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Abstract: People all around the world are affected by the deadly, complicated, and rising prevalent condition known as diabetes mellitus. The assessment of self-management among diabetic patients is very important. By self-monitoring of the blood glucose, eating healthy foods, doing exercise they can remain healthy despite of disease. The goal of the study is to determine how well diabetic patients manage their condition on their own. The study was conducted among diabetic patients in Hyderabad was convenient. Data was collected by DSMQ questionnaire. The statistical software for social sciences (SPSS) 21 version was used to examine the data. 100 individuals completed the survey, which was then returned for analysis (response rate of 100%). 46% of people frequently check their blood sugar levels, 49% take medications, 32% engage in physical activity, and just 32% adhere to the recommended diet. Majority of the diabetic patients do self- management but still there are a number of patients were unable to follow self-management regimes.

Key Words: Diabetic Patients, Diabetes Mellitus, Self-management, Disease, Blood Glucose

Introduction

“Diabetes mellitus (DM) is a clinical syndrome caused by chronic hyperglycemia and some changes in carbohydrate, lipid and protein metabolism. The disease may cause defects in secretion of insulin and action of insulin (resistance) or both”. It is a major cause of premature mortality and disability. (Glorria 1998) It is defined as an increase in plasma glucose (hyperglycemia). A hormone called insulin is produced by the body. The pancreas makes this hormonal substance. It aids in the digestion of the blood sugar that is drawn from our diet and used by the body as energy. There are two main causes of diabetes that people don't have enough insulin or the insulin that is produced by their pancreas is not working

properly. As a result body cannot move the glucose out of the blood and this causes an increase in blood sugar levels. The sign and symptoms of diabetes include: Feeling tiredness: The patient feel tiredness after doing some work. Lose weight: The patient may complain of weight loss. Weight loss occurs due to the reduction of glucose and it also occurs due to insulin deficiency .however there is no weight loss occur in type II diabetes, Infection: Diabetic patients are more prone to infections due to decrease immunity. Increased thirst: Diabetic patients complain of increased thirst due to increased fluid loss and electrolyte imbalance. Blurred vision: The vision of diabetic patients is also affected due to changes in refraction. It is glucose induced. Wound healing delayed: In type 2 diabetes mellitus the healing time of the

wound is decreased. There is different types of diabetes. Type I diabetes mellitus and Type II diabetes mellitus are the two forms of diabetes that are most prevalent. In type I diabetes insulin production is stopped by pancreas because of the demolition of insulin producing cells (b cells). It occurs in the age less than 40. The cause is idiopathic. In type II of diabetes pancreas produce some amount of insulin as type II diabetes is characterized by insulin resistance and unable to produce sufficient insulin. It is most commonly occurs in middle-aged and elderly people i.e. after 40-50 years. another type of diabetes, type III, involves a variety of conditions, some of which are caused by genetic flaws in the way insulin is produced. (David squirell [2016](#)) In Gestational diabetes patients develop type I diabetes during pregnancy and early insulin treatment is given and some patients develop type II diabetes during pregnancy or they had unknown preexisting type II diabetes in which diabetes does not set aside after pregnancy. In the majority of the cases gestational diabetes occur due to the inability to fulfill the body's demand of insulin during pregnancy. The investigations are performed to diagnose diabetes are urine test and blood test. In urine test we check for the glucose levels in urine through dipsticks. It is checked by urine passed 1-2 hours after a meal. Ketone bodies are also checked in urine test but their levels are normally be increased in patients who are fasting , or have persistent episodes of vomiting or doing heavy exercises so it cannot help in the diagnosis diabetes. The albumin levels are also checked in urine test. It is the most standard test. It is used to detect that albumin levels are > 300 mg/L or less. If the patient has a urinary tract infection and proteinuria is absent this indicates that the patient has diabetic nephropathy. In blood test laboratory testing of blood glucose occurs. It depend upon the factor that patient has eaten something or not before the sample has taken. The patients who had diabetes mellitus type 2 monitoring blood sugar level are very important on regular basis. Blood Ketone is also checked in the blood test. If the patient has Diabetic

