

ORIGINAL ARTICLE

Self-medication in Ophthalmology: A Questionnaire-based Study in an Argentinean Population

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ABSTRACT

Purpose: The aim of this study was to identify practices of self-medication in the treatment of ocular conditions and to identify a profile of patients who self-medicate.

Methods: We conducted a cross-sectional descriptive survey of patients, over the age of 17 years seen in our ophthalmology practice in Cordoba, Argentina. Self-medication was defined as the use of ophthalmic medicines which had not been prescribed by a health care specialist in the previous year.

Results: The sample included 379 subjects, 162 males (43%) and 217 females (57%); mean age 46.8 years. Prior to looking for medical attention in our institution, 97 patients (25.6%) reported self-medicating. The most frequently employed products included non-steroidal anti-inflammatory drops in combination with a vasoconstrictive agent (32%) followed by a combination of antibiotics and steroids (9%), however, 14% of patients did not remember the name or type of medication applied. A total of 31% of patients used drugs recommended by a pharmacist; 25% used drugs of their own choosing and 24% followed suggestions from a friend or family member. Only 12% of patients knew the drug's components and only 3% were aware of any possible side effects. There was no difference in behavior patterns related to educational level or age, however, there was a significant difference related to gender, with males misusing ophthalmic drops more frequently than women ($P = 0.004$).

Conclusions: Patients commonly attempt to treat conditions that require ophthalmologic care by self-medicating with over-the-counter eye drops. Educational efforts to inform patients of the consequences of self-medication are necessary.

KEYWORDS: Argentina, Cultural habits, Over-the-counter drugs, Self-medication, Survey

INTRODUCTION

Most ophthalmic pathologies, whether acute or chronic, frequently require the use of eye drops or some systemic medication. Even though Western medicine places the physician as the official provider for these treatments, many patients with eye complaints treat themselves before, or instead of, seeking medical care.^{1,2}

Self-medication is defined by the World Health Organization as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms.³ This behavior includes purchasing drugs without a prescription, using leftover doses from previous

prescriptions, sharing drugs with other family members or social groups, or misusing the medical prescription either by prolonging, interrupting or modifying the dosage and the administration period.⁴⁻⁶

Several factors may contribute to the growth and spread of this habit, including economic, cultural and political factors.⁷⁻⁹ Self-medication is a common phenomenon all over the world,¹⁰ especially in developing countries¹¹⁻¹³ where easy accessibility to a large range of drugs without prescription, the growing number of over-the-counter (OTC) medicines, irresponsible publicity, and difficult access to health care services, contribute to its practice.^{5,7,8,14-19} Interestingly, the consumption of pharmaceuticals is

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considered by many to be an indirect indicator of the quality of health care services.^{4,7,16,17,20}

Self-medication can have serious consequences for patients.^{21,22} 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 interactions.²³⁻²⁵

There are very few publications on self-medication in ophthalmology worldwide and to date, no published data at all on this specific issue in Argentina.

The aim of this study was to identify the prevalence of ophthalmologic self-medication with commercial eye-drops, the type of medications involved, the profile of individuals who self-medicate and the features of such behavior in patients who were seen in a private, tertiary care ophthalmology center in the city of Cordoba, Argentina.

MATERIALS AND METHODS

This is a descriptive, cross-sectional study of patients seen at the Centro Privado de Ojos Romagosa, a private, referral, tertiary care ophthalmology clinic in Cordoba, Argentina.

In this survey we included all patients over the age of 17 years who were seen for the first time in our institution between August and October, 2009.

