A study to assess the medication adherence among patient with diabetes mellitus in Ramaiah hospital, Bangalore

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Abstract

Introduction: Diabetes Mellitus is a collection of metabolic disorders sharing the common underlying feature of hyperglycemia. It is one among chronic diseases requiring long term medication and its prevalence is increasing globally. Adherence to prescribed treatment among diabetes patients is very important for good glycemic control. Poor glycemic control and poor adherence is associated with increasing risk of complications, disease progression, morbidity and mortality with increasing costs of care. Despite medication, it has been found that there are frequent episodes of inadequate glycemic control in majority of the type 2 diabetic population. Many a times, the reason is attributed to poor drug adherence.

Statement of the problem: "A study to assess the medication adherence among patient with diabetes mellitus in selected hospital at Bangalore".

Objectives

• To assess the medication adherence among diabetic patients

• To find the association between the medication adherence and selected socio demographic variables.

Methods: A descriptive survey approach used to assess the medication adherence among patients with diabetes mellitus. Non probability convenience sampling technique was used to select 30 samples with diabetes mellitus attending Medicine OPD at Ramaiah Medical College Hospital, Bangalore. Data was collected by using structured medication adherence questionnaire to assess the medication adherence among patients with diabetes mellitus. Data collected was analysed by using descriptive and inferential statistics with the help of SPSS version 20.

Result: The result shows that majority of the subjects 118(62.1%) were highly adherent to diabetic medication, 62 (32.6%) were moderately adherent to diabetic medication and 10 (5.3%) was having low adherence to diabetic medication. The average mean distribution of total medication adherence score among subjects were 5.1368 with standard deviation ±4.31218.

There is significant association between selected socio demographic variables such as age p(0.000), gender

p(0.000) education p(0.000), occupation p(0.000), monthly family income p(0.000), health insurance p(0.000), comorbidities p(0.000), family history of diabetes mellitus p(0.000), source of information regarding diabetes mellitus p(0.000) duration of anti-diabetic treatment p(0.000) type of anti-diabetic treatment p(0.001), consumption of medication other than anti diabetic medication p(0.000), number of tablets consumed per day p(0.000), post prandial blood glucose level(0.000,) frequency of medication consumed per day p(0.000) and use of alternative treatment for treatment of diabetes mellitus p(0.005) as the calculated p value is less at 0.05 level of significance whereas there is no statistically significant association between type of diet p(0.095), and type of family p(0.222), duration of diabetes (0.146 as the calculated value is more than 0.05 level of significance.

Conclusion

The study concluded that more than half of the subjects were highly adhere to their anti-diabetic medications. There is significant association between medication adherence and selected socio demographic variables.

Keywords: OPD, Diabetes Mellitus, Blood Sugar

Introduction

Diabetes mellitus is defined as a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar). Diabetes mellitus cannot be cured but it can be managed. Medication adherence refers to the extent to which patients take their regimen as prescribed by their health care provider. It is very important to educate the patients about adherence to medication to manage the glucose level to near normal or normal levels, to manage diabetes. Non adherence to medication leads to many severe complications like diabetic foot diabetic retinopathy diabetic ketoacidosis and multisystem damage in later stages. Study aims at finding out medication adherence among diabetic patients. The present nurses are often the first healthcare team members who play an active role in educating patient as they spend more time with patients. Study aims at assessing the medication adherence among diabetic patients.

Materials and methods

Study design: Simple survey research design.

Variables

Study variable: Medication adherence

Attribute variable : included age, gender, educational status, occupation, type of diet, family monthly income, health insurance, type of family, duration of diabetes mellitus, other health comorbidities, family history of diabetes, type of medication, source of information regarding complications of diabetes mellitus, duration of diabetes mellitus, type of anti-diabetic treatment, medications other than diabetes mellitus, number of medication consumption per day, frequency of medication consumption per day, use of any alternative therapy for the management of diabetes, blood glucose level on the day of data collection.

Settings for the study: The study was conducted in General Medicine OPD of Ramaiah Medical College hospital, Bangalore.

Sample size: 190 cases with diabetes mellitus

Sampling technique: Non probability convenient sampling technique

Inclusion and exclusion criteria

Inclusion criteria

- Diabetic patients who are aged between 20 to 79.
- Able to read and write English or kannada.

