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Original Research Article

Attitude and practice of Saudi population towards self-medication with over the counter ophthalmic preparations

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ABSTRACT

Background: This study was conducted to identify Saudi populations' attitude and practice towards self-medication with over the counter (OTC) ophthalmic preparations.
Methods: It was cross-sectional online-survey-based study using modified questionnaire from previous study targeting Saudi population (aged 15 years or above). Only who had used OTC ophthalmic preparations were included.
Results: A total of 1426 participants were included and the mean age was 25.5±9.3 years. History of eye diseases were seen in n=860 (60.3%) which is include myopia n=481 (33.7%), dry eye n=296 (20.8%) and vernal keratoconjunctivitis n=180 (12.6%). Fifty four percent of the participants were familiar with OTC preparation (n=767) and n=927 (65.7%) believed that it is not safe to be used. More than one third consider antibiotics, antihistamines and decongestant eye drops as OTC. However, only n=275 (19.5%) think that lubricant eye drops are not under OTC categories. Participants who self-medicated with OTC were n=890 (62.4%), among them n=422 (47.4%) they do not know the names of medication, n=305 (34.3%) used lubricants and n=80 (9%) used antibiotics. Participants received prescription advice from n=208 (39.3%) pharmacists, n=133 (25.1%) relatives' advice and n=26 (4.9%) from social media. Thirty eight percent use OTC because they used it before, while n=217 (27.7%) used it because of its easily accessibility.
Conclusions: Saudi populations have awareness of various categories of OTC ophthalmic preparations. Despite that, those who used it tend to have poor practice.

Keywords: Eye drops, Misuse, Ophthalmic preparation, Over the counter

INTRODUCTION

"Self-medication" is a phenomenon that is defined by World Health Organization (WHO) as the use of the medications to treat self-diagnosed disease, recurrent symptoms or chronic diseases.[1] It also includes misuse of previously prescribed drugs either by using the prescription for long or interrupted period, with or without dosage modification.[2,3] This phenomenon has been commonly reported all over the world especially in the developing countries.[4] Over the counter (OTC) medications have been commonly used in self-medication and this behavior may have some impact on the health system.[5] In 2007, more than 100 medications have changed from prescription-based to OTC status.[6]

Nowadays, many OTC ophthalmic preparations are available without a prescription to the public.[7] The OTC ophthalmic preparations list includes decongestants, antihistamines and lubricant eye drops. A study done in India to assess the public awareness to OTC ophthalmic preparations found that 99.1% do not have any knowledge about the existence of two groups of

ophthalmic preparations; OTC eye drops and those which available only on prescription.[8]

There are several issues in the safety of prolonged use of OTC ophthalmic preparations, which may cause conjunctivitis in many different patterns.[9-12] Rumelt, reported three cases of blindness due to the misuse of the OTC eye drops with a history of angle-closure glaucoma.[11]

There is paucity of studies about the Saudi populations' attitude and practice towards self-medication with OTC ophthalmic preparations. Our rationale in this study was to overcome this lacking and to provide primary data that would give an idea about the pattern of Saudi population practices towards self-medication with OTC ophthalmic preparations. Furthermore, evaluating this problem in our community and formulate recommendations that would help in solving this issue. Such data could be fundamental to prevent the potential risk of OTC misuse.

METHODS

This cross-sectional questionnaire-based study randomly targeted all Saudis who are aged 15 years or older who had used OTC ophthalmic preparations before. Due to the paucity of studies investigating the same phenomenon in Saudi Arabia, we did not expect that over 50% of the target population would have been self-medicated with OTC ophthalmic preparations. Hence, our calculated sample size was 1,281 participants. With five percent of precision at 95% confidence level and to overcome the uncompleted responses, an additional contingency of 10% was added.