Ketoacidosis (DKA) the major ketone is not measured. Ketone body levels under 0.6 mmol/L are considered normal. The patient must see a doctor if it is between 0.6 and 1.5 mmol/Lit is between 0.6 and 1.5 mmol/L, the patient has to see a doctor. The patient has the highest risk of developing diabetic ketoacidosis if the ketone bodies are between 1.5 and 3.0 mmol/L. If the of ketone bodies is > 3.0mmol/L than it is confirmed that the patient has diabetic ketoacidosis. In blood test we also check for glycated hemoglobin HbA1or HbA1c because it is directly related to blood glucose level if HbA1c is raised 1% than 2mmol/L rise of blood glucose occur. The criteria for diagnosis of diabetes mellitus include Fasting Sugar <110 is normal. If >110- <126 then it is impaired fasting glucose and if >126 than it is diabetes mellitus. 2 Hour after Glucose Load i <140 is normal. If >140 but <200 then it is impaired glucose tolerance test. And if it is > 200 then it is diabetes mellitus.

Random (mg/dl) > 200 with symptoms it is confirmed diabetes mellitus. Diabetes Type I treatment includes insulin injections and the usage of an insulin pump. Because there is no medications for type I diabetes mellitus. There are different ways to treat type II includes Diet, Medication and Physical Activity.

The first step of gestational Diabetes treatment is a modification of the dietary pattern of the mother. The second step is continuous monitoring of sugar levels of the blood. And the last method is injectable for insulin (3) Complications of Diabetes include Diabetic Ketoacidosis and Hypoglycemia. (David squirell [2016](#)).

Hypoglycemia means decreased glucose level. There are some of the causes of hypoglycemia are improper diet, alcohol consumption, unusual and unexpected exercise. Symptoms of hypoglycemia include a confused mental state , patient appear pallor , increased heart rate (tachycardia) , nausea , vomiting , increased hunger , anxiety , in coordination, patient become more aggressive and convulsion occur. Sometimes patients may progress to hypoglycemic coma.

Diabetic Ketoacidosis is a life threatening condition. It is a sign of diabetes type I or it occur due to increased insulin demand by the patients due to trauma, stress, infection or myocardial infarction. The diagnosis of diabetic ketosis is depend on the following factors: the patients may have hyperglycemia which is greater than 250 mg/dl or they have metabolic acidosis, this indicates that the serum's bicarbonate level is below 15 meq/L and the blood's pH is higher than 7.3. the diabetic ketoacidosis symptoms include polyuria which means increased urination , patient may complain of abdominal pain , nausea and vomiting .The signs of include hypotension, decreased temperature, dry tongue , rapid and deep breathing which called kussmaul's sign , rapid or weak pulse .The treatment of diabetic ketoacidosis include insulin replacement , potassium replacement and the use of antibiotics. the prolonged exposure of bodily tissues to metabolic abnormalities like hypoinsulinemia or hyperglycemia. (David [2016](#)) It encompasses microvascular and macrovascular disorders, two categories of chronic problems.

Diabetes is only associated with microvascular illness. It happens as a result of capillary wall damage. It is subdivided into categories: Neuropathic which includes Diabetic Retinopathy, Cataract, and impaired Vision, Nephropathy and Peripheral Neuropathy which means loss of sensations.

"Self-care is defined as any planned actions done to take care of your health physically, mentally and emotionally. Because good self-care is necessary for good health. (Self-care) Diabetes self-care/management means that diabetic patients have choices on regular basis to select the best things to remain healthy. This means that they have to check their blood sugar regularly, make choices to eat healthy foods, Take their medications daily and identify the risks and try to reduce them.

The factors that help in the self-care of diabetic patients are when they feel an alteration in blood glucose levels talk to their doctor, take medications on time if there is no effect of

prescribed drugs their doctor will increase the dose of medications or start the insulin. Other factors such as aging, duration of diabetes, and lifestyle modifications also affect on diabetes self-care. Diabetes self-care requires learning of the self-care but it requires time and patience and learning new things is not so easy for them and also prepares them for diabetes emergencies. When you are diagnosed with diabetes here are some recommendations for diabetic patients to take care of themselves. When you are diagnosed with diabetes here are some recommendations for diabetic patients to take care of themselves.

The first care is related to lab tests, dietary modification, and physical activity. Check their foot hygiene, Dental Examinations, avoid the use of tobacco and do take vaccinations' as they are more prone to infections like pneumonia, flu, and hepatitis.

