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Predictions of Some Special Self-Management Techniques Among Patients of Type 2 Diabetes

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Abstract

Background: In this study, we discuss about the Diabetes mellitus and its self-management among people. We enlist some hospitals of Pakistan and took a survey. This survey was about the management of diabetes and its awareness among patients of Type 2 diabetes.

Objective: Diabetes mellitus is becoming a public issue all over the world. Its proper treatment costs a lot, and it can reach a complicated level if it isn't controlled on time. Glycemic control and self-management in diabetic patients are more important. If they do not take proper care of themselves and their self-management is poor, it will have harmful effects on them.

Methodology: In this study, we collect information from different hospitals including Mayo Hospital, Lahore and draw conclusions. We do a random survey to collect the most accurate ratio of diabetic patients. Our main aim in conducting this study was to check out the accuracy of predictions about the self-management of diabetic patients. We conduct interviews and ask patients random questions.

Results: About 400 patients were suffering from type-2 diabetes. Their ages lie between 57 and 58, and they suffer from type-2 diabetes. Their ages lie between 57 and 58. About half of these patients had suffered from diabetes for the last six to seven years. We also collect a sample of their blood to check the level of glucose in their bodies. We conclude that their level of glucose in the blood after fasting was higher than the actual amount. The level of glucose in their bodies was about 8.6 mmol/L, but the normal

Dr Syed Ali Haider Naqvi
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level was 6.1. About 76% of patients showed higher glucose levels in their blood.

Conclusions: We also take many other tests to figure out the actual cause of glucose increasing in the blood and check out the level of diabetes self-management and other activities. Support from family, self-care and efficiency, self-management, and treatment also interfere a lot with a patient's health. We tell them about the importance of self-care and management of diabetes to control the level of the disease in them.

INTRODUCTION:

As we know that the world is progressing day by day, the risk of diseases is also increasing [1]. Diabetes mellitus is increasing everywhere in every country. Lots of people die every year due to diabetes [2]. There are lots of diseases that do not have proper treatment, and diabetes is also one of them. Diabetes increased its rate from 2009 to 2012 and is increasing day by day [4]. If we talk about the history of diabetic patients, we are able to know that about 65,300 people suffer from type 2 diabetes [5]. We checked the prevalence ratio, and it was about 21% for adults and youngsters in the coming years. Diabetes is causing many other health issues as it is decreasing and affecting the mortality rate. Many other diseases are caused by diabetes, as it causes blockage of vessels and nerves and causes heart attacks and strokes in patients [6]. It is also causing eyesight issues and blindness. Treatment of diabetes is very costly. Most people didn't get proper treatment due to expensive medicines and treatments [7]. The only main treatment for diabetes is for people to control their glycemic levels. Diabetes will not get complicated and there will be no need for costly treatment if glycemic control is good [8]. With a blood test, the level of glycemic control in the blood will be checked [9]. Reduced levels of HBA1c in patients decrease the risk of death and blockage of vessels. In another study, we concluded that if we held a session for diabetic patients, it would help reduce the risk of many other issues. They will be able to achieve the goals of good health . We also collect data from another hospital in the country [10]. We see that about forty-three thousand people are suffering from type-2 diabetes. This calculation was made between 2009 and 2012. We also help test HBA1c among patients and check out the ratio of glycemic control among them. We calculate the difference, and we notice the higher ratio of glycemic control in those patients who did not have HBA1c [11]. So, there is a need to educate people and increase the ratio of glycemic control achievement in patients [12]. This study is mainly intended to predict self-management practices among diabetic patients.

Dr Syed Ali Haider Naqvi
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This study was held in four different hospitals across the country. With the help of a systematic study, we take samples of patients blood and perform tests. We mostly took samples from patients who were suffering from type 2 diabetes last year [13]. It includes both young and old patients. We also excluded some patients from the studies, like those who had sight issues, etc. We use a specific formula to determine the size of the sample. We determine the prevalence at 0.39. The statistical level was measured at 0.5. We held interviews physically with the patients because *pwmost* of them were not educated [14]. We divide our interview into different sections. In the first section, we collect data about their health condition through their profile. In the next section, we will check out their level of self-management as a diabetic patient [15]. The other five sections included their diet, medication, exercise, and regular monitoring of glucose in the blood. But, further in this study, we don't include injecting insulin or glucose monitoring. We calculated the percentage of insulin injectors, and it was about 12%. About 3.5% of patients suffering from type 2 diabetes were monitoring their disease and treatment by themselves [16]. We ask them to recall their previous week's activities and calculate the number of times they practice self-management. We sum up the number of days and calculate the level of self-management and care. If we see a higher number of results, it means the ratio of DSM was higher [17].

