

## Traditional Eye Medicines

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### ABSTRACT

TEMs are a form of biologically based therapies or practices that are instilled or applied to the eye or administered orally to achieve a desired ocular therapeutic effect. TEMs are 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 (TMP; synonyms: traditional alternative medicine practitioner, traditional healer, spiritual healer) or non-traditional medicine practitioners that could be the patient, relative, or friend [1]. Use of traditional eye medicines is apparently still rampant in rural areas.

**Keywords:** Traditional Eye Medicines, Kohl, Surma, Blindness, Corneal ulcer

### INTRODUCTION

#### Traditional eye medicines used

In a population-based, cross-sectional study in this rural population of north India, traditional eye medicine was commonly used in the form of 'surma/kajal', honey, ghee, rose water.

Some peculiar TEMs being instilled in the eye by this population were alum water, milk, plant juices, saline water, breast milk, turmeric, jaggery, curd, garlic, goat's milk, 'neem', powdered horn of deer, excreta of donkey, lemon juice, turpentine oil, coconut oil, warm tea leaves, ginger juice, onion juice, ash of hukkah, mustard oil, fenugreek, carom seeds (ajwain) and leaf extracts [2]. Similarly, a hospital-based study from Sao Paulo, Brazil reported use of homemade, traditional products like boric acid, normal saline and herbal infusions for ophthalmic emergencies [3].

Breast milk (40%) and plant products (29%) were most commonly applied TEMs in study conducted by Chaudhary et al. [1].

Such substances may be acidic or alkaline resulting in various side-effects like ocular burns, skin rashes etc. 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 [4].

The lack of quality control, false or misleading claims on labels, presence of toxic metals and other contaminants in traditional eye products 'kohl' is a problem of great concern.

Not only are traditional remedies easily available and used in India and in the Middle East, they are also used by the immigrant Asian population in the U.K. as a result of persisting cultural practices. Unfortunately, such remedies rarely go through stringent preclinical/clinical toxicity testing. Unsuspecting individuals unaware of this, consume such preparations in good faith believing that "traditional" or "herbal" equals "natural" and "nontoxic" i.e. safe. With such an increased worldwide interest in the use of "herbal"/"natural" medicines [5].

### PREVALENCE

Traditional eye practices are being widely used by the Indian population, prevalence being higher as compared to a hospital-based studies conducted in the Nigerian population [2]. Various studies in Nigeria and other parts of Africa also have reported that a large number of patients still use TEM before presentation to the hospital [6-10]. Use of TEM is not dependent on the participants' age, gender, level of education, religion or marital status [2]. Similar findings were reported from Sao Paulo in Brazil [3].

Instillation of TEM was reported to be higher in subjects residing in rural areas, females, the elderly age group, Muslims, illiterates and people who sustained ocular trauma

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[1-2]. These observations were common in developing countries like African countries, India, Pakistan, and some other Asian countries.

### WHAT DO TEM CAUSE?

TEMs may lead to development of infection due to various factors such as, contamination, acting as carrier for infection, creating a favorable environment for proliferation of pathogens, delay in use of proper anti-microbial therapy. 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 increased occurrence of infectious keratitis, corneal opacities, staphylomas in the developing world including India.

Use of traditional eye medicine is recognized as an important contributory factor for development as well as for delayed or complicated presentation of corneal ulcer cases, especially in rural populations [2,6,10-13].

The development and exacerbation of corneal infections occurring due to these harmful practices, frequently result in poor visual outcome [6,14,15].

There are reports of bilateral corneal blindness after use of traditional eye medicines in form of powders that are used to keep the patients "awake" after snakebite (according to the myths still rampant in rural areas) [5]. The chemical analysis of the flaky powder in a case report revealed it to be potassium nitrite. Instillation of potassium salts in the powder leads to severe ocular chemical burn in both eyes [16,17].

Prajna et al. [18] reported that 47.7% of patients with corneal ulcers in South India [13] and Singh from Nepal reported that 57% of the patients with corneal ulcers used TEM [18]. The use of harmful TEM has been reported in epidemics of acute hemorrhagic conjunctivitis in Africa [19]. A study by Yorston and Forster [20] in Tanzania revealed that 25% of corneal ulcers in 103 patients were associated with the use of TEM within the previous 7 days.