The diabetes patients are given education about physical activity and healthy eating. Education about physical activity level that they should adopt any physical activity which is safe and enjoyable. Start with 10 minutes then progress. Education about healthy eating is they have to avoid oily foods which may increase their cholesterol level and follow their dietician chart to remain healthy if they are overweight then try to lose weight which will be helpful for them. Also educate them about self-care so that they may take care of themselves and visit the diabetes educator in every three or six months for further assistance, to lower their risk of developing diabetes, and check their blood pressure and blood glucose levels every day.

Physical Activity plays an important role in treating and preventing diabetes.

There is an increasing prevalence of diabetes in Asian Countries (Tang [2008](#)) however educating Diabetes Self-management in community gatherings also plays an important role. (Samuel-Hodge [2006](#)) The influences of religion, life stress, multiple caring errands, and psychological repercussions should all be included in interventions to help the diabetic

population learn self-management. (Samuel [2000](#)).

Diabetes is a global health problem. (Chang [2005](#)) Diabetes and self-management are interrelated to each other because to remain healthy one should have to follow self-management regimes which will benefit them and they will stay healthy and reduces the risk of developing complications related to diabetes.

Materials and Method

This study is a cross-sectional research survey. Participants were recruited from Isra University Hospital Hyderabad, Civil hospital, and Rajput Ana Hospital. The duration of the study was around six months after the acceptance of the proposal. The convenient, non-probability technique used for sampling. 100 person were chosen as the sample size for this investigation. In terms of participation age, out of 100 participants, 55 were between the ages of 30 and 50, and 31 were between the ages of 51 and 60. Gender-wise frequencies and percentage of the sample, there were a total of 61 (61%) male in the sample and 39 (39%) females. Similarly, 12 participants were those 61 to 70 years and 2 participants had 71 to 80 years. All patients who are diagnosed with diabetes mellitus were included. Patients who did not have diabetes mellitus were all excluded. The data collection process involved interviewing diabetic patients and sending questionnaires to diabetic patients. The data was collected through a questionnaire called Diabetes Self-Management Questionnaire (DSMQ). This questionnaire has 16 items. Version 21 of the Statistical Package for Social Sciences (SPSS) program was used to analyze the data. The amount budget for this study was around PKRs 15000. With the ethical review committee's approval, the diabetic patients completed the questionnaires in an anonymous manner. Before distributing the surveys, all participants' informed consent was obtained.

Without providing a justification, they may have the right to decline participation in the study. Data was kept confidential and anonymous, and it was solely utilized for research purposes.

Result

When we asked the participants that they check their blood sugar level with care and attention, out of 100 participants, 46% answered that it applied to them very much, 20% answered that it applies to them to a considerable degree, 22% answered that 12% of respondents said it does not apply to them, yet it does to some extent. (Table IV-1).

When instructed to engage in regular exercise to maintain ideal blood sugar levels, participants, out of 100, 32% answered that it applies to them very much, 14% answered that it applies to them to a considerable degree, 20% answered that it applies to them to some degree and 34% answered that it does not apply to them. (Table IV-2).

Out of 100 participants who were asked if they carefully adhere to the dietary advice given by their doctor or diabetic expert, 32% said it applied to them very much, 18% said it applied to them somewhat, 31% said it applied to them somewhat, and 18% said it did not apply to them. (Table IV-3).

When we asked the participants why they tend to skip the planned physical activity, out of 100, 36% answered that it applies to them very much, 14% answered that It applies to them to a significant extent, 24% said it relates to them somewhat, and 26% said it does not apply to them. (Table IV-4).

Out of 100 participants, 32% indicated that the statement about their diabetes self-care being subpar applied to them very much, 24% that it applied to them to a significant extent, 11% that it applied to them to some extent, and 33% that it did not apply to them. (Table IV-5).