Dr Syed Ali Haider Naqvi
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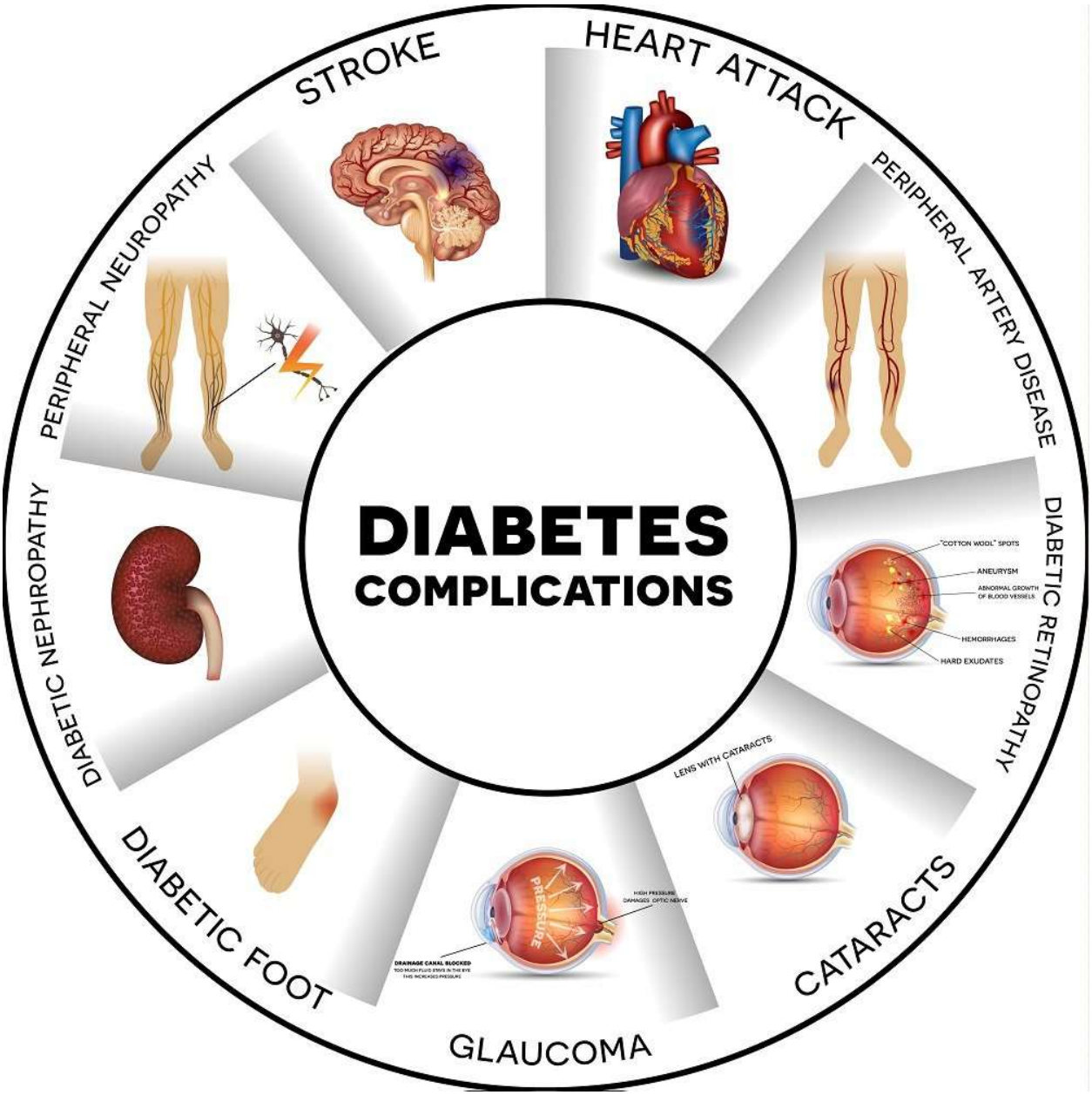


