

# Community Pharmacists Centered Rural Mobile Role in Diabetic Retinopathy

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**Abstract:** *Diabetic Retinopathy (DR) is considered as one of the leading global causes of blindness. s. Long-term poor glucose control leads to vascular incompetency, tissue swelling, new vessels formation, and if untreated, to irreversible severe visual loss. This study is fully based on survey modes by asking questionnaire to the community pharmacists about their attitude, activities and roles in disease management which mainly focuses on Diabetic Retinopathy cases Diabetic Retinopathy are the most common diseases in all over world which causes co morbid complications and it leads to increase in mortality rate. Community pharmacy is very much close to the public and they easily mingle with patients when compare to other health care professionals. The diabetes Retinopathy patients need chronic medication therapy because of which they routinely visit their community pharmacists. The community pharmacists are able to counsel the patients with diabetes Retinopathy. This article emphasis that the assessment shows the community pharmacist plays an important role in disease management, patient counselling, creating awareness, reducing the risk of poly pharmacy, self-monitoring on blood glucose and blood pressure in patients with diabetes Retinopathy.*

**Keywords:** Community pharmacy; Patient counselling; Dispensing error; Diabetes; Retinopathy

## 1. Introduction

Diabetes is the most common disorder in a worldwide prevalence exceeding 3.2 million by 2025. It is a common complication of Diabetes Mellitus (DM) caused by changes in retinal blood vessels as the result of long-term poor glucose control. Retinopathy is another serious risk with no symptoms like other diseases. Retinopathy causes many comorbid diseases it leads to death for 20-30% of peoples in all over world <sup>[1]</sup>. Community pharmacy serves as a link between doctor and patients. It is a division of pharmacy available in community sector deals with various aspects of patient care, drug dispensing, advising patients regarding safe usage of medicines, and rational drug use. <sup>[2]</sup> Pharmacies should be located close to patients with T2D so that they can easily access medication and experience psychological barrier to a lesser extent [3]. Therefore, community pharmacists should be involved in diabetes care. Although many studies have assessed interventions in Western countries, few studies from Eastern countries have been conducted. This is the first RCT on community pharmacies in India. Evidence-based data, for instance, using an a randomized controlled trial RCT design, are necessary in this field. Importantly, the intervention methods used in these studies [9]-[11] are complex and time-consuming. Because of the free-access system in the society, many people use pharmacies; therefore, brief and effective methods are required for lifestyle interventions performed by community pharmacists. For this purpose, lifestyle coaching (giving advice using brochures and continuous support with every visit) can be briefly used. The prevalence of DM in the United States has increased dramatically since 2000, resulting in an increased risk of DR and its complications. In 2010, the Center for Disease Control and Prevention conducted a study that demonstrated that the prevalence of DR affects almost one-third of adults over 40 years old

## Community Pharmacists

The pharmacists who worked in community pharmacy are called community pharmacists. The community pharmacists are the health professionals most helpful to the public.

## Role s and Responsibilities of Community Pharmacist:

- The main responsibilities of a community pharmacy are dispensing of medicines, counselling about medicines, proper requirement, storage and documentation of dispensed medicines to the patient with proper care.
- Practice pharmacy in a professional and ethical manner.
- Validate prescriptions.
- Clarify medication doubts.
- Serves cost effective medicines and better treatment.
- Confirm availability of medicines.
- The community pharmacist must be equipped with the sound knowledge on drugs, skills, ability to dispense the drugs. <sup>[3]</sup>

## Role of Community Pharmacists in Disease Management:

Community pharmacists have an important role in diabetes, cardiovascular and other medicines their involvement shows beneficial effects in patient education and disease management. Community pharmacy is a place where the most of the peoples are coming to buy medicines. Pharmacological treatment is very much successful and cost effective if the medicines are rationally prescribed and appropriately used. Community pharmacists should explain about the disease symptoms, diagnostic methods and check outcomes of the results involved in disease management. <sup>[4]</sup>

