

Editorial: Ocular surface disorders in Sub-Saharan Africa: Challenges and call for action

The ocular surface is a dynamic functional unit comprising of the cornea, conjunctiva, eyelids, eyelashes, lacrimal apparatus and the tear film and any disorder in these structures can be classified as an Ocular Surface Disorder (OSD)¹. The OSDs are vast, including majorly, Dry Eye Disease (DED), Meibomian Gland Dysfunction (MGD), Allergic Eye Diseases (AED), pterygium, followed by conjunctival infections including trachoma, corneal infections and dystrophies, Vitamin A Deficiency (VADD)², blepharitis, and ocular surface neoplastic conditions, such as Ocular Surface Squamous Neoplasia (OSSN), Kaposi's sarcoma, conjunctival lymphoma and conjunctival melanoma³. OSDs may also include chemical and thermal burns as well as autoimmune reactions such as Steven Johnson syndrome and Toxic Epidermal Necrolysis (TEN).

EPIDEMIOLOGY OF OSDS IN SUB-SAHARAN AFRICA (SSA)

There are limited population studies on the different OSDs in SSA with a few institutional-based studies in various countries. The prevalence of DED ranged from 22% to 80% in a systematic review and meta-analysis done for eight African countries (Egypt, Tunisia, Morocco, Libya, Ghana, Nigeria, Ethiopia, and South Africa) showing significant geographical variations and diagnostic inconsistencies⁴. DED is currently being reported as a major public health issue that crosses geographical boundaries^{2,5} hence the more emphasis in this article.

Seid *et al*⁶ reported a pooled prevalence of pterygium of 18% in a systematic review and meta-analysis study in eight different African countries (Ethiopia, Eritrea, Kenya, Uganda, Ghana, Cameroun, Nigeria and South Africa). A systematic review by Gichuhi *et al*⁷ in 2013 reported Africa to have the highest incidence of OSSN in the world, with the highest Age-Standardised Rate (ASR) from Zimbabwe (3.4 and 3.0 cases/year/100 000 population) and noted a high association of OSSN with HIV and HPV infections, long duration of exposure to sunshine and history of allergic conjunctivitis in the Kenyan population⁸.

PRESENTING SYMPTOMS AND RISK FACTORS

The large spectrum of OSDs has many symptoms in common; mainly ocular discomfort that includes pain, burning sensation, foreign body sensation, grittiness, and tearing. Others may complain of dryness, ocular fatigue, and sometimes redness.

Many OSDs also appear to share common predisposing factors including age, gender, menopause, and pregnancy. Geographical and climatic factors in Africa, such as desertic conditions, windy conditions, hot temperatures, dustiness, and intense sunlight, can predispose individuals to enhanced tear evaporation and ocular surface compromise. Additionally, changing lifestyles like urbanization (use of air conditioners) and increased screen time among youths, may enhance the vulnerability to dry eye diseases. Over the last two decades, there has been an increasing tendency in Africa for use of motorcycles ("boda bodas"/ "okadas") as the preferred means of transport especially among the youths which exposes them to increased exposure to wind and dust⁹.

Other predisposing factors include comorbidities such as diabetes, HIV among others, and concomitant drugs including topical ocular medications (anti-glaucoma drugs, steroids, preservatives in ophthalmic solutions) as well as various systemic drugs (anti histamines, antihypertensives, anti-depressants, contraceptives, diuretics, cholesterol- lowering drugs) among many others.

Burden of Dry Eye Disease (DED)

Ocular surface diseases can severely affect the individual's eyesight, quality of life, productivity while in severe cases, it can result in blindness or at their worst result in globe damage and globe loss. DED affects vision-related daily life activities such as reading, using computers or other digital devices, watching television, and driving. Professional activities and work productivity are thus negatively impacted by DED⁵. Additionally, DED has been named as a possible risk factor for developing depression, also being suspected to impact quality of sleep among patients¹⁰.