Exclusion criteria

➤ diabetic patients who are

- Not willing to participate in the study

- Having past history of acute illness and under Treatment

Development of the tool

Tool for data collection:

Section A: socio-demographic variables

It includes-

A. Socio demographic data

B. Clinical Profile

C. Current antihypertensive drug therapy details.

Section a: Socio demographic data includes eight items – Age, gender, education, occupation, type of diet, monthly family income, type of family and health insurance

Clinical profile includes four items- duration of diabetes mellitus, other health comorbidities, family history of diabetes mellitus, source of information regarding complications of diabetes mellitus.

➤ Current antihypertensive medication therapy details includes for items-

➤ duration of diabetes mellitus, type of anti-diabetic treatment, medications other than diabetes mellitus, number of medication consumption per day, frequency of medication consumption per day, use of any alternative therapy for the management of diabetes, blood glucose level on the date of data collection.

Section b: structured medication adherence questionnaire" For patients with diabetes mellitus. It includes structured questionnaire to assess the medication adherence among patients with diabetes mellitus.

Validity: The content validity of the tool was done by 9 experts. As per the suggestion given by the experts modification was made in the final tool.

Reliability: Internal consistency method was used to test the reliability of structured medication adherence questionnaire

- The tool was administered to 5 subjects and data was collected.

- Cronbach's alpha was used to test the reliability of the tool. .

- The coefficient alpha value for English version is 0.819 and for kannada version is 0.807.

- The reliability test is done by both methods, manually and with the help of SPSS version 20.

Ethical clearance: Ethical clearance was obtained from ethical committee of Ramaiah Medical College.

Pilot study: A pilot study is a small study done to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study. It is mainly done to find the practicability and feasibility of the study.

A pilot study was conducted from 26.7.2021 to 27.7.2021 at Ramaiah Memorial Hospital, Bangalore. The purpose of pilot study was to find out the feasibility of conducting the final study in terms of time, sample availability and corporation from participants.

Formal permission was taken from higher authority of Ramaiah Memorial Hospital. Subjects who met inclusion criteria were included in the study. Five subjects were selected for pilot study by non-probability convenient sampling technique. Self-introduction was given, the subjects were given detailed information about the study and the informed consent was obtained. Data was collected and confidentiality was maintained. A structured medication adherence questionnaire was given to the subjects to assess medication adherence.

Data from 5 subjects was analysed. SPSS version 20.0 was used for data analysis. Descriptive statistics were

calculated for all the study variables. On completion of pilot study it was found that it was feasible to undertake the main study. Average time taken to complete the questionnaire by each subject was 15-20 minutes. After the data was collected from each subject, the student researcher monitored the blood glucose level. Data obtained from the subjects were organized and analysed according to the objectives of the study using descriptive and inferential statistics with the help of SPSS version 20. The result of pilot study revealed that majority of the subjects 3(60%) were in the category of moderately adherence, less than half were in the category of high adherence to medication. On completion of pilot study, it was found that the study was feasible and practicable to conduct the main study.

Data collection procedure

Formal permission was taken from higher authority of Ramaiah Medical College Hospital. Subjects who met inclusion criteria were included in the study. 30 subjects were selected using non-probability convenient sampling technique. Self-introduction was given, the subjects were given detailed information about the study and the informed consent was obtained. Data was collected and confidentiality was maintained. A structured medication adherence questionnaire was given to the subjects to assess medication adherence.

Data from 30 subjects was analysed. SPSS version 20.0 was used for data analysis. Data was analysed using descriptive and inferential statistics. Average time taken to complete the questionnaire by each subject was 15-20 minutes. After the data was collected from each subject, the student researcher monitored the blood glucose level.

Statistical Method

Descriptive statistics: Frequency and percentage distribution were used to analyze socio demographic data of patients with diabetes mellitus

Mean and standard deviation were used to assess the medication adherence among patients with diabetes mellitus

Inferential statistics: Chi square was used to find the association between medication adherence and selected socio demographic data

Result

Section a: Socio demographic variables of the patients with diabetes mellitus.

Table 1: Frequency and percentage distribution of subjects with regard to age and gender.