All patients completed a short semi-structured questionnaire specially prepared by the authors. The questionnaire collected demographic data such as patient's age, sex, level of education and use of eye drops in the previous 12 months. Participants who admitted self-medicating were also asked about the type of medication used, and the reasons which led to the decision to self-medicate, their knowledge about the base ingredients of the product or its adverse reactions, if they had read the patient information leaflet, and why they had not consulted a specialist prior to using the medication. A few examples of these questions include:

- (1) What is the highest level of education that you have completed?
- (2) Are you currently using or have you used ophthalmic medications not prescribed by a health care specialist in the previous year? If yes, which drug were you employing?
- (3) Who encouraged you to use the un-prescribed medication?
- (4) What motivated you to self-medicate?
- (5) Which were the complaints that motivated you to self-medicate?
- (6) Which was your primary reason for not consulting with a licensed health care specialist?
- (7) Are you aware of the side effects of the used eye-drop? Have you read the patient information

leaflet? Did you know the components of the medication used?

All participants were informed about the scope and purpose of the study and told that it was voluntary to participate, without compensation, and that their medical care would not be compromised if they refused to participate in the survey. Informed consent was obtained in every case prior to being given the questionnaire and no patient refused to participate.

This submission received ethical approval from the Oulton-Romagosa Joint Committee on Clinical Investigation (CIEIS OULTON-Romagosa).

The interview was conducted by three medical doctors (MGE, SVM, ZN) who were previously trained during a pilot trial. This served to improve the interrogation technique and refine the questionnaire.

The types of medication used were classified into seven groups: antibiotics, anti-allergic drugs, corticosteroids, non-steroidal anti-inflammatory drugs (NSAIDs), vasoconstrictors, saline solution and other substances. Pharmacological associations were taken into consideration.

Regarding educational level, five divisions were established: (1) illiterate or incomplete primary school; (2) completed primary school; (3) completed secondary school; (4) completion of University or tertiary studies and (5) no data available.

Four age groups were arbitrarily assigned: 18–30 years old, 31–50, 51–70, and older than 71 years.

All results were analyzed using a descriptive analysis of the sample. Data obtained were entered into a database and analyzed using Microsoft Excel (2003) and SPSS version 11.5. The level of significance in the statistical analyses was $P \leq 0.05$.

RESULTS

The sample included 379 subjects, 162 (43%) male and 217 (57%) female, with a mean age of 46.8 years. All subjects completed the questionnaire. Patients' demographic characteristics are shown in Table 1.

Prior to looking for medical care in our institution, 97 patients (25.6%) reported self-medicating with eye-drops within the last year; 92 (24.3%) were using medication prescribed by an ophthalmologist and 9 (2.4%) by a general physician, while 181 (47.8%) were not taking any medicine at all (Fig. 1). The most frequently used products included a non-steroidal anti-inflammatory drop in combination with a vasoconstrictive agent (32%), followed by a combination of antibiotics and steroids (9%). However, 14% of patients did not remember the name or type of medication applied (Table 2). Of the patients who self-medicated, 31% used drugs recommended by a pharmacist; 25% used drugs at their own discretion without external advice and 24% followed suggestions from a friend or family member (Fig. 2).

TABLE 1 Demographic characteristics of the study population, Cordoba, Argentina.

Age, years	
Mean	46.8
Range	18–92
Sex, n (%)	
Male	162 (43)
Female	217 (57)
Education levels, n (%)	
Illiterate or incomplete primary school	9 (2.4)
Completed primary school	92 (24.3)
Completed secondary school	157 (41.4)
Completion of University or tertiary studies	94 (24.8)
No data available	27 (7.1)

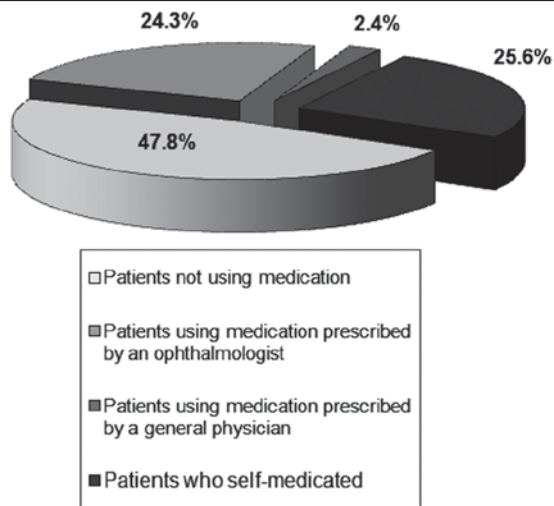


FIGURE 1 Prevalence of self-medication in the study population.

