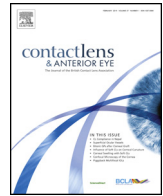




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## Management of dry eye in UK pharmacies



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### ABSTRACT

**Purpose:** To investigate the ability of pharmacy staff in the United Kingdom (UK) to diagnose and treat dry eye.

**Methods:** A mystery shopper technique to simulate a patient with presumed dry eye was used in 50 pharmacy practices in major towns and cities across the UK. Pharmacies were unaware of their involvement in the study. With the exception of a predetermined opening statement to initiate the consultation, no further information was volunteered. Questions asked, diagnoses given, management strategy advised and staff type was recorded immediately after the consultation.

**Results:** The mean number of questions was 4.5 (SD 1.7; range 1–10). The most common question was the duration of symptoms (56%) and the least common was whether the patient had a history of headaches (2%). All pharmacy staff gave a diagnosis, but the majority were incorrect (58%), with only 42% correctly identifying dry eye. Treatment was advised by 92% of pharmacy staff, with the remaining 8% advising referral directly to the patient's GP or optometrist. Dry eye treatments involved topical ocular lubrication via eye drops (90%) and lipid based sprays (10%). However, only 10% gave administration advice, 10% gave dosage advice, 9% asked about contact lens wear, and none offered follow up although 15% also advised GP or optometrist referral.

**Conclusions:** There is a need for improved ophthalmological training amongst pharmacists and pharmacy staff and establishment of cross referral relationships between pharmacies and optometry practices.

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### 1. Introduction

Dry eye is a condition of various aetiologies which causes ocular surface inflammation and corneal and conjunctival epithelial cell damage [1–3]. Symptoms include irritation, grittiness, burning, soreness, watery eyes and visual disturbances potentially affecting one or both eyes [1,4–7]. Dry eye is initiated through mechanisms of tear film hyper-osmolarity and tear film instability [1] and can be broadly divided in to two types, aqueous deficiency and evaporative dry eye [8]. The prevalence of dry eye is reported from large epidemiological studies to range between 5% to over 35%, although different definitions of dry eye between studies make their comparison difficult [9–11]. However, it is expected that the number of dry eye patients encountered in UK clinical practice may increase with an aging population.

The traditional approach to managing dry eye is to provide symptomatic relief through the application of topical lubricants [12]. There is a wide variety of topical lubricants, differing

according to their composition and form – drops, ointments, gels and sprays [13]. Many of these treatments are available as over-the-counter (OTC) preparations in UK pharmacy practices. Indeed, recent reports suggest pharmacies hold over 70% of sales in the eye care market [14]. Despite the wide range of topical lubricants available, there is a paucity of research relating to how dry eye is managed by healthcare professional services in the UK, with most relating to optometrists and ophthalmologists outside the UK [15–18]. The College of Optometrists does provide clinical guidelines on the management of dry eye, but how well they are adhered to remains unknown. A study investigating the scope of optometric therapeutic practice found that 75% of optometrists frequently managed dry eye, and 87% frequently recommended or supplied topical ocular lubricants to patients; although it was not clear what conditions these were advised for [19].

Given the expected increased prevalence of dry eye [11], the large number of OTC dry eye treatments available in pharmacy practice and the lack of objective dry eye management research (there appears to be only four peer reviewed articles in the scientific literature [15–18]), the aim of this study was to investigate the management of dry eye by a sample of community pharmacy practices representative of those across the UK.

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## 2. Methods

A mystery shopper technique was used in 50 community pharmacy practices across the UK by 2 investigators (GLT, PSB) each visiting different practices alone from October 2012 to December 2012. The pharmacies were a mixture of independent ( $n = 12$ ) and chain practices ( $n = 38$ ), selected at random in major cities across the UK. The same mystery shopper scenario was used by both investigators, based upon a previous methodology employed by the investigators in a similar study examining the management of ocular allergy in UK community pharmacies [20]. Furthermore, both investigators recited from the same script so that consistency was maintained. Upon entering the pharmacy practice, the investigators approached the counter and, when acknowledged by the staff (pharmacist or pharmacy staff under supervision of a pharmacist), made the following opening statement to begin the consultation:

“My mother’s eyes are sore and gritty. What would you recommend?”

The scenario answers to questions on patient history and symptoms were based upon the definition of dry eye provided by the International Dry Eye Workshop [1]. The subsequent investigation was based upon the responses to these questions, shown in Table 1.