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
1	Age in completed years		
	23-32	43	22.6
	33-42	29	15.3
	43-52	2	1.1
	53-62	58	30.5
	More than and equal to 63	58	30.5
2	Gender		
	Male	118	62.1
	Female	72	37.9

The above table depicts that majority of the subjects belongs to age group of 53-62(30.5%) and more than 63 years respectively (30.5%), and majority of the subjects (62.1%) were males.

Table 2: Frequency and percentage distribution of subjects with regard to education and occupation. n=190.

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
3	Education		
	No formal education	10	5.3
	Primary education	19	10.0
	Secondary education	25	13.2
	Higher secondary education	68	35.8
	Graduation	47	24.7
	Post graduation	21	11.1
	Any other	-	-
4	Occupation		
	Unemployed	-	-
	Government employee	46	24.2
	Non-government employee	32	16.8
	Self employed	34	17.9
	Home maker	44	23.2
	Daily wager	10	5.3
	Retired personnel	24	12.6

The above table depicts that majority of the subjects (35.8%) had completed higher secondary education. With regard to occupation majority of the subjects (24.2%) were government employee.

Table 3: Frequency and percentage distribution of subjects with regard to monthly family income and type of family. n=190

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
5.	Type of diet		
	Vegetarian	53	27.9
	Non-vegetarian	137	72.1
6.	Monthly family income		
	<10,001	2	1.1
	10,002-29,972	100	52.6
	29,973-49,961	41	21.6
	49,962-74,755	30	15.8

	74,756-99,930	17	8.9
	99,931-1,99,861	-	-
	>1,99,862	-	-
7.	Type of family		
	Nuclear	141	74.2
	Joint	47	24.7
	extended	2	1.1

The above table depicts that majority of the subjects (72.1%) consumes non vegeterian diet. With regard to monthly family income, majority of the subjects (52.6%) has family monthly income of Rs. 10,002-29,972. With regard to type of family, majority of the subjects (74.2%) belongs to nuclear family.

Table 4: Frequency and percentage distribution of subjects with regard to health insurance. n=190

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
8.	Health insurance		
	No	59	31.1
	Yes	131	68.9

The above table depicts that majority of the subjects (68.9%) were having health insurance.

Table 5: Frequency and percentage distribution of subjects with regard to duration of diabetes and long-term health problem other than diabetes mellitus. n=190.

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
9.	Duration of diabetes		
	< 6 months	-	-
	6 months to one year	48	25.3
	More than one year	142	74.7
10.	comorbidities		
	No	88	46.3
	Yes	102	53.7
10.b	If yes,	-	-
	Hypertension	57	30
	Asthama	2	1.05
	Heart disease	17	8.9
	Others	26	13.6

The above table depicts that more than half subjects (74.7%) were having diabetes mellitus for more than one year. With regard to comorbidities, majority of the subjects (53.7%) had comorbidities among which majority of the subjects (30%) were having pre existing hypertension.

Table 6: Frequency and percentage distribution of subjects with regard to family history of diabetes, source of information regarding complications of diabetes mellitus. n=190

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
11.	Family history of diabetes		
	Yes	110	57.9
	No	80	42.1
12. a	Source of information regarding complication of diabetes		
	Yes	130	68.4
	No	60	31.6
12. b	If yes	-	-
	Friends	-	-
	Family members	10	5.3
	Health care personnel	100	52.6
	Mass media	10	5.3
	Print media	10	5.3

The above table depicts that majority of the subjects (57.9%) were having family history of diabetes mellitus. With regard to source of information most of the subjects (68.4%) had source of information regarding complications of diabetes mellitus out of which more than half of the subjects (52.6%) received information from health care personnel.

Table 7: Frequency and percentage distribution of subjects with regard to duration of antidiabetic treatment and type of antidiabetic treatment. n=190

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
13	Duration of antidiabetic treatment		
	<6 months	10	5.3
	6 months -1 year	76	40.0
	More than one year	104	54.7
14	Type of antidiabetic treatment		
	Oral hypoglycemic agents.	144	75.8
	Insulin injection	46	24.2
	Both oral plus insulin injection	190	100

The above table depicts that majority of the subjects (54.7%) were on antidiabetic treatment for more than 1 year. With regard to type of antidiabetic treatment, majority of the subjects (75.8%) were taking oral hypoglycemic agents.