An Arabic version of an on-line questionnaire by using Survey Monkey internet program (SVMK Inc., San Mateo, California, USA), was randomly distributed though the social media during the period from September to November 2016. In order to cover all age categories, print-out questionnaires were also used at different point of social gathering. The questionnaire was developed based on Kadri et al questionnaire in 2011.[8]

Some modifications were made to suit the aim of this study objectives and to cover various aspects regarding the attitude and practice of the Saudi population towards OTC ophthalmic preparations including the following three major domains: The first domain about demographic data and history of eye diseases, the second domain focused on awareness of OTC ophthalmic preparations, while the third domain was focused on participants' practice of OTC ophthalmic preparations usage and its outcome. Also, to focus on the motivating complaints, influencing factors, source of prescriptions and pharmacist's role in self-medication. A pilot test was conducted using 20 participants who were not included in the study, where the study questionnaire was slightly modified based on the pilot test results.

Data analysis was done using the Statistical Package for Social Sciences (SPSS) program version 21.0 (IBM Inc., Chicago, Illinois, USA). Results were expressed in frequencies and percentages for categorical variables while continuous variables were presented as a mean±standard deviation or range according to the type of distribution of each variable. Cross-tabulation and Chi-square test of association were applied to compare and ascertain the difference in the practice of self-medication with OTC ophthalmic preparations across distinct demographic characteristics of the participants. The significance level was considered as $p<0.05$.

The purpose of the study, benefits of participation and the right to withdraw were explained to the participants. A written informed consent was obtained. In addition, small paragraph on the top of each questionnaire was seeking their consent and requesting their voluntary participation by answering the questionnaire. It was cleared that all information from the questionnaire will be used for study purpose only. Ethical approval was sought from The National Committee of Medical and Bioethics whereas study activities started after obtaining the approval.[13]

RESULTS

The questionnaire reached to 2000 subjects, n=1,426 (71.3%) participants has voluntarily responded to the survey. The mean age was 25.5±9.3 years. Females (n=304, 21.3%) were more than males (n=1111, 77.9%). Table 1 shows descriptive statistics. Among the participants, n=860 (60.3%) have a history of eye diseases. The most commonly reported eye diseases were decreasing vision and dry eye syndrome. While other diseases were less common such as diabetic retinopathy and glaucoma, Table 2.

Table 1: Distribution of participants according to the demographic categories.

Demographic category		N (%)
Gender (n=1415)	Male	304 (21.3)
	Female	1111 (77.9)
Area of residency (n=1410)	Middle region	623 (44.2)
	Western region	386 (27.4)
	Eastern region	152 (10.8)
	Northern region	97 (6.9)
	Southern region	152 (10.8)
Education (n=1421)	<High school	77 (5.4)
	High school	500 (35.2)
	Diploma	101 (7.1)
	Bachelor	676 (47.6)
	Higher education	67 (4.7)

n: number of subjects with available data

Fifty-four percent of the participants were familiar with OTC preparation n=767 (53.7%), this response mainly came from bachelor degree students' n=397 (51.8%) in compare with other education level (p=0.002).

Table 2: Distribution of history eye diseases among participants.

Category		N (%)
Myopia	Yes	481 (33.7)
	No	945 (66.3)
Dry eye syndrome	Yes	296 (20.8)
	No	1130 (79.2)
Allergic eye diseases	Yes	180 (12.6)
	No	1246 (87.4)
Chalazion	Yes	137 (9.6)
	No	1289 (90.4)
Hyperopia	Yes	83 (5.8)
	No	1343 (94.2)
Keratoconus	Yes	22 (1.5)
	No	1404 (98.5)
Corneal ulcer	Yes	19 (1.3)
	No	1407 (98.7)
Viral conjunctivitis	Yes	18 (1.3)
	No	1408 (98.7)
Cataract	Yes	14 (0.98)
	No	1412 (98.4)
Myopia	Yes	481 (33.7)
	No	945 (66.3)
Uveitis	Yes	11 (0.77)
	No	1415 (99.2)
Glaucoma	Yes	5 (0.35)
	No	1421 (99.6)
Diabetic retinopathy	Yes	3 (0.2)
	No	1423 (99.8)

The majority of participants have acknowledged some categories of OTC ophthalmic preparations such as lubricants n=1134 (80.5%), anti-allergy n=628 (44.6%), decongestants n=621 (44.1%) and antibiotics n=540 (38.4%). Inferential analysis of participants' awareness for each category of OTC ophthalmic preparations revealed that among those who acknowledged anti-allergic and lubricants categories were mainly bachelor degree graduates' n=320 (51.2%, p=0.006) and n=557 (49.2%, p=0.002), respectively. The antibiotic category was significantly acknowledged by participants from the middle region in compare with another regions n=227 (42.3%, p=0.039). In addition, more than half of the participants n=927 (65.7%) believes that OTC ophthalmic preparations are not safe to be used. Most of the participants think that eye drops should be used within one month after opening n=990 (70.3%). While, others tend to think it can be stored for two months n=205 (14.5%) or three months n= 214 (15.2%).

