



Self Medication with Over-the Counter Topical Ophthalmic Medications: A Study of Undergraduates in Ghana

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ABSTRACT: Aim of the current study is to determine the prevalence of self medication with over the counter topical ophthalmic medications among university students and the ocular symptoms for which self medication was practiced. This cross-sectional study included 469 undergraduate students of the university of Cape Coast, aged 18-34 years. Participants were randomly and systematically selected to complete questionnaires which elicited information on self medication with over the counter topical ophthalmic medication at most, three months prior to the study and ocular symptoms for which self medication was practiced. Information on participants' age, gender, use of oral contraceptives (females only) and current history of alcohol consumption was also obtained. Out of 500 selected subjects 469 completed the questionnaires and were included in the analysis. The prevalence of self medication with over the counter topical ophthalmic medications was (25.2%; confidence interval [CI]:21.3%-29.0%). The prevalence of self medication was (32.7%; CI: 25.6%-40.4%) and (21.5% CI: 17.0%-26.0%) for females and males respectively. The difference in prevalence between females and males was statistically significant $p=0.008$. Itchy eye was the predominant symptom responsible for ocular self medication. Logistic regression analysis revealed: gender (OR 1.78 CI: 1.16 to 2.73, $p=0.009$) and oral contraceptive use (OR 4.15 CI: 1.32 to 13.10 $p=0.015$) were significantly associated with self medicating with topical ophthalmic preparations. A quarter of students probably practiced ocular self medication hence public education on the rational use of over-the-counter topical ophthalmic drugs is needed among undergraduates to improve outcomes. © 2015 iGlobal Research and Publishing Foundation. All rights reserved.

INTRODUCTION

Self care fundamentally refers to what individuals do by their discretion to sustain and maintain health, prevent and treat disease. It is a broad concept comprising self medication, hygiene, lifestyle choices, socioeconomic factors and others [1,2]. Self-medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms [3]. The justification for self-medication largely lies on the perception of symptoms by individual sufferers as irritating enough to require therapeutic

intervention but not debilitating enough to require a physician's intervention.

The prevalence of self medication worldwide is extremely high and on the rise [4,5]. Several studies have looked at the prevalence of self medication with various categories of medications. The prevalence of self medication among university students worldwide ranges from 43.24% to 86% [6-8]. In Ghana, one study reported a prevalence of 70% for self medication with antibiotics among undergraduate university students [9]. Notwithstanding, no studies on self medication with topical ophthalmic medications among university students is reported in Ghana. The reported prevalence of ocular self medication worldwide ranges from 23.3% to 59.8% [10-14].

There is generally a scarcity of information on self medication with topical ophthalmic medication worldwide among university students. A MEDLINE and PubMed search using the keywords “topical ophthalmic medication,” “university students,” “ocular self medication,” “over-the counter eye drops,” “self medication with eye medication,” and “self medication with topical ophthalmic preparations” revealed that there are no large scale studies involving university students on this subject. Despite, the large number of studies on self medication, the issue of self medication with topical ophthalmic drugs with its attendant public health consequence for eye care delivery is largely unknown among undergraduate students.

This study sought to find the prevalence of self medication with over the counter topical ophthalmic medications and the symptoms for which university students sought relief by self medicating with over-the counter topical ophthalmic preparations.

MATERIALS AND METHODS

Study Setting and Design

This was a cross sectional study among undergraduate (regular) students of the University of Cape Coast .The University is the third largest university in Ghana with an undergraduate population of 18,546 (regular) and 36,874 who are distant learner as per the data available at the students records and management information section (SRMIS) of the university. Undergraduate students reside mostly in halls and hostels whilst distant learners are not resident on campus.

Assuming a margin of error of 5% and “p” as the estimated prevalence of self medication with topical ophthalmic preparations among undergraduate students, the required sample size: $N=P \times (1-p)(1.96/0.05)^2$. Assuming a worst case scenario of $p=0.5$, the minimum sample size needed for the assumed margin of error was 385. This number was adjusted to 500 to increase the statistical power of the study.

All halls and hostels with at least 150 undergraduate students were enlisted. Out of the six halls of residence and the 30 official hostels enlisted. A total of 10 were randomly selected comprising three halls and seven hostels.

Participant selection

The hostels and hall list of students were used as the sampling frame and by systematic random sampling every 7th student was selected. From each hall or hostel a minimum of 50 students were selected. The selected students’ telephone

numbers were obtained. The team-comprising of Optometrists and research assistants contacted the selected students by telephone to explain the purpose of the study. The participants who consented to the study were sent copies of the study questionnaire together with the written informed consent to their rooms when they were available. Out of the 500 selected, 20 declined consent and 10 did not return the questionnaires.

Data collection

A pre-tested questionnaire was used to collect data from participants .The questionnaire was self-administered. The questionnaire asked whether participants had self medicated with any topical ophthalmic medication during the last three months prior to the study. If they responded “YES” then they proceeded to answer the next question. This question inquired what symptom or symptoms that prompted the self medication .This question was a closed ended question where participants choose any of the following symptoms as options (choosing more than one option was applicable): sensitivity to light, eye redness, itchy eyes, burning sensation, gritty sensation, eye swelling, discharge (whitish or yellowish liquid from eyes), blurred vision and eye pains. Information on participants’ age, gender, and participants (females only) use of oral contraceptives and also current history of alcohol consumption were also obtained.

Data analysis

All statistical analyses were performed using SPSS V.21.0 (SPSS, Chicago, Illinois, USA) statistical package. The prevalence of self-medication with over the counter topical ophthalmic preparations was estimated. Descriptive statistics using frequencies and percentages was used to determine the symptom for which self medication was mostly practiced. Chi square test was used to find if there is any association between self medication and the following factors: participants’ age, gender, participant (females only) use of oral contraceptives and also current history of alcohol consumption. Binary logistic regression was used to find the strength of the association between predictive factors and self medication with over the counter topical ophthalmic medications. For 95% confidence level $p \leq 0.05$ was considered statistically significant.

