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RESEARCH ARTICLE

THE DEMOGRAPHIC PROFILE AND DRUG COMPLIANCE AMONG TYPE II DIABETIC PATIENTS ATTENDING TERTIARY CARE CENTRE

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ABSTRACT

The aim of the study was to assess the demographic profile and drug compliance of Type 2 diabetic (T2DM) patients attending tertiary care centre. A descriptive study design was adopted. A total of 100 participants were selected using convenient sampling. The structured interview schedule was used to collect data from samples by using modified diabetic drug compliance scale of 10 day recall method. As a result, out of 100 samples, majorities (37%) of them were in the age group of 51-60 years and 4% of them were in the age group of 21-30 years. 88% of them were adherent to 75-100% medications and 12% of them were adherent to 50-75% of medications. Elders, employed, urban area of residence, normal BMI, and less than 3 years duration of diabetes were associated with more drug compliance score among type 2 diabetic patients. In conclusion, the medication adherence in diabetes is critically important for maximizing the effectiveness of drug therapy and in prevention of early diabetic complications. Health Education or strategies towards the improvement of medication adherence among (T2DM) patients are highly essential.

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INTRODUCTION

Type 2 diabetes (T2DM) develops when the body does not secrete adequate insulin, or when the cells are unable to utilize insulin properly, which is called insulin resistance. Type 2 diabetes is also known as “adult-onset diabetes” as it is diagnosed after the age of 45 years. 90-95 percent of people with diabetes have type 2 diabetes. In recent years Type 2 diabetes has been diagnosed in younger people, including children, more frequently than in the past. Pre-diabetes is a condition, in which a person’s blood sugar levels to be higher than normal but not high enough to be diagnosed as diabetes. The cause of diabetes is not known. Hereditary, diet, obesity and lack of physical activity may play a significant role in developing diabetes, especially Type 2 diabetes. Over time, high blood sugar levels (also called hyperglycemia) can lead to nephropathy, heart diseases, stroke, and blindness. The high sugar in the bloodstream can damage the tiny blood vessels in the eyes and kidneys, and can harden or narrow small arteries. Adherence to drug therapy is a critical aspect of medical treatment, particularly the treatment of chronic conditions such as diabetes. Since medication non-adherence is a serious problem, the World Health Organization declared that the average non-adherence rate is 50% among those with chronic illnesses like diabetes.

In view of the chronic and progressive nature of diabetes, early medication intervention has the potential to optimize the glycemic control.

Background and need for the study: T2DM has become a global epidemic with high disability, premature morbidity and vast medical costs. Total number of individuals with T2DM is likely to double between 2000 and 2030 with a significantly greater growth in Asia. Among Asian regions, South Asia is emerging as the epicentre of this intensifying epidemic, reflecting rapid transitions in demography, westernized diet and sedentary lifestyle. People living in the South Asia are also at higher risk of developing diabetes at younger age and at a lower body mass index than other groups. As a result, there has been a vivid increase in the number of patients with T2DM in South Asia, which in turn places urgent demands on health care systems in these countries, most of which are ill-prepared for such demands. The latest estimates show a global prevalence of 382 million people with diabetes at present, which is likely to increase to 592 million in the year 2035. A 55% increase in the total prevalence of diabetes. India, a country experiencing rapid socioeconomic progress and urbanization, carries a considerable share of the global diabetes burden. Studies in different parts of India have demonstrated an escalating prevalence of diabetes not only in urban populations, but also in rural populations as a result of the urbanization of lifestyle parameters. India represents 49

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Table 1. Level of Drug Compliance Score

Level of Drug compliance	No. of Type 2 Diabetic clients	%
< 50%	0	0.0%
0-75%	12	12.0%
76 -100%	88	88.0%
Total	100	100.0%

Table 2. Identification of Influencing Factors for more Drug Compliance Score Using Univariate Analysis