Table 8: Frequency and percentage distribution of subjects with regard to consumption of medication other than anti-diabetic medications, number of tablets consumed per day and frequency of medications consumed per day. n=190

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
15	Consumption of medication other than anti-diabetic medications		
	No	89	46.8
	Yes	101	53.2
16.	Number of tablets consumed per day		
	One	14	7.4
	Two	69	36.3
	Three	6	3.2
	More than three	101	53.2
17.	Frequency of medication consumed per day		
	Once in a day	30	15.8
	Twice in a day	111	58.4
	Thrice in a day	49	25.8

The above table depicts that half of the subjects (53.2%) consumed medication other than antidiabetic medication. With regard to number of tablets consumed per day, majority of the subjects (53.2%) consumed more than three tablets per day and majority of the subjects (58.4%) consumd twice in a day.

Table 9: Frequency and percentage distribution of subjects with regard to use of other alternative therapy for the treatment of diabetes mellitus and blood glucose levels. n=190

Sn.	Socio demographic variables	Frequency (f)	Percentage (%)
18.	Use of other alternative therapy for the treatment of diabetes mellitus		
	No	185	97.4
	Yes (Ayurveda)	5	2.6
19.	Post prandial blood glucose levels		
	Less than and equal to 140	102	53.7
	140-200 mg/dl	27	14.2
	More than 200	61	32.1

The result shows that majority of the subjects (97.4%) were not using other alternative therapy for treatment of diabetes mellitus and (2.6%) were using Ayurvedic medicines for treatment of diabetes mellitus. With regard to post prandial blood glucose levels monitored on the day of data collection, majority of the subject's (53.7%) blood glucose levels were less than and equal to 140mg/dl.

Section B

Level of medication adherence among patients with diabetes mellitus

Table 10: Frequency and percentage distribution of medication adherence. n=190

Level of medication adherence	Adherence score	Frequency(f)	Percentage (%)
High adherence	0-5	118	62.1
Moderate adherence	6-15	62	32.6
Low adherence	16 and above	10	5.3

The result shows that majority of the subjects 118(62.1%) were highly adherent to diabetic medication.

Table 11: Mean and Standard Deviation of total medication adherence score of the subjects.n=190

Total medication adherence score	Mean	Standard deviation(sd)
155	5.1368	±4.31218

The result shows that the average mean distribution of total medication adherence score among subjects were

5.1368 with standard deviation ±4.31218.

Section-c

Association between level of medication adherence and selected socio- demographic variables

Table 12: Association between level of medication adherence and selected socio demographic variables such as age and gender. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value
		Below median	Above median		(0.05)
1.	Age in completed years				
	23-32	6	37	134.925	0.000
	33-42	9	20	df=8	S
	43-52	2	0		
	53-62	48	10		
	More than and equal to 63	53	5		
2.	Gender			22.001	0.000
	Male	83	35	df=2	S
	Female	35	37		

S= significant, NS=not significant, df= degree of freedom

The above table depicts that there is statistically significant association between level of medication adherence and selected socio demographic variables such as age and gender of the participants as the calculated p value (0.00) is less than 0.05 level of significance Hence hypothesis H_1 is accepted.

Table 13: Association between level of medication adherence and selected socio demographic variables such as education and occupation. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value
		Below median	Above median		(0.05)
3.	Education				
	No formal education	10	0	58.542	0.000
	Primary education	8	11	df=10	S
	Secondary education	11	14		
	Higher secondary education	46	22		
	graduation	22	25		
	Post graduation	21	0		
	Any other	-	-		
4.	Occupation				
	Unemployed	-	-	91.995	0.000
	Government employee	36	10	df= 10	S
	Non government employee	15	17		
	Self employee	17	17		
	Home maker	26	18		
	Daily wager	0	10		
	Retired personnel	24	0		

NS=not significant, df= degree of freedom

The above table depicts that there is statistically significant association between level of medication adherence and selected socio demographic variables such as education and occupation as the calculated p value (0.000) is less than 0.05 level of significance