METHODOLOGY:

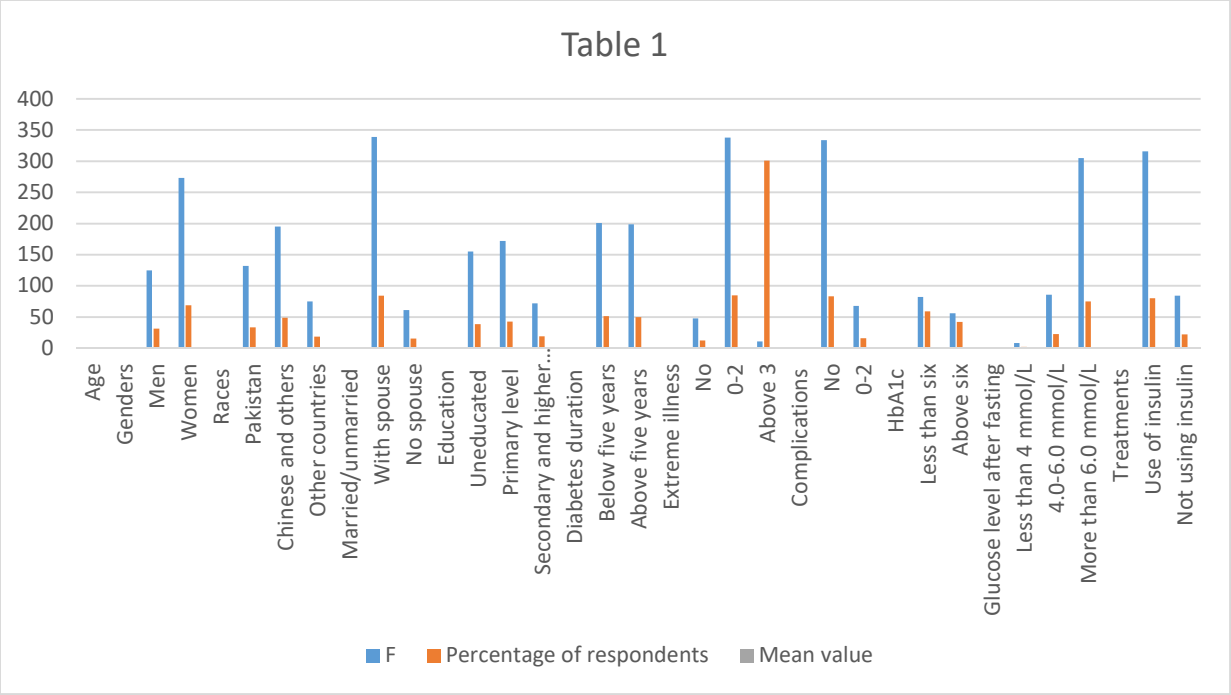
This study is related to a survey, which we help in different hospitals of Pakistan including Mayo Hospital, Lahore. In another section, questionnaires collected all the data on the basis of treatment and the patients beliefs that either treatment was effective or not. They ask nine different types of questions to collect accurate data. They applied two important aspects in this study, and the first was that (1) DSM was important to control the level of glucose in the body or not. (2) Diabetes self-management helps prevent complications related to diabetes or not. A Likert scale was used to give scores. The first three items were considered