Ethics statement

All procedures and protocol for the study were conducted in accordance with the tenets of declaration of Helsinki. The study was approved by the department of Optometry ethics committee, University of Cape Coast (ref no. FYP/15/0030). Written informed consent was obtained from all subjects and participation was voluntary .No incentives was provided to participants who participated.

RESULTS & DISCUSSION

Out of the 500 selected subjects 470 gave informed consent to participate in the study (participation rate of 94%). Also one subject incompletely filled the questionnaire and was excluded from the data analysis. The female to male ratio was 33.3%:66.7% (156:313). The mean age (SD) for the entire sample was 22(\pm 2.5) years (age range 18-34 years). The prevalence of self medication with over the counter topical ophthalmic medications was (25.2% confidence interval [CI: 21.3%-29.0%]). The prevalence of self medication was (32.7% CI: 25.6%-40.4%) and (21.5% CI: 17.0%-26.0%) among females and males respectively. The difference in prevalence between females and males was statistically significant $p=0.008$. The frequency with which self medication was practiced was as follows: for itchy eyes 69(58.5%), sensitivity to light 49(41.5%), eye redness 38(32.2%), eye pains 36(30.5%), gritty sensation 28 (23.7%), burning sensation 28(23.7%), blurred vision 16(13.6%), discharging eyes 11(9.3%), and swollen eyes 17(14.5%). The symptoms and their frequency for which self medication was practiced according to gender are shown in table 1. There was an association between self medication with topical ophthalmic medication: and gender ($\chi^2=6.941$, $df=1$ $p=0.008$) and the use of oral contraceptives ($\chi^2=6.685$ $df=1$ $p=0.01$) but there was no association between age ($\chi^2=1.989$, $df=1$, $p=.158$) and current history of alcohol consumption ($\chi^2=.453$, $df=1$ $p=.501$). Logistic regression analysis revealed gender (OR 1.78 CI: 1.16 to 2.73, $p=0.009$) and oral contraceptive use (OR 4.15 CI: 1.32 to 13.10, $p=0.015$) were significantly associated with self medication with topical ophthalmic preparations. This imply females were approximately two times likely to self medicate with over the counter topical ophthalmic medication and females who use oral contraceptives were four times more likely to self medicate these medications.

Owing to the evidence consensus that the main source of medications for self medication is community pharmacies [6]. This study was restricted to self medication with over the counter topical ophthalmic medications. The prevalence of self medication with over the counter topical ophthalmic medication was 25.2% which is slightly higher than 23.3% reported in an interview-based questionnaire study in the cape coast metropolis [10]. The prevalence rate of 25.2% is similar to the 25.6 % reported in a hospital based study in Argentina but less than 35.47% reported in another hospital based study in India [11,13].

The most frequent symptom for which self medication with topical medication was practiced among university students was itchy eyes followed by sensitivity to light. This is consistent with kyei et al [10] who reported itchy eye as the predominant symptom for ocular self medication. Notwithstanding, there is a reported study in India where eye redness followed by itchy eyes was the predominant symptoms for which ocular self medication was practiced [11]. From our results it can be seen that males and females differ in the tendency to self medicate with topical ophthalmic preparation. Females were more likely to self medicate due to gritty sensation and blurred vision compared to males with a difference of greater than 10%. To the best of our knowledge this is the first study to report sex difference in these symptoms resulting in ocular self medication.

There was an association between self medication with topical ophthalmic medication and gender as females were approximately two times likely to self medicate compared to males. This is in line with several studies [15-17] which also report higher prevalence of self medication with other categories of medication in females compared to males. Nonetheless, kyei et al. [10] found no association between ocular self medication and gender in a community based study. Furthermore, females who used oral contraceptives were four times more likely to self medicate with topical ophthalmic medications which might be due to the possible risk of dry eye symptoms with oral contraceptives use [18] or other unknown factors.

Kyei et al. [10] reported a lower prevalence of ocular self medication with increasing age but this was not replicated in the current study. This might be due to the narrow age range of (18-34) years in the current study compared to (18-90) in the Kyei et al study masking the true effect of age. There are reports of alcohol consumption or dependency and self medication in anxiety disorders¹⁹ but no association was found between alcohol consumption and the tendency to self medicate with topical ophthalmic drugs.

In summary, this study revealed that a quarter of undergraduate university students probably practiced ocular self medication and that itchy eye was the predominant symptom responsible for this practice hence, the need for public education on the effective and rational use of over the counter topical ophthalmic drugs among university students to improve outcomes and to encourage consultation with eye care providers for ocular symptoms.

Symptoms	Female	Male	Total
Itchy eyes	29/51(56%)	40/67(59.7%)	69/118(58.5%)
Sensitivity to light	22/51(43.1%)	27/67(40.3%)	49/118(41.5%)
Eye redness	14/51(27.5%)	24/67(35.8%)	38/118(32.2%)
Eye pains	16/51(34.1%)	20/67(29.9)	36/118(30.5%)
Burning sensation	13/51(25.5%)`	15/67(22.3%)	28/118(23.7%)
Gritty sensation	16/51(34.1%)	12/67(17.9%)	28/118(23.7%)
Discharging eyes	7/51(13.7%)	4/67(6%)	11/118(9.3%)
Blurred vision	12/51(23.5%)	4/67(6%)	16/118(13.6%)
Swollen eyes	10/51(19.6%)	7/67(10.5%)	17/118(14.5%)

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