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## A Survey to Assess the Prevalence of Drug-Related Problems Identified in Community Pharmacy at Palakkad District



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### ABSTRACT

*Objective:* The objective of the study was to prospectively determine the drug-related problems (DRPs) encountered in community pharmacy at Palakkad district. Most DRPs are avoidable and community pharmacies are assuming an active role in preventing and solving DRPs. *Method:* A total of 256 prescriptions were included in the study. The study was designed as a prospective observational study. The study was carried out for a period of six months. Predesigned data entry form was prepared to obtain the relevant data required for the study after getting patient consent. *Result:* The drug-related problems identified in the community pharmacy were drug interactions, wrong frequency and wrong dose. The demographic profile of patients was recorded in 37.5% prescriptions. The diagnosis of the disease was mentioned in 21.09% of prescriptions. It was further recorded that the dose and frequency of drug administration were also mentioned in 35.54% prescriptions. The dosage form of the drug administration was mentioned in 38.67% prescriptions. *Conclusion:* Our study reveals that prescriptions in terms of rationality and completeness need to strengthen to improve pharmaceutical care. DRPs such as inappropriate prescription, clinically relevant drug interactions, wrong dose, wrong frequency and missing information are common. The drug-related problems identified were classified problems according to PCNE classification of DRPs.



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## **INTRODUCTION**

A drug-related problem is defined as an event or circumstance involving drug treatment that actually or potentially interferes with desired health outcomes. Drug-related problems (DRPs) are known to be a major problem associated with Pharmacotherapy. Drug-related problems lead to ineffective pharmacotherapy and may cause drug-related morbidity and mortality. The number of prescriptions dispensed in pharmacies is one measure of the utilization of pharmaceutical services in the community. As the number and potency of available drugs increases, drug prescribing and use becomes more complex, leading to a variety of drug-related problems. Pharmacists are health care professionals with skills and training to ensure the effective and safe use of medications. Important reasons of irrational drug prescription are a lack of knowledge about drugs, unethical drug promotions, and irrational prescribing habits. Any deviation from the intended beneficial effect of a medication results in a drug-related problem (DRP). Clinical pharmacy services in community-based pharmacies help to reduce drug-related problems in the outpatient setting. Pharmacists who conduct concurrent drug reviews before dispensing medications provide a firm basis for implementing pharmaceutical care. During the quality improvement process, the causes that potentially lead to problems resulting from pharmacotherapy should be identified and corrected. This philosophy around optimizing the outcomes of pharmacotherapy and pharmaceutical care lead to the concept of DRPs, indicating some problem in the pharmacotherapy of the patients. It would be much better to prevent drug-related problems than to correct them, but this is not always possible because of the complexity of pharmacotherapy, lack of training and knowledge of health care providers and the behavior of the medicine users.

## **MATERIALS AND METHODS**

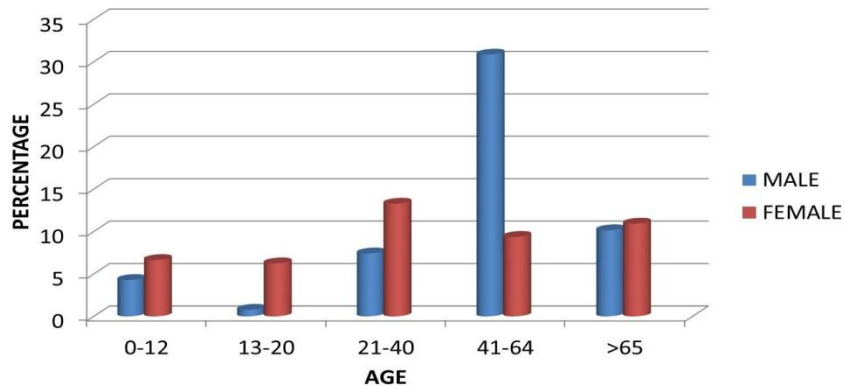
The study was conducted in a community pharmacy in Palakkad district, India. The study is a prospective observational study. Predesigned data entry form was prepared to obtain the relevant data required for the study. The data collection was carried out for the duration of six months. A total of 256 prescriptions were included in the study. Patients with prescription and showing willingness to participate were included in the study. Patients visiting the counter for OTC medications were excluded. Data were analyzed through identification and categorization of

drug-related problems which were done according to the Pharmaceutical Care Network Europe (PCNE) Classification of drug-related problems.