## Role of Community Pharmacist in Diabetes and Hypertension Education:

The variety of health professionals includes doctors, pharmacists, nurses and dieticians attain more benefits from the arrival of community pharmacists to diabetic and hypertensive patients <sup>[5]</sup>. The role involved in diabetes and

hypertension by community pharmacists was crucial, because they are directly in communication with patients. The major role of the community pharmacists is to give sound knowledge about the drugs to the diabetes and hypertensive patients. The community pharmacists are able to clear the doubts and queries about their condition made by the patients.<sup>[6]</sup>The community pharmacists help in educating about the importance of monitoring blood glucose, blood pressure and cholesterol level checking periodically to the patients while coming to the community pharmacies.<sup>[7]</sup>The community pharmacists do counselling through telephone calls and clarify the doubts at anytime which leads to reduce the risks of mortality and morbidity and improving patient compliance in receiving polypharmacy<sup>[8]</sup>. Assessment on community pharmacists leads to the impact on patient counselling, proper nutrition and exercise in patients with diabetes and hypertension<sup>[9]</sup>. Due to improper information on drugs, patients are failed to adhere the medication use<sup>[10]</sup>. Because of high population in India doctors are not able to spend enough time for patients which results in community pharmacists to counsel the patients about the drugs usage, drug interactions, dietary habits, life style habits<sup>[11]</sup>. Patient education is the most important factor affecting treatment compliance<sup>[12]</sup>. Factors affect the outcomes on morbidity, mortality and cost which constitute a major public health problem<sup>[13]</sup>.

**Medication Errors**

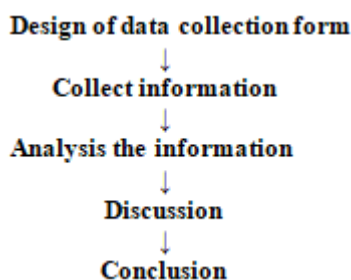
Medication errors are the commonest problem in the society made by health care professionals that cause problems to the patients. Errors are of different type, the common error made by pharmacists known as “Dispensing error”<sup>[14]</sup>. There are various factors that influencing dispensing errors by pharmacist they are as follows

- Due to illegible handwriting on prescriptions
- Same sounds/ confusion/duplication error( Duplication error)
- Wrong dose (Dosing error)
- Heavy work load
- Generic drug existence
- Distractions

**Aim and Objectives**

- To study the various factors that influencing dispensing errors by community pharmacists.
- To find out the contribution of community pharmacist in diabetic and hypertensive patients.
- To find out the attitude and activities of the community pharmacists.

**Plan of work**



**2. Methodology**

**Study site:**

The project was carried out in various community pharmacies in Chidambaram town, Cuddalore District, Tamilnadu.

**Study design:**

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

**Sample:**

The sample was collected from the Medical shops / Community pharmacies.

**Study criteria:**

**Inclusion criteria:**

- Pharmacists in Community pharmacies.
- Chain pharmacies.
- Specialized clinics like diabetic clinic.

**Exclusion criteria:**

- Hospital attached pharmacies.
- Pharmacists who are not willing to cooperate.

**3. Results**

This study enrolled community pharmacies around Chidambaram, based on the information, the following results obtained.

No.of.Samples:25 pharmacies

**Table 1: Demographic status**

Demographic characters	Total N (%)	
Gender	Male	15 (60%)
	Female	10 (40%)
Age	(20-30)	12 (48%)
	(31-40)	9 (36%)
	(41-50)	4 (16%)

**Table 2: Factors influencing Dispensing errors by Community Pharmacists**

S.No	Factors influencing dispensing errors by community pharmacists	Responses		
		Often (N %)	Rare (N %)	Never (N %)
1.	Illegible handwriting on Prescriptions	7(28%)	11(44%)	7(28%)
2.	Same sounds/ confusion (Duplication Error )	9(36%)	10(40%)	6(24%)
3.	Wrong dose (Dosing Error)	12(48%)	11(44%)	2(8%)
4.	Heavy Work load	13(52%)	8(32%)	4(16%)
5.	Generic drug Existence	14(56%)	7(28%)	4(16%)
6.	Distractions	13(52%)	9(36%)	3(12%)

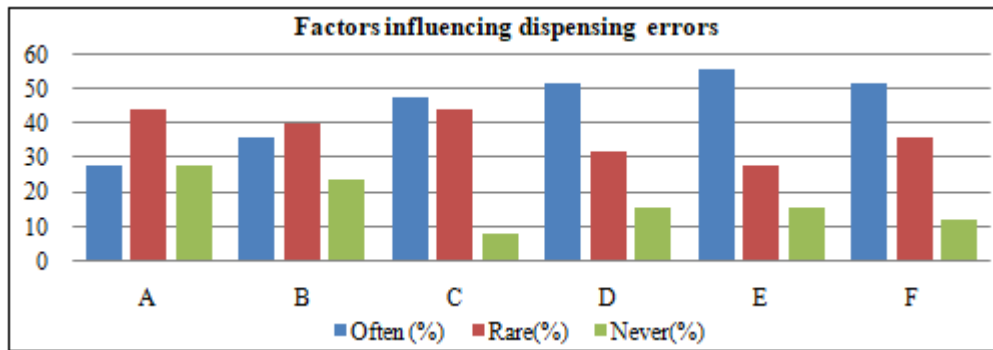


Figure 1: Factors influencing dispensing errors

- A- Illegible handwriting on Prescriptions
- B- Same sounds/ confusion (Duplication Error )
- C- Wrong dose (Dosing Error)
- D- Heavy Work load
- E- Generic drug Existence
- F- Distractions