More than half of the participants have been self-medicated with OTC ophthalmic preparations before n=890 (62.4%). The types of OTC ophthalmic preparations were used as self-medication by participants were; eye drops n=608 (88.2%), ointment n=48 (6.9%) and others n=33 (4.8%). Furthermore, among those who self-medicated with OTC n=422 (47.4%) do not know the names of OTC ophthalmic preparations which they used.

Table 3: Distribution of OTC ophthalmic preparations.

Category	N (%)
Antibiotics	80 (9.0)
Steroids	3 (0.3)
Decongestants	15 (1.7)
NSAIDS	2 (0.2)
Anti-allergy drops	23 (2.6)
Lubricants	305 (34.3)
I don't know	422 (47.4)
Others	40 (4.5)

Table 3, shows the different types of OTC ophthalmic preparations which have been used among the participants. The ocular complaints which enhance ophthalmic preparations consumption varied among participants, burning sensation was the commonest complaint n=203 (22.8%). Details of these ocular complaints are listed in Figure 1. The duration of the usage varied from early to late periods after the onset of symptoms, the majority of the self-medicated participants use it at the time of symptoms n=429 (51.5%), other n=249 (29.9%) use it after two to three days, n=78 (9.4%) use it after one week, n=39 (4.7%) use it two to four weeks, and n=38 (4.6%) two to three months after the onset of symptoms. Fifty-one percent of self-medicated participants used the OTC ophthalmic preparations till symptoms improved (n=274), while n=138 (25.8%) use it once and only n=122 (22.8%) used it till symptoms disappeared.

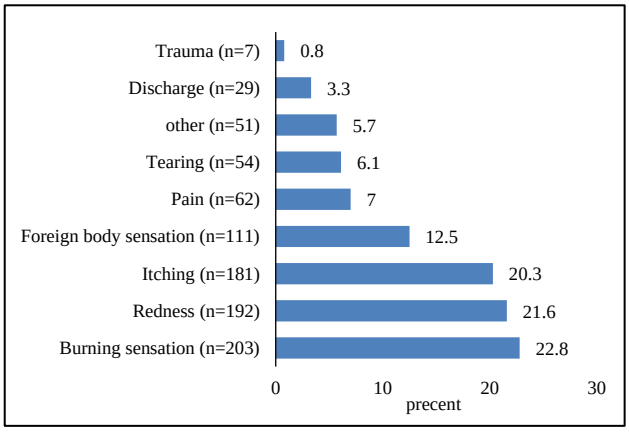

Figure 1: Ocular complaints which motivated participants to use ophthalmic preparations.

According to self-medicated participants, thirty-eight percent of them used the OTC ophthalmic preparations because they have tried it before n=298, (38.1%). On the other hand, n=217 (27.7%) and n=151 (19.1%) of the participants used it because they have no time to visit an ophthalmologist or upon recommendation by someone

they trust, respectively. Although n=793 (49.4%) of self-medicated participants improved after using OTC ophthalmic preparations, there was n=47 (32.6%) who have worsened and n=26 (3.1%) needed to visit an ophthalmologist. Moreover, among n=208 (39.3%) of self-medicated participants, the main sources for prescriptions was advised by pharmacists, other n=162 (30.6%) used old prescriptions, while n=133 (25.1%) used it upon relatives' advice and only n=26 (4.9%) used the social media as sources for prescriptions. The role of pharmacists among self-medicated participants was limited since only n=168 (32.7%) received advice by pharmacists to consult the ophthalmologist.

