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## Assessment on knowledge among diabetic patients who visited community pharmacies in urban and rural areas

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### Abstract

India had 69.2 million diabetic patients (8.7%) second only to China, and this figure is likely to increase substantially by 2025. Diabetes can lead to increased morbidity and mortality. The role of pharmacists has changed dramatically over the past 30 years. Traditionally, pharmacists have been viewed as individuals who dispense medications to the public.

**Objective:** To assess the Knowledge among diabetic patients who visited community pharmacy in urban and rural areas. To compare and contrast diabetes knowledge among diabetic patients between urban and rural areas.

**Methodology:** This is a randomized prospective observational study which was conducted over a period of three months. Diabetes Knowledge Questionnaire (DKQ) scale was used in this study.

**Results:** Overall from this study males were greater in number with 52.4% than females with 47.6% followed by age of the patients were higher with age group of 61-70 were suffered most with 39.5% and age group of 41-60 were suffered 35%. Those diabetic patients had duration of 6-10 years with 56% followed by 11-20 years with 28% were suffered mostly with diabetes. Nearly 25.1% of the patients in the study belong to an upper class followed by 22.4% with lower class followed by 19.2% were from upper middle class.

**Conclusion:** This study revealed a low level of knowledge, among the diabetic patients from both areas. When compared with rural area patients, urban patients were quite aware about diabetes knowledge and the economic problem were commonest among both patients. This study suggests that, the need for awareness programs for the patients so as to improve their knowledge regarding diabetes.

**Keywords:** Urban and rural, pharmacies, diabetic

### Introduction

Diabetes mellitus is a chronic metabolic disorder characterized by hyperglycemia it results from deficiency in insulin secretion, insulin action, or may be both. It is one of the most common metabolic syndromes, since there are 200 million diabetic individuals in the world [1]. India had 69.2 million diabetic patients (8.7%) second only to China, and this figure is likely to increase substantially by 2025. Diabetes can lead to increased morbidity and mortality. There is improper guidance about the disease due to lack of understanding of patients characteristics The "World Health Organization characterizes into three main types of diabetes mellitus, they were type- I DM known as insulin dependent diabetes mellitus (IDDM)" type- II DM known as non-insulin dependent diabetes (NIDDM)" and gestational diabetes (occurring during pregnancy), which have different causative factors and population distributions [2, 3]. Problems associated with DM can be reduced by early diagnosis and proper management. The desired goal in the management of DM is to avoid development of macro- and micro-vascular complications by achieving optimal glycemic control. This involves lifestyle modification, including regular exercise, healthy diet, and weight loss in addition to compliance with effective drug therapy. Therefore, apart from good health-care professional involvement and governmental support, patients' self-knowledge and their attitude play a crucial role in obtaining a good healthy life. Patients with good knowledge on diabetes and its complications seek proper treatment and care and take charge of their health [4].

### Role of pharmacists in current health care

The role of pharmacists has changed dramatically over the past 30 years. Traditionally, pharmacists have been viewed as individuals who dispense medications to the public. The

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concept of pharmacy practice has gradually changed from a product oriented activity to a patient-oriented one. It is the responsibility of pharmacists to counsel patients before dispensing medications. Counseling is the sympathetic interaction between pharmacist and patient [5].

**Objective**

- To assess the Knowledge among diabetic patients who visited community pharmacy in urban and rural areas.
- To compare and contrast diabetes knowledge among diabetic patients between urban and rural areas.

**Materials and Methods**

**Study site**

The study was carried out in various community pharmacies in Chidambaram, Tamil Nadu.

**Study design**

This is a randomized prospective observational study which was conducted over a period of three months.

**Tools used**

Diabetes Knowledge Questionnaire (DKQ) scale

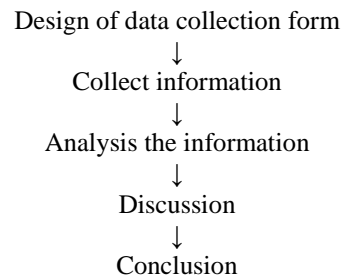
**Inclusion criteria**

- Diabetic patients who visited Community pharmacies, Chain pharmacies.

**Exclusion criteria**

- Hospital attached pharmacies.
- Patients who are not willing to cooperate.
- Patients care takers who buy medicines.

