



Use of traditional eye medicines by corneal ulcer patients presenting to a tertiary eye centre in south-south Nigeria

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Abstract

Background: Unorthodox therapies, organic or inorganic agents, applied through different routes of administration to achieve a desired ocular therapeutic effect and referred to as Traditional eye medicines (TEM), are associated with devastating sequelae on the cornea, leading to avoidable blindness. The use of TEM is usually deleterious to the eye and its use on a diseased cornea is more devastating.

Objective: To investigate the frequency and forms of TEM used by patients with corneal ulcer presenting to the Eye department, University of Calabar Teaching Hospital (UCTH), Calabar, Cross River State, Nigeria.

Materials and Methods: It was a retrospective hospital-based descriptive study undertaken at the Eye department, UCTH, Calabar, Cross River State, Nigeria. The use of TEM by corneal ulcer patients presenting to the department during a one-year period (January to December 2024) was documented. Data was analysed using SPSS version 20 (SPSS Inc. Illinois, Chicago).

Results: A total of 33 patients with corneal ulcer were seen within the study period. Over half of the patients 18 (54.5%) were in the 21-50 years age range. The male to female ratio of patients was 2.3:1. Farming (39.4%), trading (21.2%) and student/pupil (18.2%) were the three most common occupations of participants. Almost half of the patients 16 (48.5%) had applied TEM prior to presentation, of which, about half 7(43.8%) of these TEM users had instilled two different substances (either concomitantly or sequentially). Biological-based substances accounted for 22 (95.7%) of TEMs used by the patients.

Conclusion: There was a worrisome rate of TEM use in the treatment of corneal ulcer prior to orthodox ophthalmic consultation. Strategic, long term eye health educational intervention at the grassroot is necessary to curtail the prevalent use of TEM among patients with corneal ulcer.

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Introduction

Over the recent years, the definition of Traditional Medicine (TM) has evolved with some conceptual modifications. However, the distinct narrative that TM is largely an unorthodox approach (i.e. with little

or no scientific background to inform use) is preserved across the various modifications. In 2008, World Health Organization (WHO) defined TM as “health practices, approaches, knowledge and beliefs incorporating plant, animal- and mineral-based medicines, spiritual therapies, manual techniques, and exercises applied singularly or in combination to treat, diagnose and prevent illnesses, or maintain well-being”.¹ In 2023, TM was defined as “a combination of knowledge, skills, and practices used for health maintenance as well as in the prevention, diagnosis, treatment, or improvement of physical, mental, or social diseases based on theories, beliefs and past indigenous experience from cultures and handed down through generations in a verbal or written form”.² Subsequently in 2025, TM is referred to as “codified or non-codified systems for healthcare and well-being, comprising practices, skills, knowledge and philosophies originating in different historical and cultural contexts, which are distinct from and pre-date biomedicine, evolving with science for current use from an experience-based origin. Traditional medicine emphasizes nature-based remedies and holistic, personalized approaches to restore balance of mind, body and environment”.³ In eye health, these unorthodox approaches are summarively referred to as Traditional eye practices (TEPs). TEPs are defined as activities that include the use of Traditional eye medicine (TEM), performing sacred rituals and prayers, or ophthalmic self-medication to cure an ocular ailment.³ TEM refers to biologically based therapies, practices, or partially processed organic or inorganic agents that can be administered via various routes to achieve the desired ocular therapeutic effect.⁴ These TEMs may be crude or partially processed organic (plant and animal products) or inorganic (chemical substances) agents or remedies that are procured from either a traditional medicine practitioner or non-traditional medicine practitioners that could be the patient, relative, or friend.⁵ TEM are either harmful or harmless. Harmless traditional eye medication/practices may be in the form of incantations by traditional healers, prayers, sacred rituals or face washing with water. Harmful eye medications include ocular instillation of alcohol, herbal extracts, breast milk, ground cowries, donkey or cow dung, human sputum, urine, bird and lizard feces, etc. These harmful practices usually cause ocular morbidity due to their contact with the eyes.¹

The harm is due to these substances are either: (1) contaminated, or (2) toxic to tissues (acidic or alkaline in nature). While contamination exposes the ocular tissues to highly infectious organisms, which have devastating outcomes, toxic substances can result in corrosion of the affected tissues.^{1,2,5}

TEM use is a topical issue of grave concern, as its use in the treatment of eye diseases is apparently still rampant in developing countries including Nigeria, especially in remote and rural areas.^{1,2,4-7} The shared dynamics across these developing countries are: poor environmental condition, multidimensional poverty, educational depravity, poor access to eye health, cultural and religious strongholds as well as low capacity and resources to effectively manage corneal diseases, despite high prevalence of infectious corneal ulcers in these regions. An interplay of these factors is responsible for the rampant use of TEMs by ophthalmic patients in these territories. Unfortunately, TEM use is associated with devastating sequelae on the cornea, leading to blindness. TEMs are widely associated with the development and worsening of corneal ulcers and are a significant cause of preventable blindness, particularly in developing countries.^{2,5-8} Whereas the use of TEM is usually deleterious to the eye, its use on a diseased cornea is much more devastating.^{5,6,8,9}

In recent times, corneal diseases are among the major causes of vision loss and blindness in developing countries, after cataract and glaucoma.^{5,11-13} Also, it has been reported that 90% of global cases of ocular trauma and corneal ulceration lead to corneal blindness in developing countries.¹⁴ It is obvious that the further use of TEM, with its toxic effects on the cornea, portends an epidemic of corneal blindness in the nearest future in these regions. It is therefore timely to determine the pattern of TEM use within these territories with a view to guiding the formulation and implementation context-specific public eye health strategies towards reducing avoidable blindness.