Table 14: Association between level of medication adherence and selected socio demographic variables such as type of diet and monthly family income. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value (0.05)
		Below median	Above median		
5.	Type of diet				
	vegetarian	37	16	4.706	0.095
	Non vegetarian	81	56	df=2	NS
6.	Monthly family income				
	Less than and equal to 10001	0	2	68.065	0.00
				df= 8	S

10002- 29972	58	42		
29973-49961	29	12		
49962-74755	14	16		
74756-99930	17	0		
99931-199861				
More than and equal to 199862				

NS=not significant, df= degree of freedom

The above table depicts that there is no statistically significant association between level of medication adherence as the calculated p value is more than 0.05 level of significance whereas there is statistically significant association between level of medication adherence and type of diet and monthly family income as the calculated p value (0.000) is less than 0.05 level of significance. Hence hypothesis.

Table 15: Association between level of medication adherence and selected socio demographic variables such as type of family and health insurance. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value (0.05)
		Below median	Above median		
1.	Type of family				
	nuclear	88	53	5.713	0.222
	joint	28	19	df=4	NS
	extended	2	0		
2.	Health insurance				
	No	26	33	23.224	0.00
	Yes	92	39	df=2	S

NS=not significant, df= degree of freedom

The above table depicts that there is no statistically significant association between level of medication adherence and selected type of family and health insurance as the calculated p value (0.222) is more than 0.05 level of significance. Whereas there is statistically significance association between level of medication adherence and selected socio demographic variable such as health insurance as the calculated p value (0.00) is less than 0.005 level of significance.

Table 16: Association between level of medication adherence and selected socio demographic variables such as duration of diabetes and other comorbidities. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value (0.05)
		Below median	Above median		
1.	Duration of diabetes				
	<6 months			3.848	0.146
	6 months to one year	30	18	df=2	NS

	More than one year	88	54		
2(a)	Comorbidities				
	No	31	57	52.345	0.000
	Yes	87	15	Df=2	S
2(b)	If yes,				
	hypertension	51	7	71.081	0.000
	Asthama	0	2	df=8	S
	Heart disease	17	0		
	Others	22	4		

NS=not significant, df= degree of freedom

The above table depicts that there is no statistically significant association between level of medication adherence and selected socio demographic variables such as duration of diabetes as the calculated value (0.146) is more than 0.005 level of significance whereas there is statistically significant association between level of medication adherence and comorbidities as the calculated p value (0.000) is less than 0.05 level of significance.

Table 17: Association between level of medication adherence and selected socio demographic variables such as family history of diabetes and source of information regarding complications of diabetes mellitus. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value (0.05)
		Below median	Above median		
1.	Family history of diabetes mellitus				
	yes	58	52	34.612	0.000
	No	60	20	df=2	S
2(a)	Source of information regarding complications of diabetes mellitus				
	No	37	23	24.900	0.000
	Yes	81	49	df=2	S
2(b)	If yes				
	Friends	37	23	42.574	0.000
	Family members	2	8	df=8	S
	Health care personnel	65	35		
	Mass media	4	6		
	Print media	10	0		

NS=not significant, df= degree of freedom

The above table depicts that there is statistically significant association between level of medication adherence and

selected socio demographic variables such as family history of diabetes mellitus and source of information regarding complications of diabetes mellitus as the calculated p value (0.000 and 0.000) is more less 0.05 level of significance.

Table 18: Association between level of medication adherence and selected socio demographic variables such as duration of antidiabetic treatment and type of antidiabetic treatment. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value
		Below median	Above median		(0.05)
1.	Duration of antidiabetic treatment				
	<6 months	0	10	190.505	0.000
	6 months to one year	52	24	df=4	S
	More than one yesr	66	38		
2.	Type of antidiabetic treatment				
	Oral hypoglycemic agents	79	65	13.861	0.001
	Insulin injection	-	-	df=2	S
	Both oral hypoglycemic agents plus insulin	39	7		

NS=not significant, df= degree of freedom

The above table depicts that there is statistically significant association between level of medication adherence and selected socio demographic variables such as duration of antidiabetic treatment and type of antidiabetic treatment as the calculated p value (0.000 and 0.0.001) is less than 0.05 level of significance.