**Plan of work**



**Results**

**Table 1:** Demographic characteristics among urban and rural patients

S.no.	Characteristics	Urban		Rural		Total n=143	
		No's	%	No's	%	No's	%
1.	<b>Gender wise distribution:</b>						
	Males	36	25.1%	39	27.3%	75	52.4%
	Females	37	25.9%	31	21.7%	68	47.6%
2.	<b>Age wise distribution:</b>						
	Less than 40	18	12.6%	07	4.9%	25	17.5%
	41 to 60	25	17.5%	25	17.5%	70	35%
	61 to 70	23	16.1%	33	23.1%	56	39.2%
	70-75	07	4.9%	5	3.5%	12	8.4%
3.	<b>Duration of diabetes:</b>						
	1-5 years	5	3.5%	18	12.5%	23	16%
	6-10 years	36	25.2%	44	30.8%	80	56%
	11-20 years	22	15.5%	18	12.5%	40	28%
4.	<b>Educational status:</b>						
	Uneducated	11	7.7%	39	27.3%	50	35%
	Intermediate level	24	16.8%	21	14.7%	45	31.5%
	Degree level	38	26.6%	10	7%	48	33.5%
5.	<b>Socio-economic status:</b>						
	Upper class	31	21.6%	5	3.5%	36	25.1%
	Upper middle class	20	14%	8	5.6%	28	19.6%
	Lower middle class	14	9.8%	12	8.4%	26	18.2%
	Upper lower class	3	2.1%	18	12.6%	21	14.7%
	Lower class	5	3.5%	27	18.9%	32	22.4%

The study demonstrates that patients with diabetes who visited community pharmacies were mostly from rural and remote areas near Chidambaram. Several variables observed in the study population, such as age, gender, duration of the disease, educational status, occupational and socioeconomic status were assessed. There was significant difference between urban and rural area patients among all variables. Overall from this study males were greater in number with 52.4% than females with 47.6% followed by age of the patients were higher with age group of 61-70 were suffered most with 39.5% and age group of 41-60 were suffered 35%. Those diabetic patients had duration of 6-10 years with 56% followed by 11-20 years with 28% were suffered mostly with diabetes. Nearly 25.1% of the patients in the study belong to an upper class followed by 22.4% with lower class followed by 19.2% were from upper middle class.

**Gender:** Based on our results females with (25.9%) were more in number than males with (25.1%) in urban areas. It shows in urban areas, females were mostly visited the pharmacies to buy their medicines and they were participated in this study. In rural areas, males were mostly visited the pharmacies with (27.3%) when compared with females with (21.7%). It shows poor response from the females to visit pharmacy in rural areas.

**Age:** From this study, patients with age group of 41 to 60 were higher with (17.5%) followed by age group of 61 to 70 were with (16.1%) in urban areas. In rural areas, patients with age group of 61 to 60 were higher with (17.5%) followed by age group of 61 to 70 were with (16.1%) were participated this study.

**Duration:** Almost 25.2% of the cases were with duration of 6 to 10 years were suffered mostly with diabetes. Next to that 11-20 years of duration of patients were suffered with diabetes in urban areas. Almost 30.8% of the cases were with duration of 6 to 10 years were suffered mostly with diabetes. Next to that 12.5% of patients were suffered with duration of 1-5 and 11-20 years from rural areas.

**Education:** Most of the patients were with urban areas were almost educated in this study. Based on our results 26.6% patients were completed degree level followed by intermediate level with 16.8% and uneducated were few in number with 7.7%. Rural areas was entirely different from urban areas and here most of the patients were uneducated with 27.3% followed by 14.7% with intermediate level and very few were degree level patients with 7% were suffered with diabetes.

**Socioeconomic Status:** Most of the patients with 21.6% were from upper lower class followed by 14% were from upper middle class and 9.8% were with lower middle class suffered with diabetes in urban areas. In rural areas, the patients with 18.9% were from lower class followed by 12.6% were from upper lower class in patients with diabetes. And 3.5% cases were from upper class in rural sector.

**Table 2:** Patient's Diabetes Knowledge Questionnaire

Questions	Yes (%)		No (%)		Don't know (%)	
	Urban	Rural	Urban	Rural	Urban	Rural
Q1	23%	53%	56%	16%	21%	31%
Q2	59%	1%	14%	22%	27%	77%
Q3	23%	7%	23%	9%	54%	84%
Q4	24%	7%	35%	12%	41%	81%
Q5	65%	19%	15%	4%	20%	77%
Q6	55%	55%	14%	35%	31%	10%
Q7	60%	70%	10%	10%	30%	20%
Q8	96%	18%	4%	3%	-	79%
Q9	55%	45%	33%	23%	12%	32%
Q10	10%	20%	50%	40%	40%	40%
Q11	58%	3%	16%	16%	26%	81%
Q12	48%	3%	7%	7%	45%	90%
Q13	54%	33%	24%	24%	22%	43%
Q14	13%	12%	22%	33%	65%	55%
Q15	69%	44%	2%	2%	29%	54%
Q16	20%	12%	24%	44%	56%	44%
Q17	50%	2%	26%	36%	24%	62%
Q18	49%	29%	12%	12%	39%	59%
Q19	20%	10%	58%	43%	22%	47%
Q20	30%	25%	68%	70%	2%	5%
Q21	35%	40%	55%	45%	10%	15%
Q22	12%	32%	23%	23%	65%	45%
Q23	25%	2%	60%	60%	15%	38%
Q24	23%	24%	56%	36%	21%	40%

