

Evaluation of Self-Medication Practices in the Treatment of Eye Diseases in the Ophthalmology Department of Niamey National Hospital in Niger

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Abstract

Introduction: The objective of this study was to assess the practice of self-medication for ocular conditions at the Ophthalmology Department of the National Hospital of Niamey. **Methods:** This was a prospective, cross-sectional study conducted over a six-month period. The variables analyzed included age, sex, occupation, educational level, presenting symptoms, diagnosed ocular conditions, types of products used, factors motivating self-medication, and patients' level of knowledge about the products used. **Results:** The hospital prevalence of self-medication was 24.65%. The mean age of patients was 33.8 ± 22.27 years. Female patients were slightly predominant (male-to-female ratio = 0.97). The main reasons for consultation were ocular pain (46.48%), redness (43.66%), and visual loss (39.44%). The leading reason for self-medication was economic constraints (26.71%). In 52.11% of cases, self-medication was initiated by the patients themselves. Products used were pharmacological in 74.65% of cases and traditional in 25.35%. Eye drops were the most common pharmaceutical form (83.02%), primarily antibiotic-based (49.06%), and most often obtained from pharmacies (43.66%). Among traditional treatments, herbal remedies were the most frequently used (72.22%). 60.56% of patients reported having no knowledge of the nature of the product used. **Conclusion:** Self-medication is common among ophthalmology patients in our setting, primarily driven by economic factors. Public awareness and stricter regulation of ocular drug dispensing are essential to minimize the associated risks.

Keywords

Self-Medication, Ophthalmology, Eye Diseases, Niger

1. Introduction

According to the World Health Organization (WHO), self-medication is defined as “the practice whereby an individual selects and uses a medicine to treat a condition or symptom that they have identified themselves” (WHO-DAP 98-13) [1]-[3]. This approach typically involves self-diagnosis, followed by self-prescription, and then the acquisition of the medicine through one’s own means, often using traditional remedies, over-the-counter products, or drugs available at home [1]-[4].

In many contexts, this practice is encouraged by the increasing accessibility of drugs, particularly those sold informally on the street, without control or prescription [5]-[8]. Although it may meet an immediate need for treatment, self-medication exposes patients to many risks: microbial resistance, dangerous drug interactions, addiction, adverse effects, and even toxicity [5]-[9].

In the field of ophthalmology, the consequences can be particularly serious due to the sensitivity of the ocular tissues and the risk of delayed diagnosis [9].

This study aimed to assess the extent of self-medication for eye conditions in our context and to identify the socioeconomic, cultural, and medical factors that motivate this practice among patients consulting ophthalmologists in Niamey.

2. Methods

2.1. Sampling and Participants

We conducted a prospective, descriptive, cross-sectional study conducted over six (06) months in the ophthalmology department of the National Hospital of Niamey. We used systematic random sampling with a random start: at the beginning of each clinic day, the list of first-time attendees was ordered by arrival time and assigned sequential numbers. Based on the expected total number of first-time visits during the period (N) and the target sample size ($n = 288$), we set the sampling interval $k = \lceil N/288 \rceil$. A random number r between 1 and k was generated (using a random-number table), and then every k -th eligible patient starting at r was invited to participate that day until the daily quota was met. Patients who declined were replaced by the next eligible patient to preserve randomness. Clinic attendance denominator (hospital prevalence): The denominator for prevalence estimates is all first-time ophthalmology consultations meeting inclusion criteria during the study window ($N = 288$ in our dataset). The numerator for ophthalmic self-medication is the number reporting self-medication ($n = 71$), yielding a hospital prevalence of 24.65%.

2.2. Variables and Data Collection (Questionnaire Development)

Data were collected using a structured questionnaire covering sociodemographic (age, sex, education, occupation), details of self-medication (initiator, reasons, products and sources, duration), and presenting symptoms. Items were drafted from the literature and WHO guidance on self-medication, then expert-reviewed by two ophthalmologists and one public health methodologist for face/content validity. The tool was piloted with 20 first-time attendees (not included in analysis) to check clarity and timing; wording and skip patterns were refined according. The final questionnaire was administered in French with on-the-spot translation into Hausa or Zarma by trained staff when needed.

