of a person who reminds patient with the time

of taking medication . This finding is in accordance with Bernardino et al.(2006),<sup>(10)</sup>

Who found that hypertensive patients may fail to take medication due to forgetting medication. Also according to Hernandez-Ronquillo(2003)<sup>(11)</sup>; Ponnusankar (2004)<sup>(12)</sup> & Wai (2005)<sup>(13)</sup> forgetfulness is a widely reported factor that causes non-compliance with medication. In addition, other study conducted in Iran by Hadi & Rostami (2004)<sup>(14)</sup> reported that the most common reasons for poor compliance were drug side effects and forgetfulness.

Changes in diet are often important in management of diabetes mellitus disease. In the present study about 77.5 % of patients are non compliant with diet due to inability to change dietary habits. This result agrees with a study conducted in Alexandria by El-Saadany (2007)<sup>(15)</sup> on kidney transplant patients which reported that, less than half of the samples were compliant with dietary regimen.

The benefits of physical activity in the management of diabetes mellitus have led to recommendations that patients with diabetes mellitus increase their levels of physical activity. Compliance with exercise is an essential lifestyle intervention for the patient with diabetes mellitus. In the present study, About 68.8% of the studied patients were non

compliant with exercise due to inability to perform exercise . This is in accordance with another study conducted in Mansoura by El-Saied (2007)<sup>(16)</sup> & in Alexandria by Mohamed (2009)<sup>(17)</sup> who revealed that lack of knowledge about benefits of exercises, inability to perform exercise are the main causes of noncompliance with exercise among elders. Another study conducted in Alexandria by El-Saadany (2007) on kidney transplant patients which found that a small percent of the subjects exercised regularly. In contrast, Talas et al (2004)<sup>(18)</sup> who found that, about half of their subjects were exercising regularly .

Transportation difficulties were reported by 94.7% of the patients as the main cause of noncompliance with follow up. the same results of causes of noncompliance with hypertensive treatment regimen were reported in two other studies carried out in Mansoura and Tanta in outpatient clinics by Abd- Elaziz (2000)<sup>(19)</sup> & Soliman (2000)<sup>(20)</sup> who reported that feeling better and difficult transportation were among the main causes of noncompliance with follow up among hypertensive patient. On the other hand, two studies by El-Saadany (2007) conducted in Alexandria & Yavuz et al (2004)<sup>(21)</sup> reported that , the majority of the subjects were

compliant with nephrology follow up.

It is known that smoking represent a hazard to diabetic patients . The findings of this study revealed that the commonest barrier to smoking cessation is due to life stressors (about 66.7% of patients).

**Conclusion:**

- The mean total knowledge score and its related areas were at good level. Only about quarter of the study subjects had poor knowledge about diabetes mellitus . About half of patients had good knowledge about diabetes mellitus. .
- The level of knowledge was found to be good in the old age groups than the young age group, in males than females, in married than unmarried , in those with higher level of education than illiterate subjects , in those who work than those who do not work and in those who live with their families than those live alone or with others. The level of knowledge also differs based on duration being diagnosed with diabetes mellitus.
- The total mean score of patient adherence to therapeutic regimen were at the low level. About more than half of the studied subjects had low adherence level. But only about more than quadrat of the studied subjects had moderate adherence level and there is not any one of the studied

subjects had ahigh adherence to therapeutic regimen of diabetes mellitus.

- The level of adherence was found to be high in the old age groups than the young age group , males than females, in married subjects than non married ones, in those who are educated than those who are illiterate ,in those who live with their families than those who live alone or with others . The level of adherence differs based on duration being diagnosed with diabetes mellitus .
- There was a strong positive relation between level of patient's knowledge about diabetes mellitus and adherence to therapeutic regimen . Knowledge was positive indicator of patient adherence. Thus patients who had a good knowledge about diabetes mellitus had a high adherence level.

**Recommendation**

Based on the results of the present study the following recommendations are suggested:-

- According to the findings of this study, An education program should be put in priority at each healthcare center and hospital in order to prevent complications of diabetes mellitus .
- Mass media and non-government organization involvement to

- improve knowledge of both the public and diabetic patients about disease, detection and management & coping with disease.
- Increase cooperative efforts between Faculty of Nursing Staff and hospital managers to offer continuous health education to chronic diseases for all health care providers..
  - Patients' care in the out patients' clinics for diabetes mellitus should be improved to offer more comfort and benefits to the patients, which may improve their compliance with follow up.
  - Instructions should be given about adopting measures to help patients be compliant with prescribed drug therapy by simplifying the drug regimen and associating it with the daily routine events as eating, praying and sleeping times.
  - Organizing patient's centered workshops to teach about diabetes mellitus and to enhance patient's motivation to be a positive aspect in their treatment.
  - Designing a training program for outpatient nurses about diabetes mellitus and its management, and proper ways to provide health education and appropriate counseling for diabetic patients in order to improve knowledge and adherence.
- At the patient level, continuous health teaching using T.V programs, video tapes, and brochures to enhance compliance with therapeutic regimen.
  - Encouragement of socialization and friendship as this can enhance compliance.
  - Instruct patients about lifestyle modification as proper diet, performing exercise, smoking cessation and stress reduction.
  - Psychological and social aspects in caring for diabetic patients should be taken into consideration and included into nursing education.
- For further research:**
- Development of educational program for patients with diabetes mellitus disease to be familiar with different aspects of treatment and healthy life style and how to comply and cope with it.
  - Effect of implementation of educational program for diabetic patients about pharmacological and nonpharmacological treatment
- Conflict of interest:**  
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