unimportant, but the fourth one was important. In other items, we tried to know the beliefs of patients in treatment, and the results show that it was very important. Results at the start of the Likert type of scale show that it is not that important, but the last item is very important to the patients. We got a higher number of scores in the results, and we were able to know that patients were showing their beliefs on the effectiveness of the treatment doctors use to treat diabetes. In the fourth section, we check the level of efficacy among patients. Their answers were "yes" and "no," with different percentages. In this section, interviewers ask them questions about their diet, monitoring of glucose levels, exercise, and further care and medication. In this section, lower demonstrations of score represent a higher level of self-management in diabetes. The fifth section was related to the family support they got over the last few months, and the results were also different. Some of the respondents tell us that they do not have any type of support from family, but most of them say that they have proper family support to fight this disease. In the sixth section, we replace the word doctor with health caretaker or provider. We change it because when patients go for their regular visits, they get treatment by the nurses or caretaker, so to collect more accurate results, we make it easy for them. In this section, we check their communication skills and the attention they got from doctors or caretakers. Results were quiet the same as previous, like they show positive results towards healthcare takers. We include all these sections in this study with the permission of Xu et al. We try to check out their knowledge about their disease by asking questions related to diabetes. 11 questions were included, and we also translated for those who were facing some difficulties in reading. We analyze our data using SPSS (version 20).

RESULTS:

In this study, four hundred people took part. Their ages were between 57 and 58. Some of them were married as well. All these patients belong to different areas of the country and spend their lives differently from each other. In this study, we were also able to learn that about half of our respondents had had diabetes for the last five to six years. Due to diabetes, about 84% of respondents also had other diseases. As we have discussed earlier, diabetes also causes blockages of vessels and nerves and many other issues in our bodies. About 19% of patients were showing some complications related to diabetes, such as heart and neurological problems. We measured the level of glucose in the blood, and it was 8.6 mmol/L. Most of the patients showed a higher glucose rate in their blood when we compared it with the normal range. Their HBA1c was also checked, and some of them showed higher results as compared to their normal values. About 89% of patients were not getting treated with insulin. The demographic values and health details of patients are mentioned in Table 1.

Demographic appearance and health details	F	**Percentage of respondents**	**Mean value**
Age			58.99+11.5
Genders			
Men	125	31.3	
Women	273	69.0	
Races			
Pakistan	132	33.2	
Chinese and others	195	48.9	
Other countries	75	18.6	
Married/unmarried			
With spouse	339	84.1	
No spouse	61	15.6	
Education			
Uneducated	155	38.3	
Primary level	172	42.8	
Secondary and higher level	72	18.9	
Diabetes duration			6.5+4.74
Below five years	201	51.6	
Above five years	199	50.0	
Extreme illness			
No	48	12.3	
0-2	338	84.9	
Above 3	11	301	
Complications			
No	334	83.4	
0-2	68	15.7	
HbA1c			6.76+2.58
Less than six	82	59.0	
Above six	56	41.9	
Glucose level after fasting			8.60+2.61
Less than 4 mmol/L	8	2.3	
4.0-6.0 mmol/L	86	22.8	
More than 6.0 mmol/L	305	75.2	
Treatments			
Use of insulin	316	80.1	
Not using insulin	84	21.9	



In Table 2, we see the score of self-management of diabetic patients and other factors that are included in it, like belief in the treatment, diet, medication, exercise, etc. Family support and self-care are also very important and are also mentioned in this table. The mean value of self-management was 29.8, but it varied from factor to factor as well. Lots of respondents also tell us that they took their medications from doctors, which helped them control their diet. Some of them say that another reason for their glucose control is that they take their food on time. They exercise daily and participate in many physical activities. They spend their whole day actively, which helps them control diabetes. The percentage of these respondents was different. About 313 patients show that they dry out their feet after washing or bathing, but about 135 of them tell us that they take proper care of their feet every day.