All interviewed patients underwent the standard ophthalmic examination. Self-medication variables were documented only for those who reported having self-medicated.

2.3. Ethical Considerations

The study was approved by the Comité National d'Éthique pour la Recherche en Santé du Niger (CNERS): Approval/Reference [No. 055/2025/CNERS]. Written informed consent was obtained from all adult participants; for minors, parental/guardian consent and age-appropriate assent were obtained. Confidentiality and the right to withdraw without prejudice to care were guaranteed.

All patients interviewed underwent a routine ophthalmological examination in the department. Information on self-medication was collected only from patients who reported having used it.

2.4. Sample Size and Precision

The target sample size was determined to estimate a prevalence of ophthalmic self-medication $p = 0.25$ with 95% confidence and an absolute precision $d = 0.05$, using the single-proportion formula:

$$n = Z^2 \times p(1 - p) / d^2$$
$$n = (1.96)^2 \times 0.25 \times 0.75 / (0.05)^2 \approx 288$$

Thus, 288 respondents provide $\approx 5.0\%$ absolute precision for a 25% prevalence (95% CI). If applying a finite-population correction (e.g., $N \approx 1200$ first-time attendances over 6 months), the precision would improve slightly ($\approx 4.4\% - 4.6\%$), but no inflation was required.

2.5. Statistical Analysis

Data were analyzed using IBM SPSS Statistics 26. Results are presented as frequencies and percentages, depending on variable type.

No inferential statistical tests were performed, as the study was designed as a descriptive exploratory survey aiming primarily to estimate the prevalence and to describe the patterns and determinants of ophthalmic self-medication in Niamey.

Given the limited sample size of patients who self-medicated ($n = 71$), the study was not powered for formal subgroup comparisons.

3. Results

3.1. Frequency

In this study, we recruited 288 patients. Among the 288 patients surveyed, 71 had self-medicated for eye problems, representing a hospital prevalence of 24.65%. A slight female predominance was observed, with a male-to-female ratio of 0.97.

3.2. Distribution of Patients According to Their Level of Education

Table 1 shows the distribution of patients according to their level of education. Nearly one-third (1/3) of patients was uneducated. In 50.70% of cases, patients had already received medical treatment.

3.3. Distribution of Patients According to Their Reason for Consultation

Table 2 shows the distribution of patients according to their reason for consultation. Pain is the main reason for consultation, followed by redness and decreased visual acuity.

Table 1. Distribution of patients according to their level of education.

Level of education	n	%
No education	21	29.6
Primary	16	22.5
Secondary	17	23.9
Higher	17	23.9
Total	71	100.0

Table 2. Distribution of patients according to their reason for consultation

Main symptom	n	%
Pain	33	46.5
Redness	31	43.7
Decreased vision (BAV)	28	39.4
Itching	15	21.1
Secretions	11	15.5
Photophobia	8	11.3
Headaches/Dizziness	4	5.6
Watery eyes	4	5.6
Pathology assessment	2	2.82

3.4. Distribution of Patients According to Their Reasons for Self-Medication

Table 3 shows the distribution of patients according to their reasons for self-med-

ication. The economic reason is the dominant motive, followed by previous experience with traditional treatments.

Table 3. Distribution of patients according to their reasons for self-medication.

Reason given	n	%
Economic reasons	19	26.7
Previous traditional treatment for the same condition	16	22.5
Difficulty accessing a health center	13	18.3
Cultural reasons	9	12.7
Doubts about medical treatment	3	4.2
Did not feel it was necessary to go to the center.	3	4.2
No specific reason given	5	7.0
Unaware of the existence of medical treatment	2	2.8
Advised by a health worker	1	1.4

3.5. Distribution of Patients According to Their Self-Medication Initiative

The distribution of patients according to their self-medication initiative is shown in **Figure 1**. More than half of the patients took the initiative themselves.