Table 19: Association between level of medication adherence and selected socio demographic variables such as consumption of other medications, number of tablets per day and frequency of medication per day. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value
		Below median	Above median		(0.05)
1.	Consumption of medications other than antidiabetic medication				
	no	27	62	72.696	0.000
	yes	91	10	df=2	S
2.	Number of tablets consumed per day				
	One	0	14	69.881	0.000
	Two	31	38	df=6	S
	Three	2	4		
	More than three	85	16		
3.	Frequency of medication consumed per day				
	Once in a day	6	24	68.723	0.000
	Twice in a day	77	34	df=4	S
	Thrice in a day	35	14		

S=Significant, NS=not significant, df= degree of freedom

The above table depicts that there is statistically significant association between medication adherence and selected socio demographic variable i.e. consumption of medication other than antidiabetic medication, number of tablets consumed per day and frequency of medications consumed per day as the calculated p value (0.000, 0.000 and 0.000) is more than 0.05 level of significance.

Table 20: Association between level of medication adherence and selected socio demographic variables such as use of alternative therapy for treatment of diabetes and post prandial blood glucose levels. n=190

Sn.	Socio demographic variables	Level of medication adherence		Chi square	p value (0.05)
		Below median	Above median		
1.	Use of other alternative therapy for the treatment of diabetes mellitus				
	no	118	67	10.602	0.005
	Yes, specify	0	5	df=2	S
2.	Post prandial blood glucose levels				
	Less than and equal to 140	78	24	42.744	0.000
				df=4	S
	140-200	9	18		
	More than 200	31	30		

NS=not significant, df= degree of freedom

The above table depicts that there is no statistically significant association between level of medication adherence and selected socio demographic variables such as use of alternative therapy for treatment of diabetes as the calculated p value (0.005) is equal to 0.005 level of significance whereas, there is statistically significant association between the level of medication adherence and blood glucose levels as the calculated p value (0.000) is less than 0.05 level of significance.

Discussion

In this, discusses the major findings of the study with reference to objectives and hypothesis stated and reviews them in relation to findings from the result of other studies. Findings of the study have been discussed in terms of objectives, theoretical basis and hypothesis

The present study was conducted among diabetic patients aged between 20-79 years and was on prescribed

anti-diabetic medication at least for one year and were admitted in Ramaiah Medical College Hospital, Bangalore.

The findings have been organized and discussed according to the objectives:

To assess the medication adherence among patients with diabetes mellitus.

To find the association between medication adherence and selected socio demographic variables

Research hypothesis

There is a significant association between the medication adherence and selected socio demographic variables

Objective 1

To assess the medication adherence among the patients with diabetes mellitus.

The findings of the present study revealed that majority of the subjects (62.1%) had high medication adherence,

less than one fourth subjects (32.6%) had moderate medication adherence and 5.3% had low medication adherence.

The findings of the present study were supported by another study conducted by Rana. Masud. M et al. (2019) The result showed that prevalence of non - adherence to medication was 54.4% [95% confidence interval (C.I): 147.1-61.5%]

The results were also contradict with another study conducted by Rajshekhar. S (2020), Results showed that out of 200 participants, 15 (7.5%) were found to have high adherence while 67 (33.5%) had moderate and 118 (59%) had low adherence

Objective 2:

To find association between medication adherence and selected socio demographic variables.

The findings of the study showed that there is statistically significant relationship between level of medication adherence and selected socio demographic variables such as age, gender, education, occupation, family monthly income, comorbidities, family history of diabetes mellitus, health insurance, source of information regarding complications of diabetes mellitus, duration of anti-diabetic treatment, type of anti-diabetic treatment, consumption of medications other than anti-diabetic medication, number of tablets consumed, frequency of tablets consumed and post prandial blood glucose level of the participants as the calculated p value is less at 0.05 level of significance.

The findings were supported by a cross sectional study conducted in Bangladesh in the year 2019 to assess the medication adherence to type 2 diabetic patients hospitalized at tertiary care hospital among112 participants. The study result found that adherence to diabetic medications was significantly associated with

age, gender, educational level. Older patients with longer duration of disease are believed to be more aware about the disease and the importance of glycemic control to prevent complications and also receive family support to manage their diabetes.