Dr Syed Ali Haider Naqvi
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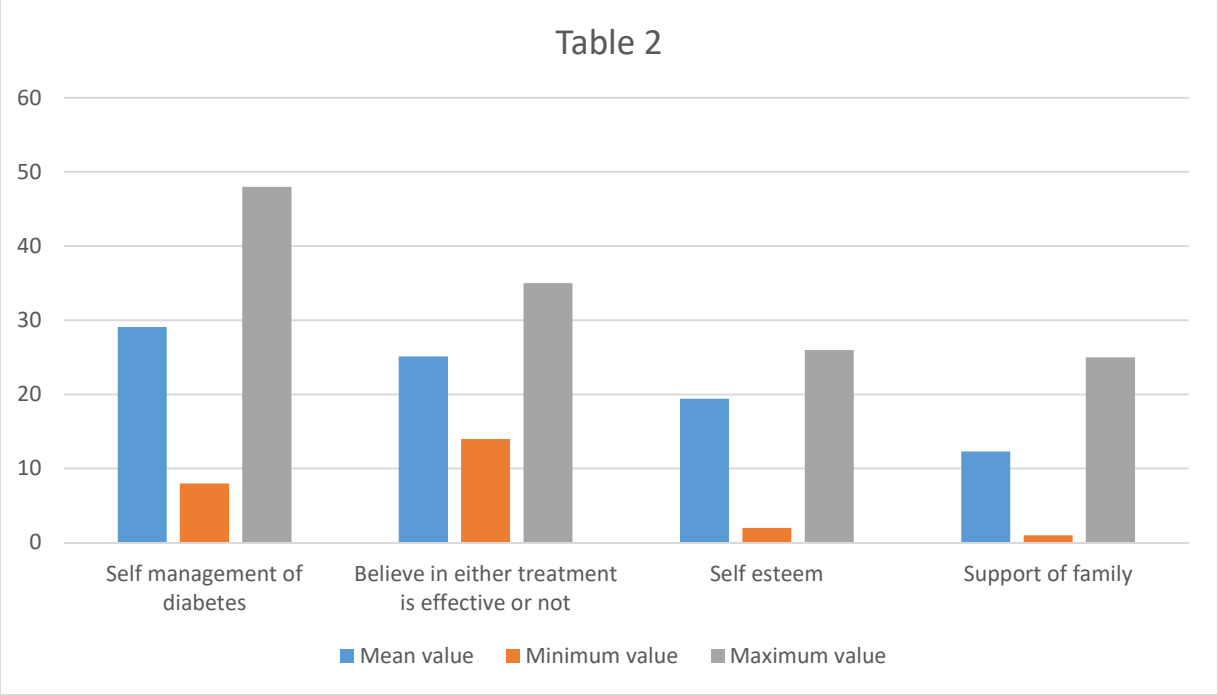
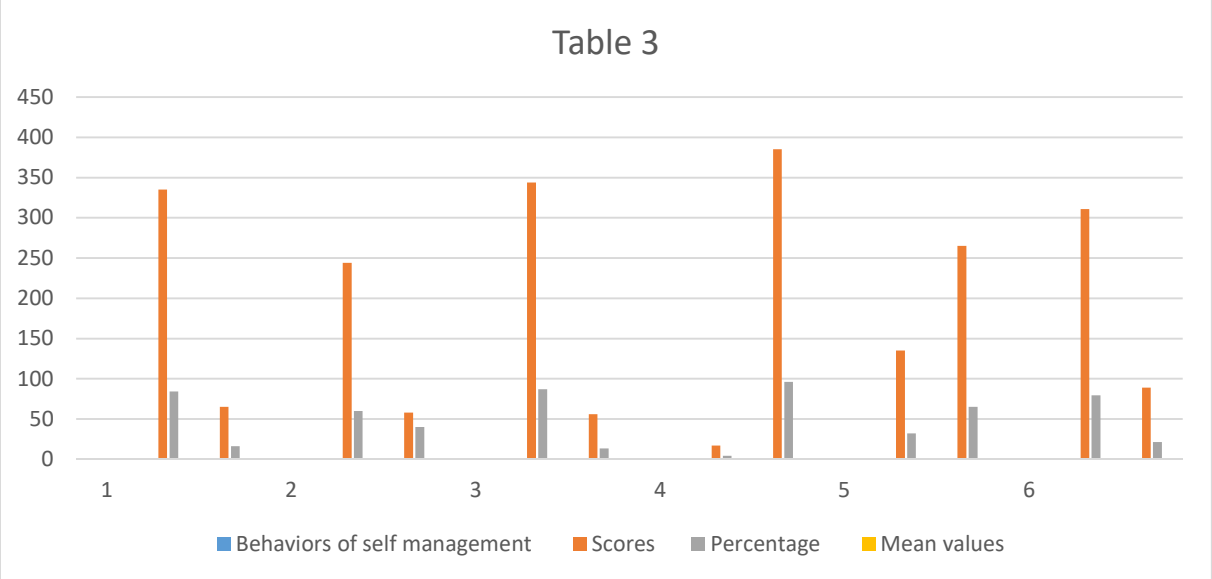
Variables	Mean value	Minimum value	Maximum value
Self management of diabetes	29.1	8	48
Believe in either treatment is effective or not	25.1	14	35
Self esteem	19.4	2	26
Support of family	12.3	1	25
Care taker of health	21.3	10	29
Knowledge about disease	8.21	4	10



