

# Knowledge, Perceptions and Practices of Drug Dispensers towards Self-Medication of Red Eye in a Tier Two City of South India

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## ABSTRACT

**Introduction:** Red eye is a common ocular symptom. It is not rare to see people involve in self-medication by going directly to the pharmacy and buying eye drops for redness of eyes. Indiscriminate use, misuse and abuse of certain eye drops can lead to hazardous complications. The objective of this study was to assess the knowledge, perceptions and practices of drug dispensers about red eye when a patient seeks eye drops without a doctor's prescription. **Materials and methods:** This cross-sectional study was conducted among drug dispensers working in pharmacies of a tier two city of South India. A total of 159 drug dispensers were interviewed using a predesigned questionnaire. Data was entered and analysed using SPSS software. Descriptive statistics and Chi-Square test were used for analysis. **Results:** Dispensing of eye drops over the counter was commonly practiced by the drug dispensers (62.9%). Majority of them had good knowledge about the nature of the disease (61.6%) and content of the eye drops that they dispensed (65.4%). Most of them (92.5%) told the customers to consult the ophthalmologist in case their symptoms did not subside or worsened. **Conclusions:** Even though dispensing over the counter medicines for red eye was a common practice, the drug dispensers exhibited good knowledge, perceptions and practices which are welcome signs with regard to their role in 'responsible self-medication'.

**KEY WORDS:** Red eye, Conjunctivitis, Self-medication, Pharmacists, Drug dispensers, Non-prescription drugs.

## Introduction

Red eye is a very commonly seen ocular symptom and is usually used to indicate conjunctivitis by the general population. The cause for redness of eyes could be any infectious or inflammatory pathology involving conjunctiva, lids, cornea or even internal structures of the eye.<sup>[1]</sup> Ideally, any patient having redness of eye should consult an ophthalmologist or a health care worker and should be evaluated, treated

or referred based on the diagnosis. However, it is not uncommon to see many people going directly to the pharmacy and buying eye drops for redness of eyes ['self-medication' or 'over the counter' (OTC) use of medicines].<sup>[2-5]</sup>

Apart from being a common phenomenon all over the world, self-medication has been reported to be very common in the developing countries, where large range of drugs are available without prescription. It is also a commonly seen practice in India.<sup>[2]</sup> Regarding self-medication in ophthalmic practice, the evidence is scarce in Indian population. Use of ophthalmic medicines without supervision by an ophthalmologist may have adverse effects on the patient's visual outcome, due to a delayed diagnosis, inappropriate treatment, masking severe pathologies or causing side-effects, intoxication or harmful drug

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interactions. Pharmacists and their assistants have a key role to play in providing patients with assistance, advice and information about medicines available for self-medication. The public interest will best be served when self-medication is responsible, only undertaken when it is appropriate to do so and advice is always given to seek a consultation with an ophthalmologist when that is necessary.<sup>[2,3]</sup>

This study was conducted with an intention to assess the knowledge and perceptions of drug dispensers when a patient seeks eye drops for red eye; and also to assess their practices in dispensing the self-medication (eye drops) for the various conditions causing red eye.

## Materials and Methods

This cross-sectional study was conducted in Mangaluru, a tier two coastal city of Karnataka, south India which has a high literacy rate and good healthcare facilities. Drug dispensers working in pharmacies irrespective of them being qualified pharmacists or assistants were the study subjects. A process of purposive sampling technique was used to select the study participants. The sample size calculated for the study was 154 using the formula  $Z^2 * p * q / e^2$  and a non-response rate of 10%, where 'p' was the overall proportion (89.9%) of pharmacy workers dispensing over the counter eye drops in an earlier study from the same region<sup>[6]</sup> and 'e' was the allowable error (5%). A total of 159 drug dispensers were interviewed by the end of this study and all were included for the analysis.

Data was collected by interview method during June to September 2016. A predesigned structured interview schedule was used to seek the required information. Approval from institutional ethics committee (YUEC 265/2016 dated 23.05.2016) was obtained before the start of the data collection. Data collected was analysed for descriptive statistics using IBM Statistical Package for the Social Sciences (SPSS) for Windows, Version 23.0. Chicago, SPSS Inc. Chi-Square test was used to test the association between the socio-demographic variables and categories of perceptions and practices of drug dispensers. A p-value of less than 0.05 was considered as statistically significant.