TABLE 2 Type of medication used in the practice of self-medication.

Medication used	n (%)
Vasoconstrictive agent + non-steroidal anti-inflammatory drops	1 (32)
Patient did not remember the medication used	4 (14.4)
Antibiotics and steroids	9 (9.3)
Vasoconstrictive agent	7 (7.2)
Antibiotics + steroids + anti-allergic eye drops + vasoconstrictive agent	7 (7.2)
Artificial tears	6 (6.2)
Antibiotic eye drops	4 (4.1)
Antibiotics + vasoconstrictive agent	4 (4.1)
Other	15 (15.5)

Only 12% of patients who self-medicated knew the components of the medication and only 3% were acquainted with possible side effects. Fewer than 25% had read the patient information leaflet (Table 3).

There was a significant gender difference in self-medication practices, with 33% of males compared to 20% of females admitting to the practice of self-medication ($P = 0.004$, Table 4). There was no significant difference found by age group or level of education. There was, however, a higher tendency to self-medication observed

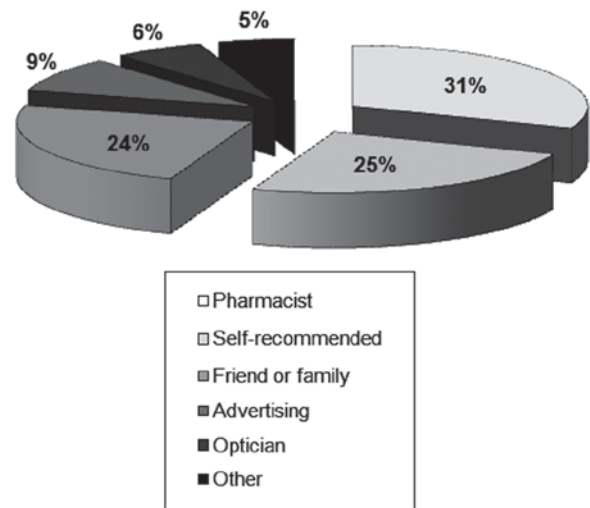


FIGURE 2 Sources of recommendation in patients who self-medicate.

TABLE 3 Drug information knowledge among patients who self-medicated.

Patient knowledge	n (%)
Patients who had read the patient information leaflet.	24 (25)
Patients who knew the components of the medication used.	12 (12)
Patients who were acquainted with the possible side effects of the medication used.	3 (3)

TABLE 4 Demographic characteristics of the patients who self-medicate.

Characteristic	n (%)
Prevalence of self-medication by age	
18–30 years	30 (28.3)
31–50 years	33 (28.5)
51–70 years	22 (22.0)
71–88 years	12 (21.0)
Sex	
Male	54 (33.3)*
Female	43 (19.8)**
Education level	
Illiterate and/or incomplete primary school	4 (4.1)
Completed primary school	19 (19.6)
Completed secondary school	39 (40.2)
Completion of University or tertiary studies	31 (32.0)
No data available	4 (4.1)

*% of all males in the study population, **% of all females in the study population.

with increasing educational levels. Participant distribution by age is shown in Table 4.

The most common reasons reported that led to self-medication are shown in Table 5. The major motives stated by the participants for treating themselves with drugs without prescription or without seeking medical attention, were that they considered themselves qualified to decide which medication to use.

A diagnosis was confirmed in 93 (95.9%) of the self-medicated patients. As shown in Table 6, patients diagnosed with inflammation or infection had the highest rates of self-medication (49.5%), followed by those with symptoms of dry eyes (12.4%). As expected, patients exhibiting normal ophthalmological exams showed the lowest rates of self-medication (1.0%).