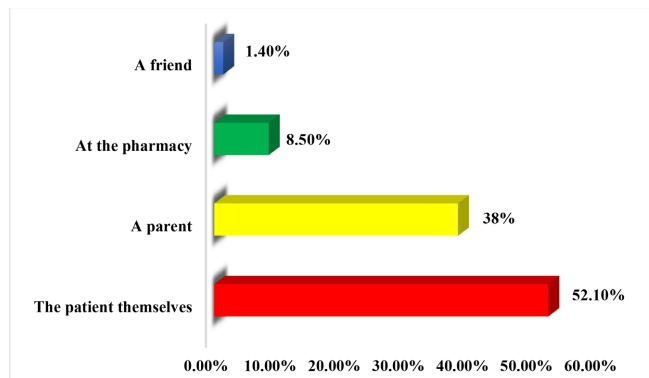


Figure 1. Distribution of patients according to their self-medication initiative.

3.6. Distribution of Patients According to Their Reasons for Discontinuing Self-Medication

Figure 2 shows the distribution of patients according to their reasons for discontinuing self-medication. The ineffectiveness of treatment and worsening symptoms are the main reasons that ultimately prompt patients to seek medical advice.

3.7. Distribution of Patients According to the Duration of Self-Medication

The distribution of patients according to the duration of self-medication is shown in **Table 4**. Self-medication is often short-term (less than a week), suggesting an attempt at self-management during the acute phase.

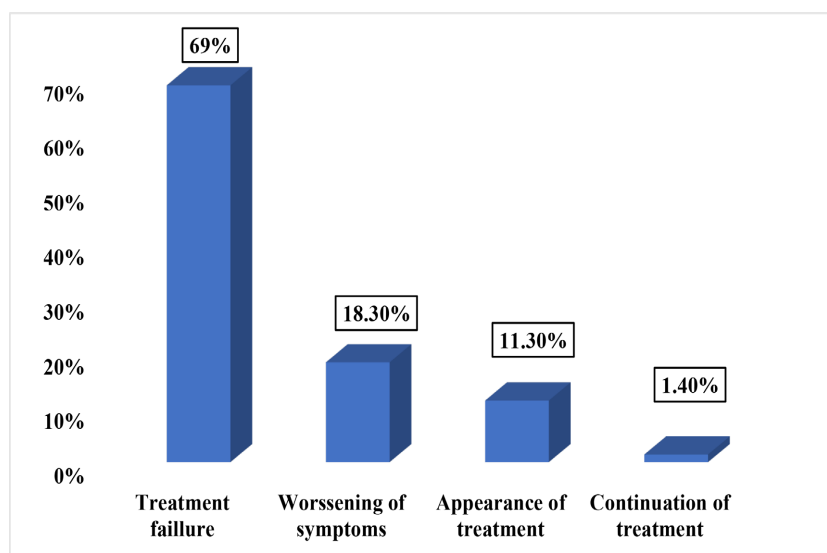


Figure 2. Distribution of patients according to their reasons for discontinuing self-medication.

Table 4. Distribution of patients according to the duration of self-medication.

Duration	n	%
0 to 1 week	36	50.7
1 week to 1 month	9	12.7
1 month to 1 year	9	12.7
>1 year	3	4.2
Intermittent	4	5.6
Treatment in progress	1	1.4
Not specified	9	12.7
Total	71	100.0

3.8. Distribution of Patients According to the Dosage Form of the Products Used (Pharmacological)

Table 5 shows the distribution of patients according to the dosage form of the products used (pharmacological). Eye drops are the most common form, probably because they are easy to apply directly to eye conditions.

Table 5. Distribution of patients according to the dosage form of the products used (pharmacological).

Dosage form	n	%
Eye drops	44	83.0
Tablet	4	7.5
Ointment	3	5.7

Continued

Gel	1	1.9
Total	53	100.0

3.9. Distribution of Patients According to the Pharmacological Class of the Drugs Used

The distribution of patients according to the pharmacological class of the drugs used are shown in **Table 6**. Antibiotics are the most commonly used.