A study conducted by Choudhary et al found that the most common symptom was poor vision for use of TEM. Central and entire corneal involvement was significantly high among TEM users. Visual acuity was found to be higher among non-TEM users as compared to TEM users and the difference was found to be significant [1].

### WHY PEOPLE RESORT TO TEM?

The barriers for not utilizing ophthalmic services were found to be distant location of the hospital and health care facilities, objection raised by older family members, acceptable services provided by the local healers, economic constraints and for some, ophthalmic disease was not a priority. In many cases no treatment was sought in spite of ocular injury instead patients presented to non-ophthalmologists and traditional

healers, 'hakim' (a physician using traditional remedies in India and Muslim countries), 'vaid' (a practitioner of ayurvedic system of medicine which is an ancient Hindu science of health and medicine) and other non-registered practitioners [2]. Similar barriers have been reported by previous studies [21-23].

The perception of supernatural forces as the cause of blindness has also been documented as a barrier to the use of orthodox medications [6,24].

The lack of access to hospitals, low rural education, due to proximity and relatively access to TEM through relatives, friends, and neighbours likely explains the preponderance of rural people resorting to TEM.

### WHAT CAN WE DO?

There is need to increase awareness amongst the medical fraternity and the public regarding the harmful effects of traditional medicines which might be considered 'innocuous' and are used to treat eye conditions in Indian villages [16]. Caution needs to be taken in use of ayurvedic and indigenous eye drops, which are available off-the-counter without consultation of an ophthalmologist.

### Public awareness and education

People residing in villages and rural parts of the developing world, usually tend to consult local healers or elders of the community in the event of an ocular disease as they believe that diseases are caused by violating traditional societal rules [10]. The commonest sources of eye-related health information in rural population are villagers themselves that included neighbours, relatives and traditional healers. Hence, large-scale efforts at public education need to be evolved and implemented through ground-level health care volunteers and local community participation. There is a need to improve health literacy in similar populations to resolve health-related barriers, understand cultural habits and avoid harmful traditional practices.

There is a need to eliminate the barriers for not utilizing ophthalmic services by generating awareness through educational campaigns and to improve accessibility, affordability and availability of quality ophthalmic services for the general population [2]. The prevalence of this preventable blindness can be reduced by intensive health education to the communities, both urban and rural, about the dangers of TEM.

### Research

There is a need to study the overall prevalence of the use of TEM in the population. It is imperative to conduct qualitative research studies in order to understand peoples' behaviour in different populations to combat the current problem. Assessment of use of TEM should be conducted amongst urban populations in order to provide a holistic picture on use of TEM in the Indian community. Reporting of such cases we

would make the ophthalmologists and general medical practitioners aware of these possibilities. Positive steps towards the safety and not just the efficacy of such products should become a research priority in India. These products should undergo quality control testing and toxicity studies. Further community-based studies are needed to reveal other factors that play role in attaining final visual outcome.

### Healthcare

It is important to strengthen the community eye care referral network and to improve and upgrade primary eye care programs in rural population to eliminate avoidable corneal blindness. Need for effective execution and establishment of accessible, high-quality primary eye care services with enhanced delivery of the necessary human and material resources, needed for the treatment of these eye conditions in underserved rural populations. Primary eye care workers have a very important role to play in the prevention of blindness from TEM as they are the first point of contact for ocular conditions. They must be trained to recognize minor ocular ailments and equipped for treating it. Their contact with the community is important in discouraging the use of TEM. Nurses and community health-care workers should be trained to recognize and promptly refer cases of corneal ulcers and trauma to ophthalmologists [1].

Uncontaminated and lead-free eye cosmetics/medications that are safe to use should be marketed in India and overseas. Changes should also be made to the inadequate and misleading information found on the labels of such medications.

The ultimate aim should be prevention of childhood lead poisoning and unnecessary exposure of lead to adults [5]. Early intervention in the form of tectonic keratoplasty and amniotic membrane transplantation helped to preserve the vision in one eye [16].

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