**Discussion**

This study shows that poor income people suffer lot from diabetes. In general, education is significantly related to better employment, awareness and income sources. Whereas in this study, it is observed that there were limited sources for income and this largely affects the affordability of the patients from visiting the doctor, purchasing medicines and health investments. It is necessary for the patient to learn some basic knowledge about the drugs prescribed for their treatment including the dose, route and frequency of drug used in their treatment [6, 7]. Some patients reported that lack awareness

about the disease, treatment and may possess several misconceptions regarding their health state, drug use etc. which may lead to medication non-adherence. This includes self-discontinuance of medicines due to lack of symptoms, side effects, forgetfulness, mistrust on doctors, depression etc. In addition, various other factors such as economic status, lack of awareness about disease and drug, poor memory, and laziness were also associated with all the three diseases in higher rates for medication non-adherence [8-10]. When patients with poor adherence were asked their reasons for failing to follow medication orders, most of them reported that the major reason is poor memory followed by unawareness, trying to save money and few blaming due to side effects. Basic knowledge about diabetes was assessed for both rural and urban area peoples in this study. Comparatively there were huge differences were seen in urban areas. Most of the patients were failed to respond to basic questions about knowledge on diabetes. The low level of knowledge and negative practice of Diabetes management among community pharmacy patients who were depicted in this study. Several Guidelines covering diabetes care should be implemented and distributed throughout community pharmacies. Regular monitoring and inspections regarding the disease are most important in the development of diabetes care in community pharmacies.

**Conclusion**

The study assessed that the patients' knowledge about the diabetes for controlling blood glucose level for rural and urban patients. Improving knowledge level of the patients regarding the drugs was the only way to control diabetes. Patient counseling by the pharmacist can play a vital role in imparting education to the diabetes patients. Strategies to modify lifestyle which help in control of DM include providing diabetes leaflets as well as by direct education programs. Knowledge of the patients regarding the importance of Self-Monitoring of Blood Glucose and regular blood pressure (BP) checkup is very necessary. Limitations of this study were that it was conducted only among the outpatients and hence may not be generalizable to the overall diabetic population. In conclusion, this study revealed a low level of knowledge, among the diabetic patients from both areas. When compared with rural area patients, urban patients were quite aware about diabetes knowledge and the economic problem were commonest among both patients. This study suggests that, the need for awareness programs for the patients so as to improve their knowledge regarding diabetes.

**References**

1. Malecki MT, Klupa T. Type 2 diabetes mellitus: from genes to disease. *Pharmacological Reports*. 2005; 57:20-32.
2. Dr. Komal Suresh Gawand, Dr. Ujwala Pramod Gawali, Dr. Harshad Vijay Kesari. A Study To Assess Knowledge, Attitude And Practice Concerning Insulin Use In Adult Patients With Diabetes Mellitus In Tertiary Care Centre, *Indian Journal of Medical Research and Pharmaceutical Sciences*. 2016; 3(9):36-40.
3. Adibah H, Idris MN Osman Ali. Perception and behavior of diabetic patients on blood Glucose maintenance. *Int. J Diab. Dev. Countries*. 1998; 18:71-74.
4. Alzahrani Salem, Alshammari Majed, Mushabbab Abdulaziaz Mahfooz Mustafa, Alsebyani Abdul salam, Syed Mohammed Basheeruddin Asdaq, Al-Yamani

- Mohammed. Knowledge, Attitude, and Practice Regarding Diabetes Mellitus among General Public and Diabetic Patients in Riyadh, Saudi Arabia, *Asian Journal of Pharmaceutics*. 2018; 12(1):1-4.
5. Subish Palaian, Leelavathy D Acharya, Padma Guru Madhva Rao, Ravi Shankar, Nidin Mohan Nair, Nibu P Nair. Knowledge, Attitude, and Practice Outcomes: Evaluating the Impact of Counseling in Hospitalized Diabetic Patients in India, *P&T* 2006; 31(7):383.
  6. Chetan S, Urade, Manohar M, Bende, Chetna A, Shamkuwar *et al*. Evaluation of prescription pattern and medication adherence of antihypertensive drugs in stage 1 essential hypertensive patients at rural tertiary care teaching hospital of central India, *IJPR*. 2016; 6(09):291-296.
  7. Ahsana Shah, Mohammad, Afzal. Prevalence of diabetes and hypertension and association with various risk factors among different Muslim populations of Manipur, India. *Journal of Diabetes & Metabolic Disorders*. 2013; 12(52):1-10.
  8. Akshay A, Agarwal, Pradeep, Jadhav R, Yeshwant A. Deshmukh. Prescribing pattern and efficacy of anti-diabetic drugs in Maintaining optimal glycaemic levels in diabetic patients, *Journal of Basic and Clinical Pharmacy*. 2014; 5(3):79-83.
  9. Arun KS, Subba Rao Ch, Priyanka D. Prescribing pattern and prescription cost minimization in type-II diabetes mellitus with therapeutic effectiveness of generic drugs in a multi-super specialty hospital, *Adv Cell Sci Tissue Cult*. 2018; 2(1):16-20.
  10. Ashutosh, Kakade, Ipseeta Ray, Mohanty, Sandeep, Rai. Assessment of Prescription Pattern of Antidiabetic Drugs in the Outpatient Department of a Tertiary Care Hospital, *Int J Clin Endocrinol Metab*. 2017; 3(1):001-007.