Control of DED

Management of DED requires proper identification, early diagnosis and appropriate treatment while controlling the predisposing factors too. Treatment of the ocular surface disease especially DED requires eyelid hygiene, tear substitutes (such as methyl cellulose), Viscosity-Enhancing Agents (such as Hyaluronic acid), Osmo protectants (such as betaine, sorbitol, glycerin), topical vitamins (A, B5 and B12), preservative free eyedrops, anti-inflammatory or immunomodulant agents (cyclosporine, tacrolimus) topical steroids. Environment and lifestyle modification is necessary to minimize

exposure to precipitants and promote ocular surface rehydration.

Challenges

It is feared that many patients present with symptoms of DED which are apparently missed by the eye care givers¹¹. It is not certain whether the level of awareness on the possible causes of DED is adequate among the care givers and the public. While DED affect both the wealthy and the poor, common medication needed (such as tear substitutes) are not usually available in the public health facilities or may not be accessible or affordable on the market.

CONCLUSIONS/CALL FOR ACTION

OSDs especially DEDs are among the emerging ocular public health issues in Africa but with geographical variations. More country specific population-based studies are needed to highlight the actual local magnitude. The level of awareness on DED needs to be raised across the generations and professions. More health education, health promotion activities are essential while advocacy is needed for governments to include ensure availability of medication for DED among the national basic eye care drugs.

Musika AA, Section Editor, *JOECSA* and Department of Ophthalmology, College of Health Sciences, Makerere University, Kampala, Uganda. Email: annemusika@gmail.com

REFERENCES

1. Khanna RC. Ocular surface disorders. *Community Eye Health*. 2017; **30**(99):S1-S2.
2. Osae AE, Gehlsen U, Horstmann J, Siebelmann S, Stern ME, Kumah DB, *et al.* Epidemiology of dry eye disease in Africa: The sparse information, gaps and opportunities. *Ocul Surf*. 2017; **15**(2):159-168.
3. Ong Beng Seng M, Meyer D, Gichuhi S, Tong L, Sudharshan S, Biswas J, *et al.* Ocular surface disorders in patients with Human Immunodeficiency Virus (HIV) infection. *Ocul Immunol Inflamm*. 2020; **28**(7):1015-21.
4. Ismail MF, Khalafalla I, Qarbote AI. Prevalence of dry eye disease in African populations: a systematic review and meta-analysis. *BMC Ophthalmol*. 2025; **25**(1):508.
5. Tilahun MM, Alemayehu HB, Eticha BL, Mersha GA, Tegegn MT, Zeleke TC, *et al.* Symptomatic dry eye disease and associated factors among postgraduate students at Hawassa University, Sidama Region, Ethiopia. *Sci Rep*. 2025; **15**(1):17356.
6. Seid K, Wondimagne YA, Getahun GK, Lorato SS, Desalegn M, Rundasa DT, *et al.* 2025.
7. Gichuhi S, Sagoo MS, Weiss HA, Burton MJ. Epidemiology of ocular surface squamous neoplasia in Africa. *Trop Med Int Health*. 2013; **18**(12):1424-443.
8. Gichuhi S, Macharia E, Kabiru J, Zindamoyen AM, Rono H, Ollando E, *et al.* Risk factors for ocular surface squamous neoplasia in Kenya: a case-control study. *Trop Med Int Health*. 2016; **21**(12):1522-30.
9. Peters K, Jenkins J, Ntramah S, Vincent J, Hayombe P, Owino F, *et al.* COVID-19 and the motorcycle taxi sector in sub-Saharan African cities: A key stakeholders' perspective. *Transp Res Rec*. 2023; **2677**(4):751-764.
10. Lazreg S, Hosny M, Ahad MA, Sinjab MM, Messaoud R, Awwad ST, *et al.* Dry eye disease in the Middle East and Northern Africa: A position paper on the current state and unmet needs. *Clin Ophthalmol*. 2024; **18**:679-698.
11. Baudouin C, Aragona P, Van Setten G, Rolando M, Irkec M, Benitez del Castillo J, *et al.* Diagnosing the severity of dry eye: a clear and practical algorithm. *Br J Ophthalmol*. 2014; **98**(9):1168-76.