DISCUSSION

When a person becomes ill, individuals may want to self-medicate in a number of ways before, after or even without looking for professional medical care. Usually these methods include pharmaceutical products or traditional medicines. Why self-medication is seen as an

option when people become ill is not a simple question to answer, and the reasons may vary in different populations.

Despite Argentinean policies that restrict the dispensing of drugs without prescription, the patients in our study population self-medicated with eye drops as a common practice.

The present study used a questionnaire to examine the extent of ocular self-medication, with commercial eye drops in patients seen in a private ophthalmology practice in Cordoba, the second largest city in Argentina. Self-medication was confirmed in 25.6% of the survey sample, showing that one in four patients self-medicates before seeking medical advice. This practice is not exclusive to Argentina as evidenced in the study of Kara-José who reported almost the same percentage in a larger population of 1000 patients from Campinas, Brazil.²⁶

This rate is fairly low when compared to frequencies published by studies from two other Latin-American countries, which reported prevalences of self-medication of 75% and 40.5%.^{27,28} These variations could be related to different study designs. The Chilean study²⁷ was carried out at pharmacies, the survey included only customers who requested OTC medications and included all type of drugs, not only the ones specific to ophthalmic use. The study published by Carvalho²⁸ only sought to identify the practice of self-medication in the treatment of an ocular emergency, while in our study, a cross-sectional descriptive survey was carried out in patients presenting to our clinic requesting ophthalmic care, whether or not they were emergency visits. Another difference between these studies is that ours only considered patients who self-medicated during the previous year, and only included commercial eye drops and not homemade preparations as included in Carvalho's study.²⁸

Similar to the publication from Brazil,²⁸ we found that self-medicating occurs independent of age, although a higher but non-significant difference was found in the 18–50-year-old patients; this is not in agreement with the paper published by Abasaed²⁹ who found that self-medication was significantly affected by the age of the participants surveyed. We believe that one of the

TABLE 5 Reasons for self-medication.

Category		n
1	I considered myself to be qualified to know which medication to use	32
2	A friend/family recommended the medication	16
3	I did not have time to go to the physician	14
4	Someone with the same symptoms recommended it to me	7
5	I was trying to improve my symptoms until I visit the physician	4
6	I was trying to avoid going to the physician	4
7	I had no money to pay for medical consultation	4
8	I had a medication at home	3
9	The optometrist recommended it to me	3
10	Other unspecified reasons	3
11	The pharmacist recommended it to me	3
12	I was out of town	2
13	I could not tolerate my symptoms	1
14	I did not have money to buy the prescribed medicine	1
15	The eye drops were on sale	1
16	The pharmacist gave me a cheaper drug than the physician	1
17	The eye drops calmed my symptoms	1

TABLE 6 Diagnostics categories of self-medicated patients.

Diagnostic Category	Number of patients who self-medicate	%	Pathology/symptoms included in each category
Infection/Inflammation	48	49.5	Conjunctivitis, stye/hordeolum, blepharitis, infectious keratitis.
Dry eye (Keratoconjunctivitis sicca)	12	12.4	Foreign body sensation, tearing, itching, irritation, burning, dry sensation, discharge.
Refraction	11	11.3	Refraction, contact lens related problems, refractive surgery.
Trauma	9	9.3	Corneal foreign body, blunt trauma, subconjunctival hemorrhage.
Degenerative	8	8.2	Pterygium, Cataract, AMD, DR, blepharochalasis, posterior capsule opacification.
Controls	4	4.1	RD, PVD, ocular hypertension
Undiagnosed	4	4.1	
Normal ophthalmologic exam	1	1.0	

AMD, age-related macular degeneration; DR, diabetic retinopathy; RD, retinal detachment; PVD, posterior vitreous detachment.

reasons for the difference in these studies could be that the participants in Abasaed were of different nationalities, whereas our population was more homogeneous, as was the population in the Brazilian study.²⁸ Another contributing factor is the ease of access to acquired antibiotics from the community pharmacies, which in turn is related to a lack of high disciplinary regulations in the United Arab Emirates. Another reason for the variation between the studies could be relative to the broad spectrum of different pathologies for which antibiotics were taken. Our study included all types of medications obtained OTC but exclusively for ophthalmic use.