Demographic variables		Level Drug compliance				TOTAL	Chi square test	Odds Ratio (95%CI)
		<75%		>75%				
		n	%	n	%			
Age	>50 years	9	24.3%	28	75.7%	37	$\chi^2=8.44$ P=0.01**	6.4(1.6 - 25.6)
	≤50 years	3	1.3%	60	98.7%	63		
Employment	Unemployed	9	21.4%	33	78.6%	42	$\chi^2=6.09$ P=0.01**	5.0(1.2 - 19.8)
	Employed	3	5.2%	55	94.8%	58		
Residence	Rural	4	25.0%	8	75.0%	12	$\chi^2=5.87$ P=0.02*	5.0(1.2 -20.2)
	Urban	8	9.1%	80	90.9%	88		
BMI	Overweigh/Obese	10	20.4%	39	78.6%	49	$\chi^2=6.43$ P=0.01**	6.3(1.3 -30.3)
	Normal	2	3.9%	49	96.1%	51		
Duration of diabetes	≤ 2 year	7	23.3%	23	76.7%	30	$\chi^2=5.21$ P=0.02*	3.9(1.1 -13.7)
	3-5 years	5	7.1%	65	92.9%	70		

percent of the world's diabetes burden, with an estimated 72 million cases in 2017, a figure expected to almost double to 134 million by 2025. This presents a serious public health challenge to a country facing a future of high population growth and a government attempting to provide free health insurance to half a billion people. However, the growth fast food, relatively cheap food in recent years has meant that poor diets are now *Cfound across all income brackets. The urban poor are also under risk of developing diabetes as wealthier communities, according to an August-2017 study published in the Lancet Diabetes and Endocrinology journal. As incomes have increased, diets have changed to incorporate more processed food, high in sugar and salt. About 2 percent of women aged 15-19 years and 2.6 percent of aged 20-25 years had high or very high blood glucose levels. In men, this rose to 2.9 percent and 3.7 percent, respectively, according to data from the National Family Health Survey (NFHS 2015-16). Currently, one in every four people under 25 has adult-onset diabetes, a condition more usually seen in 40-50-year-olds, according to the Indian Council of Medical Research's youth diabetes registry.

Statement of the Problem

A study to assess the demographic profile and drug compliance of Type 2 diabetic patients attending tertiary care centre.

Objectives

- To assess the demographic profile of type 2 diabetic patients
- To assess the level of drug compliance among type 2 diabetic patients
- To find out the association between demographic variables and drug compliance among type 2 diabetic patients.

MATERIALS AND METHODS

The necessary permission was obtained to conduct this study. A convenient sampling technique was executed to select 100 samples from selected hospital in Chennai. Informed consent was obtained from the participants.

A descriptive study was conducted by interviewing the patients visiting the diabetic clinic for follow-up using structured questionnaire. Modified Medication adherence self-assessment instrument was used to assess the drug compliance level among type 2 diabetic patients. This instrument has points showing 0-10. Patients were asked to mark between 0-10 based on a 10 day recall system. Scores shows

- Less than 50% means patient has taken drugs for less than 5 days,
- 50-75% means patient have taken drug for 5-7 days and
- 76-100% means patient have taken drugsfor 8-10 days.

Criteria for the Selection of Samples

Inclusion Criteria

Patients attending diabetic clinic, who are

1. Diagnosed with T2DM for more than 1 year
2. Age between 25-60 years
3. On oral hypoglycemic agents for at least 6 months.
4. Not included in other studies.
5. Willing to give informed consent.

Exclusion Criteria

Patients attending diabetic clinic, who are

- Not able to understand Tamil or English
- Type 1 and Gestational diabetes
- Not willing to participate in the study.

RESULTS

The collected data were analysed by using descriptive and inferential statistics and tabulated as follows.

Section 1: Socio-demographic variables

Among 100 samples, the majority of patients (37.0%) were in the age group of 51-60 years and 4% in the age group of 21-30 years.