Table 1. I Take My Time and Carefully Monitor my Blood Sugar Levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	This applies to me a great deal	46	46.0	46.0	46.0
	This applies to me to a large extent	20	20.0	20.0	66.0
	This somewhat applies to me	22	22.0	22.0	88.0
	Does not concern me	12	12.0	12.0	100.0
	Total	100	100.0	100.0	

Table 2. I Engage in Frequent Exercise to Maintain a Healthy Blood Sugar Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	This applies to me a great deal	32	32.0	32.0	32.0
	This applies to me to a large extent	14	14.0	14.0	46.0
	This somewhat applies to me	20	20.0	20.0	66.0
	Does not concern me	34	34.0	34.0	100.0
	Total	100	100.0	100.0	

Table 3. I Completely Adhere to the Dietary Advice Provided by my Physician or a Diabetic Specialist

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	This applies to me a great deal	32	32.0	32.0	32.0
	This applies to me to a large extent	18	18.0	18.0	50.0
	This somewhat applies to me	31	31.0	31.0	81.0
	Does not concern me	18	18.0	18.0	99.0
	42.00	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Table 4. I Frequently Forego Scheduled Physical Activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	This applies to me a great deal	36	36.0	36.0	36.0
	This applies to me to a large extent	14	14.0	14.0	50.0
	This somewhat applies to me	24	24.0	24.0	74.0
	Does not concern me	26	26.0	26.0	100.0
	Total	100	100.0	100.0	

Table 5. I do not Take Good Care of my Diabetes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	This applies to me a great deal	32	32.0	32.0	32.0
	This applies to me to a large extent	24	24.0	24.0	56.0
	This somewhat applies to me	11	11.0	11.0	67.0
	Does not concern me	33	33.0	33.0	100.0
	Total	100	100.0	100.0	

Discussion

It was discovered that diabetes and self-care have a close association. Because if they do not take care of themselves they will be more prone to further complications. It was noted that the out of 100 participants only 46% check their blood sugar regularly with care and attention while in another study conducted by Xuefeng Zhong in china in 2011 only 6.0% check their blood sugar regularly (Xuefeng [2011](#)). The reason for this is that they may not take care of themselves. They do not consider diabetes a serious disease. They do not even go for screening for diabetes annually and they came to know that they have diabetes when they go through some complications related to diabetes like diabetic retinopathy and diabetic foot. It was noted that out of 100 participants, only 49% take their prescribed medications while in another study 80.3% (Xuefeng [2011](#)). This may be due to a lack of facilities or as patients in rural areas do not take care of themselves and do not take medications as prescribed. Some of the patients may forget to take their medications on time. And the women that are housewives also avoid taking their diabetic medications on time or skipping the medicines due to household work. It was noted that out of 100 participants only 43% take food that help them to control their blood sugar while in another study 51.4% (Xuefeng [2011](#)) because as the majority of patients were male and due to their jobs or work they do not take care of what they are eating and either these foods are nutritious and beneficial or harmful from them and do not take eat their meals on time and females tend to eat what has cooked at home and do not avoid oily foods and unhygienic foods as they outside with their friends or family members.

It was noted that out of 100 participants, only 32% do regular physical activity while in another was 69.6% (Xuefeng [2011](#)) the possible causes as many of the patients are associated with other diseases like cardiac problems and

respiratory problems so they are not able to do physical activity regularly and some of the patients avoid physical activity due to obesity, the stress of work and some of the patients are older than 70-80 year so they are unable to perform any physical activity. In contrast, another study conducted by Farzana Saleh in 2012 shows the results that 88% of diabetes patients failed to follow the dietary advice by their doctor and 90% of the patients do not check their blood sugar levels regularly. (Farzana [2012](#)) These results are somewhat similar to my research in that only 49 % take medications and only 46% check their blood sugar levels.

The results of this study also co-relate with a study conducted By Gloria L.A. et al in 1998, which showed only 78% of participants were measuring blood sugar out of 2118, only 25% were aware of HbA1c, and 72% visited their doctor.

This shows that the majority of patients have awareness but they are not following the self-management regimes properly. The causes may be similar as discussed as lack of education, resources, medical facility, and ignorance of the patients towards self-care/ management.

Conclusion

According to the study's findings, the majority of diabetic patients had good knowledge of self-management, but the patients still lacked knowledge about some issues related to self-management, such as the fact that only 40% of patients keep their doctor appointments as advised, while the other patients choose not to consult with doctors because of a lack of facilities.

Mainly 49% of the diabetic patients used medications and 32% followed dietary recommendations and do physical activity to maintain their blood sugar levels but 19% avoid taking medications and 47% avoid physical activity.

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