3.10. Distribution of Patients According to the Origin of the Products Used

Table 7 shows the distribution of patients according to the origin of the products used Informal sources (street vendors, markets, third parties) account for more than half of all cases.

Table 6. Distribution of patients according to the pharmacological class of the drugs used.

Pharmacological class	n	%
Antibiotics (ATB)	26	49.1
Anti-inflammatories (NSAIDs)	11	20.8
Corticosteroids (AIS)	7	13.2
Analgesics	7	7.6
Antiseptics	2	9.4
Total	53	100.0

Table 7. Distribution of patients according to the origin of the products used.

Origin	n	%
Pharmacy	31	43.7
Street vendor	19	26.9
Market	12	12.7
Third party (friends/family)	9	8.5
Total	71	100.0

3.11. Distribution of Patients According to the Type of Traditional Treatment Used

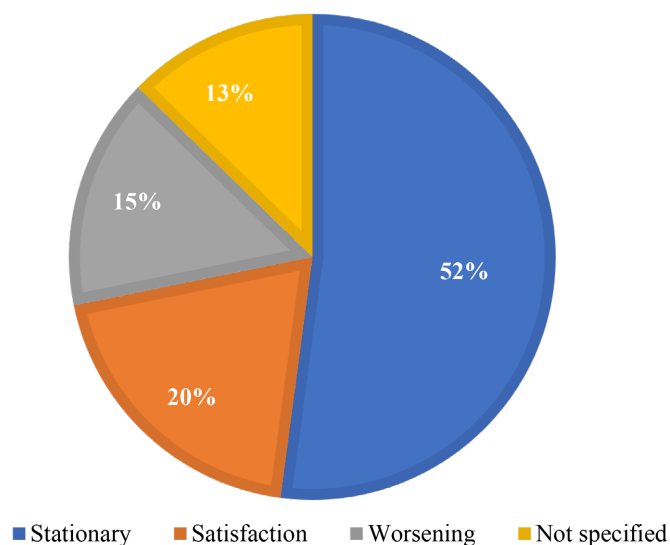
Table 8 shows the distribution of patients according to the type of traditional treatment used. The use of herbs remains largely dominant. These products are often used empirically without medical supervision.

3.12. Distribution of Patients According to Their Perceived Outcome of Self-Medication

As shown in **Figure 3** the distribution of patients according to their perceived outcome of self-medication, more than half of the patients saw no improvement.

Table 8. Distribution of patients according to the type of traditional treatment used.

Traditional product type	n	%
Medicinal herbs	13	72.2
Olive oil	1	5.6
Zamzam holy water	1	5.6
Others (drops, honey, powder)	3	16.6
Total	18	100.0

**Figure 3.** Distribution of patients according to their perceived outcome of self-medication.

3.13. Knowledge of the Product Used

More than 60.56% of patients were unaware of the nature of the product used (name, composition, dosage), which exposes them to errors and severe complications.

4. Discussion

In this study, we observed a prevalence of ophthalmic self-medication of 24.65%, a rate comparable to that reported by Gabriel E. in Argentina (25.6%) [10], although slightly lower than that reported by Angeline S. in India (37.5%) [11]. In contrast, a study conducted by Wangara N. A. in Mali reported a significantly lower prevalence (2.12%) [12], probably due to methodological differences, particularly the method of patient selection and the definition of self-medication used.

In other African contexts, the prevalence may be much higher: for example, nearly 60% of residents in the rural area of Gurage in Ethiopia use traditional remedies for eye conditions [13].

Regarding gender, our results revealed a slight female predominance (50.7%), which is consistent with the data from Gabriel E. [10] and Wangara N. A. [12], who found 57% and 66.41% female patients, respectively. However, other authors

such as Gupta R. [14] and Carvalho R. S. [15] report a male predominance. These discrepancies suggest that gender is not a universal determining factor in the practice of ophthalmic self-medication and may depend on the sociocultural context.