## Definition of terms in the study

1. Drug dispensers: All the pharmacy workers who were dispensing the medicines in the medical shops at the time of visit irrespective of qualified

pharmacists or assistants.

2. Self medication: A behaviour of an individual to self administer treatment after self recognising their symptoms, without consulting and taking drug prescription from doctor.<sup>[7]</sup>
3. Good knowledge: Knowing that red eye/conjunctivitis is an infectious/contagious condition, knowing the other causes of red eye (like allergy, infection, trauma etc); knowing the contents, indications and contraindications of the eye drops being dispensed (like when not to give steroid eye drops).
4. Good perceptions: Agreeing that indiscriminate use of certain eye drops can lead to vision threatening side effects/ hazardous complications; agreeing that it is necessary to find out some details like age of the patient, duration of redness, vision, pain or history of trauma before dispensing the medications; agreeing that a patient with red eye should consult an ophthalmologist rather self-medicating.
5. Good practices: Asking whether the eye drop he is buying is for himself or proxy; providing the customer with some advice such as measures to prevent spread of conjunctivitis; and telling the customer to consult ophthalmologist if the symptoms do not subside or worsen.

## Results

A total of 159 drug dispensers participated in this study. The mean age of participants was 27.4 ( $\pm 8.5$ ) years. Among these, 96 (60.4%) were males and 63 (39.6%) were females. About 74 (46.5%) were qualified with a diploma/ graduation and above and were qualified pharmacists. One hundred and ten (69.2%) participants had less than 5 years of experience, 40 (25.2%) had 5-10 years of experience, 9 (5.7%) had more than 10 years of experience working in the pharmacies.

The knowledge, perceptions and practices of drug dispensers regarding self medication in red eye are presented in Table 1. About 61.6% of drug dispensers knew that conjunctivitis is an infectious and contagious condition and 65.4% had good knowledge about the contents, indications and contra indications of the eye drops which they dispensed. Majority of the drug dispensers (88.1%) felt that taking history with respect to red eye is important. They agreed that it is necessary to find out some details from the customer regarding age of the patient, duration of redness, vision, pain or history of trauma

before dispensing the medications. About 82.4% agreed that a patient with red eye should consult an ophthalmologist first. Around 92.5% told the patient to consult ophthalmologist if the symptoms did not subside or if condition worsened.

The various types of eye drops dispensed by the drug dispenser when a patient sought self medication for red eye are shown in Table 2. Around 64.2% patients were dispensed with antibiotic eye drops. We tested the association of knowledge, perception and practices of the drug dispensers with their age, gender, education levels and years of experience. However, no statistical significant association was observed.

**Discussion**

Self-medication is defined as the selection and use of medicines by individuals (or a member of the individuals’ family) to treat self-recognized or self-diagnosed conditions or symptoms. Potential risks of self-medication practices include incorrect self-diagnosis, delays in seeking medical care, adverse reactions and drug interactions, incorrect administration/ dosage/ choice of therapy, masking of a severe disease and risk of dependence.<sup>[8]</sup> Red eye is a very common symptom for which people seek self-medication. When people go to the pharmacy without prescription and ask for medications for a red eye, in most instances over the counter eye drops are dispensed.<sup>[2,6]</sup> However, it becomes important that the drug dispenser makes a correct decision at this time. Recognition of situations where referral is required can prevent the possibilities of permanent loss of vision. It needs to be noted here that not all the pharmacy workers who dispense medicines are qualified pharmacists. Studies from various parts of India have shown that this proportion working in private pharmacies ranged between 11% and 48%.<sup>[9-11]</sup> In our study too, less than half were having a formal degree in pharmacy. However, there was no association observed between the educational level and knowledge, perceptions and practice towards drug dispensing unlike in another study from Puducherry.<sup>[11]</sup>

Many studies have discussed the over the counter use of eye drops from patients’ perspectives by interviewing them.<sup>[2-5,12-15]</sup> In contrast to all the above studies, we considered this issue from the drug dispenser’s point of view which has been looked into by a handful of studies from Indian context.<sup>[6]</sup> When we look at the usage of eye drops from patient’s

**Table 1: Knowledge, perceptions and practices of drug dispensers with respect to red eye, Mangaluru, June-September, 2016 (N=159)**