**RESULTS**

**Table 1: Demographic details of patients**

AGE (Years)	FEMALE		MALES	
	Total number of prescriptions(n=256)	Percentage (%)	Total number of prescriptions( n=256)	Percentage (%)
0-12	11	4.29	17	6.64
13-20	2	0.78	16	6.25
21-40	19	7.42	34	13.28
41-64	79	30.85	24	9.37
>65	26	10.15	28	10.93

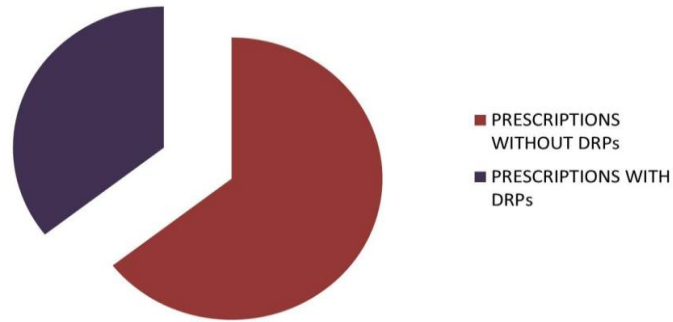


**Figure 1: Demographic details of patients**

**Table 2: Incidence of drug-related problem**

Drug related problem	Total number of prescriptions (n=256)	Percentage (%)
Prescriptions with DRPs	91	35.54
Prescriptions without DRPs	165	64.45

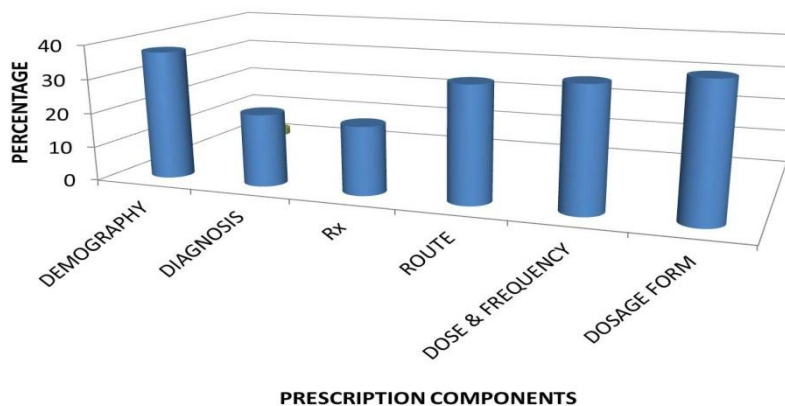
**Figure 2: Incidence of drug-related problem**



**Table 3: Percentage of prescriptions with prescription components**

Prescription components	Total number of prescriptions(n=256)	Percentage of prescriptions(%)
prescriptions with demographic parameters of patient	96	37.5
Prescriptions with diagnosis mentioned	54	21.09
Prescriptions with Rx mentioned	51	19.92
Prescriptions with route of administration mentioned	86	33.59
Prescriptions with dose & frequency mentioned	91	35.54
Prescriptions with dosage form mentioned	99	38.67

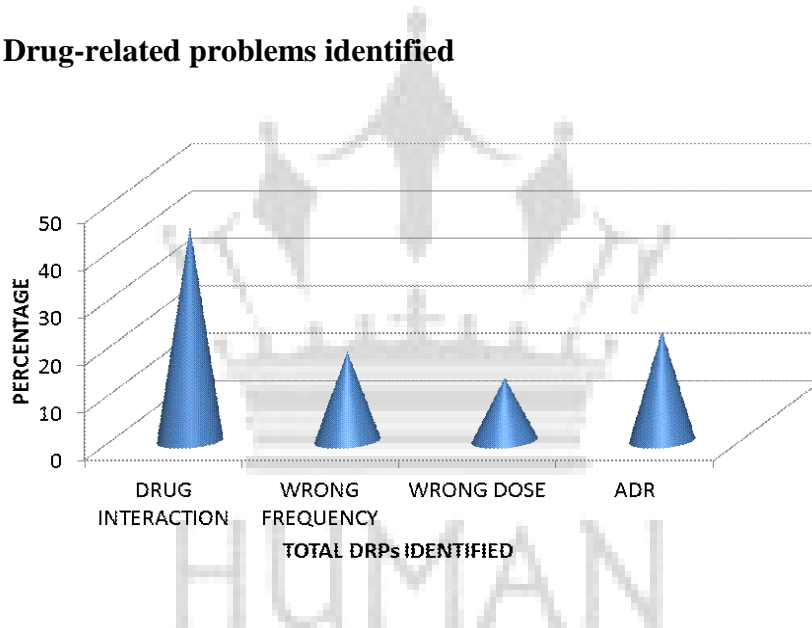
**Figure 3: Percentage of prescriptions with prescription components**