This study sought to describe the frequency and forms of TEM used by patients with corneal ulcer presenting to the Eye department, University of Calabar Teaching Hospital (UCTH), Calabar, Cross River State, Nigeria.

Materials and Methods

Study location and Design: This study was undertaken at the eye department of UCTH, Calabar,

Cross River State, Nigeria. It was a retrospective hospital-based descriptive cross sectional study.

Study population: It was comprised of patients with corneal ulcers who presented to the eye department of UCTH, Calabar, Cross River State, Nigeria, from January to December 2024.

Study instrument: A retrospective review of case notes (medical records) of the study participants was done. Relevant patient’s information including age, gender, occupation, and substances applied to the eyes were extracted.

Sampling technique: All consecutive patients presenting with corneal ulcer within the study period were recruited into the study.

Data analysis: SPSS version 20 (SPSS Inc. Illinois, Chicago) was used in analysing the data, Categorical data were summarized as frequencies and percentages.

Ethical consideration: Ethical approval for the study was obtained from the UCTH Health Research Ethics Committee (HREC).

Results

A total of 33 patients with corneal ulcer presented to the eye department of UCTH during the study period (January to December 2024). The sociodemographic characteristics of the study participants shown in Table 1. Over half of the patients 18 (54.5%) were in the 21-50 years age range. The sex distribution of the patients shows a male to female ratio of 2.3:1. On the occupational distribution of the patients, farming (39.4%), trading (21.2%) and student/pupil (18.2%) were the three most common occupations of participants. Figure 1 demonstrates the number of participants that have used TEM. Almost half of the patients 16 (48.5%) had applied TEM prior to

presentation, of which, about half 7(43.8%) of these TEM users had instilled two different substances (either concomitantly or sequentially). Table 2 shows the substances the patients applied to their affected eyes. Human urine 30.4%, leafy extracts/matter 26.1% and herbal mixture/powder 21.7% were the three most commonly used. Biological-based substances accounted for 22 (95.7%) of TEMs used by the patients (Table 3).

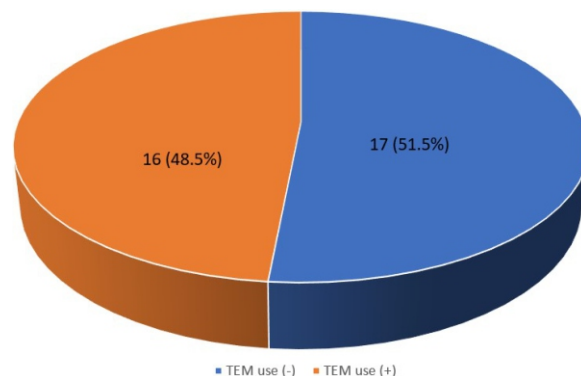


Figure 1: Distribution of TEM users vs TEM non-users

Table 2: Substances applied to the affected eyes

Substances	Frequency (n=23)	Percent, %
Human urine	7	30.4
leafy extracts/matter	6	26.1
herbal mixture/powder	5	21.7
Palm oil	2	8.7
Human breast milk	1	4.3
Onion extract	1	4.3
Sugar water	1	4.3

Table 3: Categories of TEMs applied to the affected eyes

Substances	Frequency (n=23)	Percent,%
1. Biological-based (organic)		95.7
a. Human products		
human urine	7	
human breast milk	1	
b. Plant products		
leafy extracts/matter	6	
herbal mixture/powder	5	
Palm oil	2	
Onion extract	1	
2. Chemical-based (inorganic)	1	4.3
Sugar water		

Discussion

As demonstrated in this study, all age groups are often affected by corneal ulcer, however the more active, economically viable age categories (21-50 years) are most affected. This finding is similar to that of other corneal ulcer studies from the LMICs, with

Table 1: Sociodemographic characteristics of study participants

Variable	Frequency(n=33)	Percentage (%)
Age (years)		
0-10	3	9.1
11-20	3	9.1
21-30	4	12.1
31-40	10	30.3
41-50	4	12.1
51-60	5	15.2
>60	4	12.1
Sex		
Male	23	69.7
Female	10	30.3
Occupation		
Farming	13	39.4
Trader	7	21.2
Student/pupil	6	18.2
Artisan	2	6.1
Retiree	2	6.1
Others	3	9.0

preponderance of respondents in the economically active and viable age brackets.¹⁵⁻²¹ Interestingly, the male to female ratio of 2.3:1 revealed in this study aligns with quite a number of previous studies which show a higher male preponderance.^{15,17,19-22}

The most common occupations of farming, trading and students/pupil corroborate the findings in similar studies from LMICs, in which farmers, traders, artisans, students and civil servants were the most predisposed occupational groups.^{15,18,20-22} Studies have shown that in LMICs, these outdoor occupations and agrarian work are most at risk of developing corneal ulcerations.^{17,20,23,24}

Evidently, the demographic profile of corneal ulcer in this study typifies the pattern in LMICs, characterized by a male preponderance, within the active economically viable age range, with majority being farmers. This highlights a conundrum with far-reaching socio-economic implication for a country such as Nigeria, currently grappling with multidimensional poverty.