Knowledge		n (%)
Nature of the disease	Knew that conjunctivitis could be contagious	98 (61.6)
	Did not know	61 (38.4)
	Allergy	87 (54.7)
Cause of conjunctivitis	Inflammation/ Infection	8 (5)
	Trauma	2 (1.3)
	All the above	62 (39)
Contents, indications and contra indications of eye drops	Good knowledge	104 (65.4)
	Poor knowledge	55 (34.6)
Side effects of eye drops	Good knowledge	65 (40.9)
	Poor knowledge	94 (59.1)
Perceptions		n (%)
Felt that history taking is important	Yes	140 (88.1)
	No	19 (11.9)
Felt that consulting ophthalmologist before starting medication is important	Yes	131 (82.4)
	No	28 (17.6)
Practices		n (%)
Asked the patient if it was for himself/ herself or proxy	Yes	127 (79.9)
	No	32 (20.1)
Advised the patient regarding spread of conjunctivitis	Yes	97 (61)
	No	62 (39)
Advised the patient to consult an Ophthalmologist in case of worsening of symptoms	Yes	147 (92.5)
	No	12 (7.5)

**Table 2: Profile of the various types of eye drops dispensed by the drug dispenser during the last encounter with the patient with red eye, Mangaluru, June-September, 2016, (N=159)**

Type of eye drops dispensed for red eye during the last encounter	Number	Percent
Antibiotic	102	64.2%
Antibiotic-Steroid combination	5	3.1%
Lubricating	9	5.7%
Anti-allergic	9	5.7%
Any other	10	6.3%
None of these	18	11.3%
Cannot recall	6	3.8%
Total	159	100%

perspective, we realized that the responsibility on drug dispensers is huge. Some patients do not even remember the name or the type of eye drop they have used. Majority of patients do not know the contents of the eye drops and their side effects.<sup>[3]</sup> Some patients have even experienced side effects of the medicine.<sup>[2,4]</sup> The utilized medications were inappropriate in 90% of the respondents who utilized them.<sup>[5]</sup>

In our study, redness of eyes was the most common reason followed by itching of eyes for which the patient sought eye medication which is similar to many other studies.<sup>[2,6]</sup> Around two out of three drug dispensers in our study gave eye drops for red eye without prescription; and they had good knowledge about the ocular condition causing red eye and the contents, indications and contra indications of the eye drops dispensed. Antibiotic eye drops were the most frequently dispensed eye medication. Another study from the same region revealed that dispensing OTC eye drops was practiced by 89.9% of the pharmacists. Antibiotics (96.6%) were the most common eye drops dispensed followed by steroid, decongestants, antibiotic-steroid combination eye drops and lubricants. Awareness regarding complications of steroid use was seen among 40.6% pharmacists. About, 6.7% pharmacists had seen patients with complications following use of over the counter medications.<sup>[6]</sup>

Pharmacists are expected to be careful and cautious while dispensing and to educate the customers about intake and effects of drugs. There are hardly any studies which have tried to find out whether drug dispensers do that especially with regard to

ophthalmic practice.<sup>[6]</sup> In our study, we enquired whether they asked some details about the patient and the disease before dispensing eye drops; whether they provided the customer with some advice such as measures to prevent spread of conjunctivitis and most importantly whether they told the customer to consult ophthalmologist if the symptoms do not subside or worsen. It was found that these practices were good and satisfactory.

The present study has implications towards possibility of making regulations in ophthalmic practice for safe self-medication in basic selected conditions. However, the findings from this study may not be generalisable as there may be regional variations in pharmacy practices and patient dynamics including their literacy level. Public education should be encouraged on responsible use of eye drops and the rules and regulations must be fine-tuned. Utmost care needs to be taken so that the public are properly guided and not misled.

In general, using over the counter medicines is a common practice which saves time and money for the patient. But, there is always a risk of side effects and incorrect diagnosis. A huge amount of responsibility and accountability is required from both the patient and drug dispensers, for safe use of 'over the counter' medication for red eye. The limitation of this study is that patient's perspectives are not studied.

## Conclusion

This study provides useful insight on the knowledge, perceptions and practices of drug dispensers in the pharmacies of Mangaluru, India. In the study, we found that dispensing over the counter medicines for red eye was a common practice. However, awareness of the drug dispensers about all the causes of red eye and indications and contraindications of the eye medications was found to be very good. Majority of them told the patients to consult the ophthalmologist if the symptoms did not subside or worsened.

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