S.No.	Factors	Yes (%)	No (%)
1	Language	21 (84)	4 (16)
2	Spend enough time	16 (64)	9 (36)
3	Antibiotics use	18 (72)	7 (28)
4	Tells about interactions	15 (60)	10 (40)
5	Cross verification	24 (96)	1 (4)
6	Drug without prescription	2 (8)	23 (92)
7	Alternative drug	6 (24)	19 (76)
8	Distraction may affect	5 (20)	20 (80)
9	Purpose of medication	22 (88)	3 (12)
10	Give any cost effective medicines	23 (92)	2 (8)
11	Explain about side effects	15 (60)	10 (40)
12	Counsel to stop smoking/alcohol	14 (56)	11(44)
13	Symptoms based drugs	10 (40)	15 (60)
14	Counsel for the patients	12 (48)	13 (52)
15	Explain suitable diets	18 (72)	7 (28)
16	Proper foot care	13 (52)	12 (48)
17	Discuss about cataract for diabetic patients	9 (36)	16 (64)
18	Health related awareness	16 (64)	9 (36)
19	Explain self glucose monitoring	17 (68)	8 (32)
20	Dosage change without approval of doctor	18 (72)	7 (28)

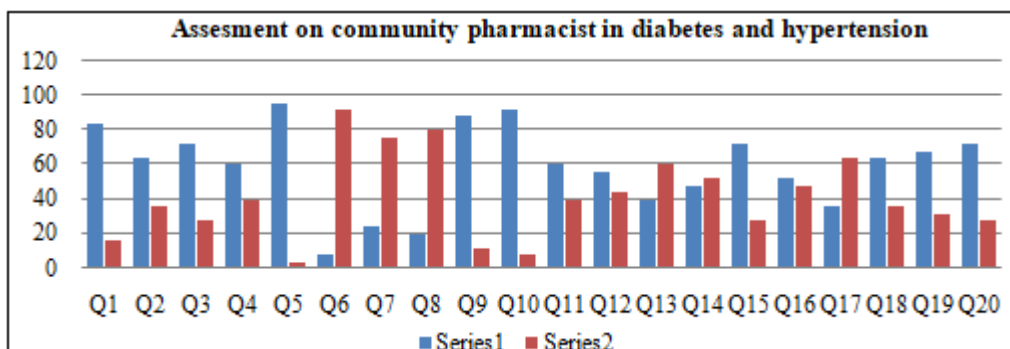


Figure 2: Assesment on community pharmacist in diabetes and hypertension

4. Discussion

This result shows the demographic status of the community pharmacists are male (60%) and female (40%) and the pharmacists age between 20-30 shows (48%), 31-40 shows (36%), and 41-50 shows (16%) were working in community pharmacy sector. There are various factors that influencing dispensing factors they are as follows, illegible handwriting on prescription made by practioner (often-28%,and rare-

44%,never-28%),duplication error made by same sounds/confusion about drugs (often-36%, rare-40%,never-24%), dosing error (often-48%/rare-44%, never-8%),due to heavy work load (often-52%, rare-32%,never-16%), because of generic drug existence (often-56%, rare-28%,never-16%),and finally any distractions affects (often-52%,rare-36%,never-12%). The most commonly occurring error in dispensing was generic drug existence it shows very often by (56%) and occurs due to look alike/sound alike reasons of the drugs. Because most of the drugs names are