**Table 4: Total Drug-related problems identified**

DRP Type	Total DRPs (n=91)	Percentage(%)
Drug interaction	41	45.05
Wrong frequency	17	18.68
Wrong dose	12	13.18
ADR	21	23.07

**Figure 4: Total Drug-related problems identified**



**Table 5: Diagnosis associated with drug-related problems**

Diagnosis	Total number of prescriptions(n=256)	Percentage of prescriptions(%)
Hypertension	36	14.06
DM	38	14.84
Allergy	24	9.37
CHF	16	6.25
Bronchial asthma	21	8.20

Figure 5: Diagnosis associated with drug-related problems

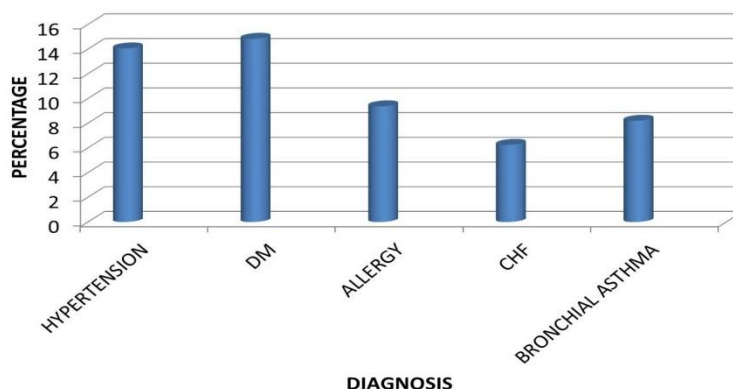


Table 6: DRPs classified according to PCNE classification

	Primary domain	Total number of DRPs(n=91)	Percentage (%)
Problems	ADR	21	23.07
	Interaction	41	45.05
	Frequency	17	18.68
causes	Drug/Dose selection	12	13.18

## DISCUSSION

The prime goal of the study was to assess the Drug-related problems in community pharmacy. A total of 256 cases collected from the study site based on inclusion and exclusion criteria using the data collection form.

Table-1 shows the demographic details of the patients, the maximum number of patients (40.23%) belonged to the age group of 41-64 years and the number of female patients(53.51%) are more compared to males(46.47%). Andrea Hammerlein *et al.*, the study also showed a similar result.

Table-2 shows the incidence of DRPs in community pharmacy. The total number of prescriptions with drug related problems is 91(35.54%). Mohamed Al-Arifi et al., also conducted the same study.

Table-3 shows the percentage of prescriptions with prescription components. The study reveals that only in (19.92%) prescriptions, Rx is mentioned. Shipra Jain *et al.*, also conducted the same study.

Table-4 shows the total drug-related problems identified and it reveals that Drug interaction(45.05%) is the major drug-related problem identified in the community pharmacy. Nimmy N John *et al.* study also shows the similar result.

Table-5 shows the diagnosis associated with drug-related problems. Drug-related problems were commonly seen in hypertensive patients(14.06%). Mohamed Al-Arifi *et al.* also conducted the same study.

Table 6: shows the DRPs classified according to PCNE classification system. The majority of DRPs coming under the primary domain and interactions was the major problem observed. Foppe Van Mil study describes this classification system.

## CONCLUSION

Drug-related problems were the major problem observed in the study. Our study reveals that prescriptions in terms of rationality and completeness need to strengthen to improve pharmaceutical care. DRPs such as inappropriate prescription, clinically relevant drug interactions, wrong dose, wrong frequency and missing information are common. The drug-related problems identified were classified problems according to PCNE classification of DRPs.

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