The investigators answered the above questions only when asked but did not volunteer any information other than the opening statement. Inevitable variations in the exact phrase of each question were accepted and answered appropriately – for example “did you notice any changes in your vision” was accepted for “visual disturbances”. At each consultation attention was paid to whether or not the above questions were asked, the subsequent diagnosis, management strategy, and whether a referral was made, including within the same pharmacy. Immediately after leaving each pharmacy practice these details were recorded in a table by hand. All data was then transferred into Microsoft Excel (Microsoft, USA) spreadsheets for analysis.

Pharmacy practices were not informed that the study was taking place and were visited in random order in a particular location. The order of the locations visited was according to practical and logistical convenience. This study received ethical approval by the Aston University Institutional Review Board and conformed to the Tenets of the Declaration of Helsinki.

**Table 1**

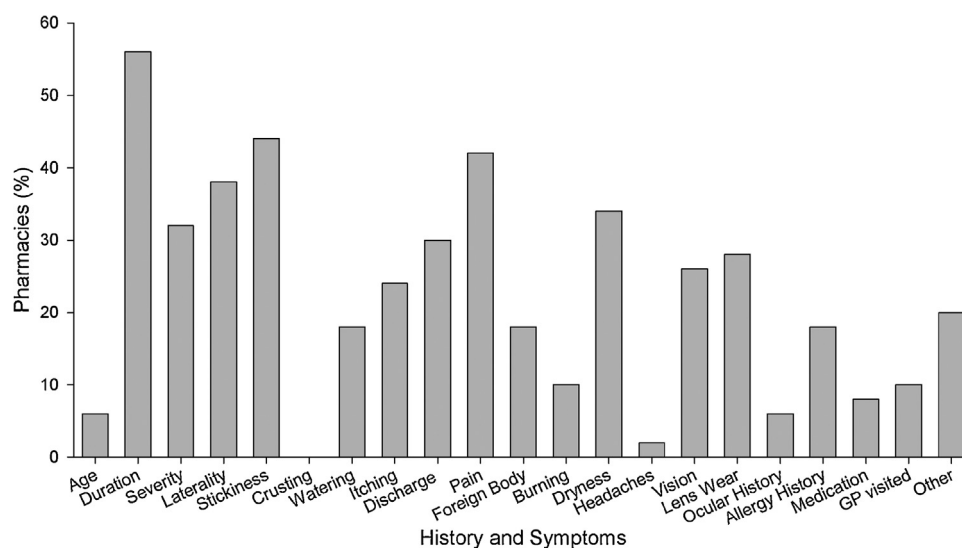
Mystery shopper scenario answers to the questions on patient history and symptoms indicating a diagnosis of dry eye.

Question	Scenario answer
Age of patient?	50
Duration of symptoms?	2 weeks
History of allergies?	No
Severity of symptoms?	Moderate but not lifestyle changing or debilitating
Bilateral or unilateral?	Bilateral – both eyes affected equally
Stickiness or crusting?	No
Watering or tearing?	Sometimes
Itching?	No
Discharge?	No
Pain?	No
Foreign body sensation?	Yes, occasionally
Burning?	Yes, occasionally but mild
Headaches?	No
Dryness?	Yes, worse toward end of the day
Visual disturbance/changes?	Vision improves after blink
Contact lens wearer?	No
History of eye problems?	No
Previous treatment used?	Not known
Concurrent medication?	No
GP appointment taken place?	No
Other	No

## 3. Results

A total of 50 pharmacies were visited between July 2012 and January 2013 in major cities across the UK, including London ( $n = 12$ ), Birmingham ( $n = 5$ ), Manchester ( $n = 9$ ), Worcester ( $n = 7$ ), Bristol ( $n = 7$ ), Leeds ( $n = 3$ ) and Nottingham ( $n = 7$ ). Of these, 38 were chain and 12 were independent businesses. Staff types from name badges or identification included pharmacists ( $n = 34$ ), pharmacy assistants ( $n = 3$ ), dispensing assistants ( $n = 4$ ), pharmacy manager ( $n = 3$ ), and an unknown group (unidentifiable from name badges or identification,  $n = 6$ ).

The mean number of history and symptom questions asked by UK pharmacy staff was 4.5 (SD 1.7; range 1–10), with the most common being duration of symptoms (56%,  $n = 28$ ). The least common was whether the patient had a history of headaches (2%,  $n = 1$ ), whereas no staff member asked for the presence of crusting (Fig. 1). Twenty-per cent ( $n = 10$ ) of staff asked additional questions (“other”), including whether there was a history of computer use ( $n = 2$ ), when and if symptoms increased in severity ( $n = 3$ ), a



**Fig. 1.** Percentage of each history and symptom questions asked by UK pharmacy staff ( $n = 50$ ). The symptom categories along the x-axis are based on the Dry Eye Workshop classification.

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