Some analysis was also done in this study about disease. Single and multiple analyses were done during the study and showed different results. We examine the ratio of family support, whether the treatment is effective or not, self-esteem, and efficacy. Tables 3 and 4 show results according to these characteristics. We compared these characteristics with self-management in diabetes, and the results were as follows: It was increased in the case of family care and support (94%). Patients with type 2 diabetes were showing higher results with self-management. By using a specific formula, we indicate different values, such as depth and indecency. The formula shows that diabetes SM = 12.01+0.31+0.18+0.20.

No. Of items	Behaviors of self management	Scores	Percentage	Mean values
1.	Oral treatment			6.63+1.33
	Obey doctor's guideline	335	84.1	
	Skip for once	65	16.1	
2.	Diet for diabetic patients			5.53+2.44
	Full week	244	60.2	
	Missed for once	58	40.1	
3.	Regular food intake time			6.49+1.13
	Full week	344	87.2	
	Skipped	56	13.6	
4.	Exercise or other activities			2.45+2.56
	More than 5 days	17	4.2	
	Below 5 days	385	96.3	
5.	Foot care			2.65+3.45
	Every day	135	32.0	
	Missed for once	265	65.0	
6.	Drying out foot			5.34+2.78
	Full week	311	79.5	
	Skip for once	89	21.4	



Dr Syed Ali Haider Naqvi
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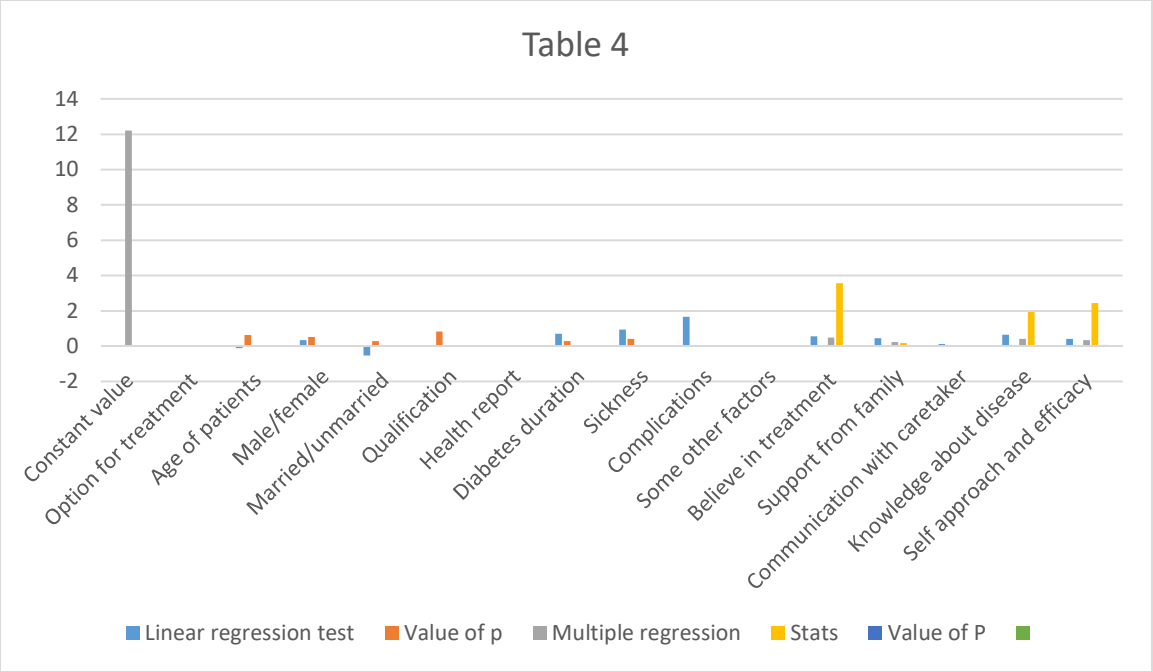
Variable of disease	Linear regression test	Value of p	Multiple regression	Stats	Value of P	
Constant value			12.2			
Option for treatment						
Age of patients	-0.1	0.629				
Male/female	0.34	0.529				
Married/unmarried	-0.52	0.294				
Qualification	0.01	0.837				
Health report						
Diabetes duration	0.7	0.284				
Sickness	0.94	0.425				
Complications	1.67	0.034				
Some other factors						
Believe in treatment	0.57	0.001	0.492	3.56	0.002	
Support from family	0.45	0.003	0.242	0.189	0.006	
Communication with caretaker	0.13	0.006				
Knowledge about disease	0.65	0.003	0.421	1.94	0.024	
Self approach and efficacy	0.42	0.002	0.352	2.44	0.067	