Table 3. Identification of Influencing Factors for more Drug Compliance Score Using Multivariate Logistic Regression

Influencing factors	Univariate analysis		Multivariate analysis	
	p-value	Unadjusted OR(95%CI)	p-value	Adjusted OR(95%CI)
Age(≤ 50 years Vs > 50 years)	0.01**	6.4(1.6 - 25.6)	0.01**	13.8(2.1- 99.9)
Employment(Employed Vs unemployed)	0.01**	5.0(1.2 - 19.8)	0.05*	5.2(1.0 - 27.2)
Residence (Urban Vs Rural)	0.02*	5.0(1.2 -20.2)	0.27	2.9(0.4- 18.8)
BMI(Normal Vs Abnormal)	0.01**	6.3(1.3 -30.3)	0.02*	11.1(1.5 -82.1)
Duration of diabetes (> 2 years Vs ≤ 2 years)	0.02*	3.9(1.1 -13.7)	0.03*	7.3(1.1- 44.5)

In gender wise, 66% were females and 34% were males. Regarding marital status, most of the patients (96%) married and 2% were single and 2% were widower. The majority of the patients 81% belong to Hindu religion and 38% had middle school education. More than half of the subjects (58%) were employed and 40% of them were involved in sedentary type of work. Majority of patients (88%) were from urban area and 83% were from nuclear family. In regard to body weight, 39% were overweight and majority of them (40%) were having HbA1c between 6.4-8.9 or FBS 150-200 mg/dl. Most of the patients (85%) did not attend any diabetic awareness programme. In regard to food habits, majority (92%) were non-vegetarian. Table 1 showed that none of them are having $< 50\%$ level of drug compliance score, 12% of them are having 50 -75% level of drug compliance score and 88% of them are having 76-100% level of drug compliance score. Table 2 showed that elders, employed, Urban area, Normal BMI, and less than 3years duration of diabetes T2DM patients are having more drug compliance than others($p=0.01$). Unadjusted odds ratio was given with 95% confidence interval. Table 3 showed that elders, employed, normal BMI, and less than 3 years duration of diabetes T2DM patients are having more drug compliance than others. Adjusted odds ratio was given with 95% confidence interval.

DISCUSSION

A total of 100 patients were enrolled for this study and found that majorities (37%) of them were in the age group of 51-60 years and most of the participants were females (66%). This finding was supported by Esther Mufunda et al (2012). They found that majority of patients were females. The study also found that 39% were overweight. This finding was supported by Abhijit Mandal (2014) who revealed patients suffering from T2DM and Hypertension are Overweight and Obese. The data findings presented in table 1 showed the level of drug compliance among type 2 diabetic patients. The data revealed that 88% of them were adherent to 75-100% medications and 12% of them were adherent to 50-75% of medications. None of the patients were having medication adherence score less than 50%. Table 2 showed that identification of influencing sociodemographic factors for more drug compliance score among type 2 diabetic patients. The Univariate analysis reveals that patients over 50 years, employed, patients from urban area, patients with normal body weight and duration of diabetes for less than 3 years are significant with increased drug compliance score($p<0.05$).

Similarly Table 3 showed that patients over 50 years, employed, patients with normal body weight and duration of diabetes for less than 3 years are significant with increased drug compliance score ($p<0.05$). This finding is supported by a study conducted by Niciane Bandeira Pessoa Marinho et al (2013), revealed that age and body mass index are associated with more drug compliance.

Conclusion

The present study provides the information about the demographic profile and level of drug compliance among type 2 diabetic patients. It also provided the information on the association between the socio-demographic variables with more drug compliance score among diabetic patients. As the number of DM cases continues to increase throughout the world, it is necessary to take advantage of recent discoveries on the individual and societal benefits of improved diabetes management and prevention by bringing life-saving discoveries into wider practice. Therefore managing blood glucose can prevent or slow the progress of many complications of diabetes, giving extra years of healthy, active life.

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