DISCUSSION

Many factors could contribute to the adoption of OTC including the lifestyle, socioeconomic status, availability of the drugs, high costs of medical consultation, time and advertisement.[13-15] In the present study, the majority of participants were young-adult females and most of them have the bachelor degree or high score education. The most frequent complaint was decreased vision, dry eye with burning sensation and redness. In comparison to Kadri et al, who reported that itching, redness, and pain were the most prevalent eye complaints among citizens in Mangalore, India.[16]

More than half of the participants have acknowledged and practiced self-medications of ophthalmic drugs. Also, they believe that OTC ophthalmic preparations are not safe to be used as well as that eye drops should be used within one month only. In accordance, high knowledge about these preparations, their intended use, and effects were found in the study of Asiedu et al.[17] However, this phenomenon showed high prevalence among the young generations.[18] According to these studies, the prevalence of ophthalmic self-medication ranged from 23.3% to 59.8%.[19-21] Among participants, the highly significant rate of knowledge about ophthalmic preparations and their categories such as anti-allergic and lubricants came from highly educated persons with the bachelor degree. In agreement with different studies, which reported that self-medication is the focus of researchers in both developed and developing countries and it is significantly adopted by youth and highly educated persons.[18,22,23] In fact, highly educated personals tend to use OTC ophthalmic preparations more than non-educated personals, because of their knowledge about drugs, adverse effects, and interactions.[17,21,24]

As expected, the most frequently used ophthalmic preparations were used was eye drops, followed by ointment and others. As for the self-medicated participants, most of them didn't know what the name of ophthalmic preparations they were using. Lubricants, antibiotics, anti-allergy, decongestants, steroids and nonsteroidal anti-inflammatory drugs (NSAIDs) eye drops were also have been used. Studies showed that eye drops including antibiotics followed by decongestants were the top of OTC medication then followed by NSAIDs drops as well as vasoconstrictive agent.[16,21] Conjunctival and corneal toxicity can result from long use of antibiotics eye drops, which is commonly misused.[25] On the other hand, some patients may use OTC drops and ignore the prescribed medications by ophthalmologist which lead to worsening of their condition. It has been reported that three cases with a history of angle-closure glaucoma used OTC and ended by blindness.[11] In this study, over one third of self-medicated participants had their symptoms worsen after using OTC ophthalmic prescriptions and others needed to visit an ophthalmologist.

There were no hidden agendas among self-medicated participants and majority of participants reported that burning sensation, redness followed by itching and foreign body sensation were the main motivations. In consistent with the study showed that itching, sensitivity to light, redness, pains and burning sensation were a driven factor to use the OTC ophthalmic preparations.[17] Also, itching and red eye were found to be the most predominant symptoms for OTC of eye preparations.[8,20] Over one-third of self-medicated participants practice the OTC ophthalmic preparations because of the previous experience, while lack of time to visit ophthalmologist was the issue for others. Some self-medicated participants choose to use the OTC ophthalmic preparations upon recommendation by friend or relatives. In concordant with what was mentioned in Marquez's study, the major motives for self-medication were feeling qualified to select the appropriate preparation to be used and family or trust person recommendations.[21] Another study showed that obtaining medical care was difficult resulting in high rates of OTC.[28]

The minority of self-medicated participants used social media as a source for ophthalmic prescriptions which reflect a promising data as they do not depend on low level source of knowledge. Pharmacists were the original source for more than one third of self-medicated participants, although pharmacists tend to have limited role among self-medicated participants. Similar results showed that pharmacists influence the use of OTC of ophthalmic preparations in different studies.[27,28]

CONCLUSION

In conclusion, it is anticipated that most of the Saudi population have awareness of various categories of OTC ophthalmic preparations. Despite that, those who used it tend to have poor practice. Hence, the hope falls on pharmacists since they are the target source for a lot of people. Encouraging pharmacists to join in health education to the community about the misuse, effects and side effect of OTC ophthalmic preparations, would be helpful to limit the practice phenomenon. Furthermore, pharmacist knowledge, attitude and practice toward ophthalmic preparations needs to be studied to improve their practice regarding this phenomenon. We suggest

nationwide rules for prescribing OTC ophthalmic preparation.

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