DISCUSSION:

The self-management of diabetic patients can be calculated with the help of four different behaviors of diabetic patients [18]. These behaviors include physical fitness, proper medication, a balanced diet, and proper care of their feet. These 4 behaviors help patients do self-management of diabetes, which helps them control this disease [19]. We didn't get that many results from the monitoring of glucose levels by the patients because most of the type 2 diabetic patients were getting oral treatment [20]. In this study, we see that self-management of diabetes helps patients get rid of many other complications they face. They are protected from heart attacks, kidney failures, and many other problems. More than 80 percent of patients get oral treatment in the form of anti-diabetic medication with the help of doctors [21]. They prescribed them the medication, and it helped them treat it as soon as possible with fewer complications. In other countries, its percentage is lower, as 50–60 percent were treated by applying the self-management method [28]. Among those patients who were suffering from type 2 diabetes, they were taking proper medication instead of self-management or any other activity. We conclude that proper intake of medicines also helps patients reduce glucose levels in the body [22]. Diabetic patients show a lower percentage of diet control due to different barriers, like the fact that some of them are not willing to control their diet. Many other patients were fond of gathering, and they were not able to control their diet. With the help of this study, we were able to learn that counselling patients about diabetes is very important. If they will practice self-management and get proper control over their diet, it will help them get rid of many issues. It will help them gain knowledge about their disease and its control [23]. They should be aware of their disease and its positive and negative effects.

When we collect the results related to exercise and physical fitness activities, it seems that only 29% of patients were involved in this activity. In other countries, we notice a slightly higher percentage of exercise. Many barriers are also included, like staying at home all the time, having no spare time, and weather conditions [24]. All these were hazardous in their daily exercise. Most of the patients in this study were elderly. They were not

able to perform routine activities and daily exercise. So, age is also an important factor in poor physical fitness.

If we move towards our fourth behavior, it is proper foot care. Patients need to take proper care of their feet [25]. Otherwise, it will lead to an ulcer or other cancer-related issues. But only about 35% of patients perform foot hygiene activities in their routine lives. In other studies, we found that the majority of patients were taking proper care of their feet, as compared to this study. Patients should get proper knowledge about taking care of their feet and their side effects. We notice a more positive response towards married patients as compared to widows or singles. They show proper health care and self-management towards their disease. They were getting moral support to maintain their healthy lifestyle and treat their disease. They were able to lose weight, treat diabetes, and perform many other tasks in a better way as compared to others. If they follow all these points that we discuss related to diabetes treatment, in a very short time they will be able to control their disease.

CONCLUSIONS:

This study shows research about the patient's suffering from diabetes and their self-management to treat it. We try to check out the percentage of effectiveness in treatment and their self-care. Support from family, mental peace, physical fitness, proper medication, and the intake of a healthy diet are very important to treating diabetes. Knowledge about disease will help patients treat themselves, and they will get this knowledge from proper counselling. The main conclusion of this study was that patients need proper care, self-management, and full support from their families to fight this disease. It will help them get rid of all the other complicated diseases that occur due to diabetes.

Conflict of interest:

There is no competing interest in this study.

Contributions of the author:

The authors show equal levels of effort and contributions to this study.

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