The mean age of our patients was 33.8 ± 22.27 years, with extremes ranging from 50 days to 80 years. This finding is consistent with those of Wangara N. A. (37.7 years) [12] and Carvalho R. S. (39.8 years) [15]. All these data confirm that young adults are the most likely to resort to self-medication, without excluding other age groups.

The main motivation for self-medication in our population was economic (26.71%). Patients considered this option more affordable, allowing them to avoid the costs associated with consultations, additional tests, or pharmacy purchases. This factor was also identified by Wangara N. A. (66.79%) [12]. Similar determinants have been reported in other contexts, such as in Tanzania, where more than 41% of antibiotics were used without prescription [16], or in Ghana during the COVID-19 pandemic, where 76% of adults resorted to antibiotic self-medication [17].

In more than half of cases (52.11%), self-medication was initiated by the patients themselves. In 38.03% of cases, it was recommended by a relative, and in 8.45% by a pharmacist. These data contrast with those of Wangara N. A. [12] and Gabriel E. [10], where the pharmacist's intervention was predominant (50.86% and 31%, respectively). This difference could reflect regulatory or sociocultural realities specific to each country. In some disadvantaged urban areas, such as the Kibera slums in Nairobi, widespread self-medication can be explained by poverty, limited access to healthcare, and insufficient regulation [18].

In terms of the drugs used, antibiotics (49.06%) were the most common, followed by non-steroidal anti-inflammatory drugs (NSAIDs) (20.75%) and corticosteroids (13.21%). This usage profile is consistent with the literature, where ophthalmic antibiotics are the most frequently self-administered molecules [19]. In Eritrea, Tesfay *et al.* [19] reported a prevalence of 63.6% for antibiotics, followed by corticosteroids (22.7%). In Saudi Arabia, artificial tears were the most commonly used products (52.67% and 71.2%) according to Dalal I. A. [20] and Khalid B. A. [21].

Our study also confirms the persistent use of traditional or unconventional treatments, including medicinal herbs (72.22%), olive oil, honey, and "Zamzam" holy water. These practices are strongly influenced by cultural and religious beliefs, as observed by Angeline S. [11] and Dalal I. A. [20]. Similar practices have been described in rural Ethiopia [13] and other African regions [22] [23].

Finally, more than 60% of patients were unaware of the exact nature of the product used, which represents a major risk factor. This lack of knowledge has also been documented in Ethiopia, where 87% of patients were unaware of the name of the medication used and 82.6% were unaware of its expiry date [24]. Among students, the prevalence of self-medication can reach 97%, highlighting the influence of educational level and social context [25].

Self-medication also contributes to the growing problem of antimicrobial resistance, a public health concern strongly emphasized by the WHO [26] [27]. These findings confirm the need to strengthen therapeutic education and to better regulate the dispensing of medications.

However, our study has some limitations: recall bias inherent to self-reported data, which may lead to under- or over-reporting of self-medication practices; hospital-based setting, which may not be representative of the community at large, as patients attending a referral center could differ systematically from the general population; and the absence of clinical outcome assessment beyond self-reported satisfaction or worsening of symptoms, which limits the evaluation of the real impact of self-medication on ocular health.

5. Conclusion

Self-medication for eye conditions remains common in our context, mainly motivated by economic considerations. Antibiotics remain the most commonly used drugs, often purchased without a prescription, exposing patients to the risks of microbial resistance and avoidable complications. The persistence of traditional practices, which are sometimes inappropriate or even harmful, reflects a lack of health information among the population.

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Author Contributions

Abba Kaka HY: study design, data collection, manuscript drafting; Nouhoum G: methodological support, data analysis; Lamyne AR, Dan Jouma A ML, Mamadou IC, Garba AS, Soumaila MD: data collection; Amza A: critical revision and supervision. All authors approved the final manuscript.

Data Availability

The datasets generated during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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