look/sound like other drugs it makes confusion to the pharmacists and causing error<sup>[15]</sup>. Another important factors causing error are due to work load of the pharmacists often (52%) and distractions in the pharmacy (52%) such as phone calls, noise, stress to the pharmacists during working hours. Most of the pharmacists in community pharmacists read the prescriptions clearly and properly so there is less chance for prescription misreading. The attitude of the community pharmacists to the patients are good by their way of language for explaining the drugs (84%), spend enough time for talking to the patients about the usage of medicines (64%), they are not getting any interruptions / distractions while dispensing drugs to the patients (20%) and they are counsel about to stop smoking/ alcohol (56%). Then the activities of the community pharmacists such as cross verified the prescribed items before dispensing shows (96%), they are not giving alternative drugs or substitutes without consulting doctor it shows (24%), most of the community pharmacists are explaining the purpose of medicines (88%), they are giving cost effective medicines who are not willing to get high cost medicines (92%), few community pharmacists explaining about the side effects (60%), very rarely they are giving the medicines based on their symptoms (40%) and (64%) of the community pharmacists are attending health related programmes yearly once. The role of community pharmacist in disease management shows mostly they are not counsel for the patients who are taking 4 or more medicines (44%), they are not dispensing any cardiac drugs and diabetic drugs without prescription (8%), only few literate peoples ask about the interactions on food, drug (60%). The community pharmacists play a major role in diabetes management they explain about self-monitoring of blood glucose (64%), few pharmacists explains about the foot care to the diabetic patients (52%), and (64%) community pharmacists ask the diabetic patients about cataract problems and finally (72%) of the community Pharmacists don't change the drug dose without approval from doctor, most of the pharmacists in community pharmacy are explaining about suitable diabetic diets to the patients with diabetes and hypertension.

## 5. Conclusion

The role of community pharmacists plays a very vital in diabetic and hypertensive patients because of more population doctors having less time and they are not able to counsel the patients. The intervention of community pharmacists serves as an important role in disease management, diabetes care the society. The major factor that affects dispensing are distractions and generic drug existence and then pharmacists are made an error due to heavy work load. To overcome these avoid unnecessary drugs existence and reduce the work load for the pharmacists it helps them to relax and feel better to do the work without making any error. The pharmacists are helping the diabetic patients to perform self-monitoring blood glucose level and advising the patients not to change the drug and dose without consultation of doctor. They are giving counselling about suitable diets for controlling blood glucose to the diabetic patients and they create awareness about the major complications of the diabetes. The community pharmacists are mostly giving the cost effective medicines to the peoples who are not able to afford high cost

or branded medicines. Most of the community pharmacists cross check the prescribed medicines before dispensing to the patients as it helps to prevent dispensing error. The community pharmacists are explaining about the usage of antibiotics and they told to take for minimum (5 to 7 days) it helps to overcome antibiotic resistance. Finally we conclude that the community pharmacists' attitude and activities providing a better advice, health tips, and clear idea about drugs it helps very much benefit to the society. But the main issue is the availability of non-pharmacists distracts the community pharmacy profession.

### QUESTIONNAIRE TO ASSESS COMMUNITY PHARMACIST

- |    |   |          |
|----|---|----------|
| 1  | Do you use easy language for giving explanations to the patients?   | (Yes/No) |
| 2  | Do you spend enough time for talking to the patients about how to use their medications?                    | (Yes/No) |
| 3  | Do you explain about the usage of antibiotics?  | (Yes/No) |
| 4  | Do you counsel about the drug -drug interactions or food- drug interactions to the patients?                | (Yes/No) |
| 5  | Do you cross-verify the prescribed items before dispensing to the patients?                                 | (Yes/No) |
| 6  | Do you give any cardiac, diabetic drugs without prescription of a doctor?                                   | (Yes/No) |
| 7  | Do you give any alternative drugs or substitutes without consulting a doctor?                               | (Yes/No) |
| 8  | Any interruptions / distractions in the pharmacy may affect you while dispensing the drugs to the patients? | (Yes/No) |
| 9  | Do you explain the purpose of medications to the patients?  | (Yes/No) |
| 10 | Do you give any cost effective medicines for the patients who are not able to buy branded drugs?            | (Yes/No) |
| 11 | Do you explain about any possible side effects?   | (Yes/No) |
| 12 | Do you counsel for the patients about stop Smoking/ alcohol?  | (Yes/No) |
| 13 | Do you give any drugs based on their symptoms?  | (Yes/No) |
| 14 | Do you counsel for the patients who are taking four or more medicines?                                      | (Yes/No) |
| 15 | Do you counsel about suitable diabetic diets are essential for controlling blood glucose?                   | (Yes/No) |
| 16 | Do you tell to the diabetic patients that they need proper foot care?                                       | (Yes/No) |
| 17 | Do you ask diabetic patients about cataract symptoms and if any ocular problems?                            | (Yes/No) |
| 18 | Do you attend any health related awareness Program?   | (Yes/No) |
| 19 | Do you explain how to perform self monitoring blood glucose level?  | (Yes/No) |
| 20 | Do you tell to the patient not to change the drug dosage without approval from doctor?                      | (Yes/No) |

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