During the time this study took place, eye drops used without a prescription were mostly used by men. In other self-medication studies,^{27,30} OTC drugs were mostly requested by women. One reason to explain this difference could be that the studies mentioned before were carried out in pharmacies as opposed to ours that was performed by doctors in their offices.

As stated by the participants in our study, the major reason for treatment with drugs without prescription or without first seeking medical assistance was that they considered themselves qualified to decide which medication to use and the fact that they could not obtain prompt medical care. These findings are consistent with the results of the studies presented by Kara-José,²⁶ who also found that difficulties in obtaining medical care was a major reason for these practices. Regarding levels of education, we observed that the more educated the patient, the more likely the practice of self-medication. In contrast to previous reports,³¹ only one patient in our study practiced self-medication because he could not afford the drug prescribed by his ophthalmologist; yet again, our study was completed in a private ophthalmological institution, whereas the article by Greenhalgh reported on self-medication in both urban and rural areas.

In Argentina, patients often first rely on the discretion of the pharmacist to decide which drug is useful for their complaint followed by an individual decision toward which eye drop to use for their eye disease. This patient behavior is in agreement with that reported in Brazil,²⁶ where the majority of surveyed patients (52.1%) decided on their own to use drugs without external advice. We also found that pharmacists showed a tendency to recommend the same drug to different consumers despite the different presenting pathologies. Pharmacists and their assistants play an important role in promoting self-medication all over the world.³²

In accordance with other reported results,²⁷ NSAIDs were one of the most commonly used drugs for self-medication. The most frequently used product found in our sample was a non-steroidal anti-inflammatory drop combined with a vasoconstrictive agent (32%). This is also in agreement with previous studies reporting decongestants as one of the most frequently used OTC medications.³³

Even though many people in Argentina routinely use eye drops that are considered to be "mild" or harmless such as artificial tears or vasoconstrictors, it is known

that the use of these substances may delay appropriate treatment of a more serious condition.³⁴ Moreover, topical NSAIDs are not harmless since they have been associated with corneal complications such as corneal melting,²² and potential risk factors, such as use of concurrent topical steroids or epithelial keratopathy, would not have been identified and could predispose the patient to this dangerous ophthalmic condition.

In our study, no more than 12% of the patients who self-medicated knew the components of the drugs, only 3% were acquainted with the side effects of the eye drops, and only 25% of the patients had read the drug information leaflets. This is not in agreement with the report published by Tayanithi¹⁰ where more than 50% of patients had read the instructions on the label of the OTC eye drops before use. However, our findings closely parallel results of other studies which stated that consumers used medications without proper knowledge of their benefits or secondary effects.²⁷ The differences in these studies could be explained by the fact that the Bangkok population surveyed younger patients (aged 15–35 years) and mostly highly educated people whereas our patient population varied widely in educational status and age distribution.

There are some limitations in our study. First, our sample size was relatively small and made up of people who could afford to go to a private ophthalmology practice. Second, some patients may have been afraid to tell the truth about having used OTC medication without supervision by an ophthalmologist.

The sale of eye drops without a prescription seems to be increasing in Argentina as well as in other countries of Latin America.^{26–28} Educational campaigns to better educate patients and inform them of the possible harmful consequences of self-medication is necessary.

In summary, self-medication in ophthalmology in Cordoba, Argentina, is a common phenomenon among people of all ages, diverse levels of education and different genders. The use of OTC eye drops could delay professional medical attention, resulting in serious ophthalmologic complications. Educational measures and changes in health care systems are necessary to prevent the use of unmonitored treatments which may cause irreversible damage to the eye.

This sort of education is the responsibility of everyone, especially professionals working in healthcare. These include pharmacists and their assistants as well as nurses, technicians, optometrists and medical doctors.

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