The study results are supported with another study conducted in japan "determination of factors affecting medication adherence in type 2 diabetic patients" the result revealed that there was statistically significant association between medication adherence and number of tablets consumed per day as the calculated p value (p=0.004) was less than the level of significance (0.05)

Present study shows significant association between medication adherence and selected socio demographic variables such as other current medication and other comorbidities. The results were supported with another study conducted in saudi Arabia "Abdullah m Alqarni et al; the result of the study showed significant association between medication adherence and socio demographic variables such as occupational status (P=0.037), current medication (P<0.001), glycated hemoglobin (A1c) (P<0.001), and number of associated comorbidities (P<0.001). variables remained significantly associated with adherence.

This study aimed to investigate association between medication adherence and selected socio demographic variables among patients with diabetes mellitus.

The present study result showed that there is no significant association between selected socio demographic variables except for type of diet, type of family, duration of diabetes and use of alternative therapy for treatment of diabetes mellitus as the calculated p value is less at 0.05 level of significance. Therefore, the research hypothesis is accepted and null hypothesis is rejected that there is no significant

association between selected socio demographic variables.

Interestingly, the present study finding demonstrated that medication adherence plays an important role in maintaining blood sugar levels within the normal range.

Conclusion

This chapter deals with the conclusions, implications, recommendation, and limitations drawn for the study to assess the medication adherence among patients with diabetes mellitus.

The present study showed that the medication adherence was rate was relatively high among diabetic patients. Medication adherence is an important factor and needs priority in maintaining blood glucose levels in normal levels. The study recommended that health education needs to be provided to diabetic patients.

Acknowledgement

References

1. Iabetes [Internet]. World Health Organization. World Health Organization; [cited 2020Mar22]. Available from: https://www.who.int/health-topics/diabetes#tab=tab_1

2. Black J, Matassarin-Jacobs E, Luckmann J. Medical-surgical nurssing. Philadelphia: Saunders; 2015.

3. Classification and Diagnosis of Diabetes. Diabetes Care. 2016;40(Supplement 1).

4. Roglic g. WHO Global report on diabetes: A summary. International Journal of Nncommunicable Diseases. 2016;19(1):3

5. Adherence to long-term therapies: evidence for action [Internet]. World Health Organization. World Health Organization; 2015 [cited 2020Mar22].

6. Asif M. The prevention and control the type-2 diabetes by changing lifestyle and dietary pattern. Journal of Education and Health Promotion. 2014;3(1):1.

7. Polonsky W, Henry R. Poor medication adherence in type 2 diabetes: recognizing the scope of the problem and its key contributors. Patient Preference and Adherence. 2016;Volume 10:1299–307.

8. Polonsky W, Henry R. Poor medication adherence in type 2 diabetes: recognizing the scope of the problem and its key contributors. Patient Preference and Adherence. 2016;Volume 10:1299-1307.

9. B. K. A CURRENT STATUS OF DIABETES MELLITUS IN INDIA: A REVIEW. World Journal of Pharmacy and Pharmaceutical Sciences. 2017;:235-243.

10. Shrivastava S, Shrivastava P, Ramasamy J. Role of self-care in management of diabetes mellitus. Journal of Diabetes & Metabolic Disorders. 2013;12(1).

11. Medication Adherence among Type 2 Diabetes Mellitus Patients of a University Hospital, Riyadh, KSA. International Journal of Science and Research (IJSR). 2017;6(1):2351-2357.

12. Tapply I, Broadway D. Improving Adherence to Topical Medication in Patients with Glaucoma. Patient Preference and Adherence. 2021;Volume 15:1477-1489.

13. Lifestyle Management: Standards of Medical Care in Diabetes—2019. Diabetes Care. 2018;42(Supplement 1):S46-S60.

14. Polonsky W, Henry R. Poor medication adherence in type 2 diabetes: recognizing the scope of the problem

and its key contributors. Patient Preference and Adherence. 2016;Volume 10:1299-1307.

15. Adu M, Malabu U, Malau-Aduli A, Malau-Aduli B. Enablers and barriers to effective diabetes self-management: A multi-national investigation. PLOS ONE. 2019;14(6):e0217771.