Various studies in developing countries have reported that a large number of patients still use TEM.^{1,2,4-10,25-30}

These observations were common in developing countries like African countries, India, Pakistan, and some other Asian countries.⁶ Over the years, different studies in Nigeria have reported different prevalence rates of TEM use ranging from 1.6% to 55%, and an average prevalence of 15.5%.² Atawi et al.⁴ reported that inflammatory diseases of the eye (such as ulcerative keratitis) were the most common eye conditions (49.2%) necessitating TEM use. In this study, about half of the patients with corneal ulcers (48.5%) had instilled TEM prior to presentation to our hospital. Several studies had similarly found worrisome high frequencies of TEM use among patients with corneal ulcer/disease. Prajna et al.³¹ reported that 47.7% of patients with corneal ulcers in South India and Singh from Nepal reported that 57% of the patients with corneal ulcers used TEM.³² Courtright et al.²⁷ reported that 33.8% of patients with corneal disease in Malawi used TEM before presentation to a hospital. Choudhary et al.⁵ reported a rate of 38% of TEM use among corneal ulcer patients at Rewa, Madhya Pradesh. Yorston and Forster in Tanzania revealed that 25% of corneal ulcers in 103 patients had used TEM within the previous 7 days prior to presentation.⁸ Conversely, a few studies had reported low rate of TEM use among patients with corneal ulcers. Mittal et al. in their study in Karnataka

south India found that 7.2% of the 432 new corneal ulcer patients had used TEM,⁹ while Kumar et al reported a comparatively lower TEM use rate of 9.5% in Gujarat, Western India.³³ This may suggest that the frequency of TEM use may vary even within a region and across various regions around the world. The reasons for varying rates can be attributed to differences in the culture, beliefs, awareness and eye health-seeking behaviour.

Furthermore, the relatively high rates of TEM use observed in most developing countries are quite frightening, given the detrimental consequences of most TEM on the cornea. In the background of a corneal ulcer, its use is most disastrous. This is because TEMs are prone to contamination, thus acting as a carrier for infection, and creating a favorable environment for the proliferation of pathogens.^{2,6} TEM use also leads to delay in the use of appropriate antimicrobial therapy.⁶ Due to their direct harmful and noxious effect, they may cause corneal epithelial breakdown and thus aid in bacterial penetration to deeper corneal layers causing an increased occurrence and/or worsening of infectious keratitis, corneal opacities, and staphylomas.^{2,6,10} Some of these TEMs could lead to severe ocular chemical burn.^{2,34,35}

Our study subjects used various forms of TEM, the most common form used were biologically-based therapies 22 (95.7%), in which plant products accounted for 14 (64.0%) of these therapies. As in our study, other Nigerian studies, had reported the use of majority of TEMs of plant origin.^{1,7,36-38} Similarly, Mittal et al in their study in a tertiary eye care centre in South India, from September 2018 to July 2019 found that the most used TEM was plant extract (n= 14; 43.75%),⁹ whereas in the study by Prajna VN et al in South India in 1999, human breast milk accounted for around 45% and was the most common TEM used.³¹ Socio-cultural norms indigenous to the specific geographical area may account for the observed predominant plant-based TEM use.⁹ However, these biologically-based TEMs are well known to have detrimental effects on the eye.²⁷ Such substances may be acidic or alkaline. No particular attention is paid to the mode of action (antibiotic/steroid), concentration, and sterility as most of these preparations (plant/animal extract mixture) are made without regard for hygiene including using contaminated water, saliva, local gin, and even urine.^{2,6}

Conclusion

This study documents a worrisome rate of TEM use in the treatment of corneal ulcer prior to orthodox ophthalmic consultation. The biologically-based TEMs, with well-known detrimental effects to the eye, were the most utilized.

Recommendation

We therefore recommend a well-coordinated, strategic, long term eye health educational and service-based intervention at the grassroots. Encouraging the use of non-harmful traditional eye practices, training of community and primary health workers to recognise cases of red eye needing urgent referral, and the provision of accessible, affordable and acceptable eye care services are valuable measures toward mitigating the rampant use of harmful TEMs among ophthalmic patients in general, and corneal ulcer patients in particular.

Primary eye care workers have a critical role to play in the prevention of TEM-related blindness as they are the first point of contact for ocular conditions. Their contact with the community is important in discouraging the use of TEM. Community health-care workers should be trained to recognise and promptly refer cases of corneal ulcers to ophthalmologists.

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Conflict of interest: None

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