

## COMMENT



# Eye diseases: a global concern across age, race, and environment

Yoshiyasu Takefuji <sup>1</sup>✉

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A recent literature review, sourced from the National Library of Medicine and initiated from January 1, 2024, was undertaken to investigate the correlation between the prevalence of various eye diseases. Deo et al. reviewed and highlighted the prevalence of Dry Eye Disease (DED), a common optical morbidity affecting a quarter of ophthalmology clinic patients [1]. They discussed the evolution of DED understanding, recognizing two mechanisms: tear desertion and deficient tear production. The review notes DED's higher prevalence in women, especially those in menopausal stages, and in patients with autoimmune diseases. It also mentions lifestyle factors that can trigger DED symptoms and the disease's occurrence across age groups, races, and environmental conditions. The aim is to analyse DED's prevalence in relation to age, sex, and race, and overview its diagnosis and risk factors.

Lazreg et al. highlighted the overlooked issue of DED in the Middle East and Northern Africa [2]. Factors such as climate, lifestyle, and surgical procedures contributed to DED. Preoperative evaluations and treatments were crucial for patients undergoing corneal refractive and cataract surgeries, as these can exacerbate DED. Their study emphasized the need for population-based studies, patient and physician education, and culturally appropriate questionnaires to ease the public health burden of DED in the region [2].

Zarban et al. aimed to determine the prevalence of DED and its associated risk factors among university students in western Saudi Arabia [3]. The study found that 74.6% of the 402 participants exhibited symptoms of DED. Factors such as age, gender, and digital device usage, particularly at bedtime, were associated with DED. Their study underscored the significant impact of DED on individuals' quality of life and performance, highlighting the need for further research and intervention [3].

Aljarousha et al. addressed the rising global prevalence of DED, focusing on the Gaza Strip where data is lacking [4]. A cross-sectional study was conducted on 426 participants, revealing a DED prevalence of 31.5%. Factors such as age, gender, menopause or pregnancy, and pharmacotherapy were associated with DED symptoms. They also found associations between certain conditions and TBUT < 5 s and LGS. Their findings suggested that different DED subtypes may have different underlying pathophysiologies [4].

The systematic literature review by Alamri et al. evaluated global knowledge, attitudes, and practices about eye diseases [5]. Their study found that knowledge about glaucoma was lower than other eye diseases, with differences observed between

genders and age groups. Higher education correlated with increased knowledge. Given glaucoma's prevalence as a cause of blindness, the study emphasized the need for public education about symptoms and complications, promoting regular eye check-ups and the use of glasses [5].

Eze et al. examined the prevalence and causes of visual impairment among Nigerian children [6]. They found that low/middle-income countries bear the highest burden, affecting children's development and socio-economic conditions. Their review included 17 studies, revealing a prevalence of 3.9%, 2.7%, and 0.3% for mild, moderate, and severe visual impairments, respectively, and 0.2% for blindness. Their study underscored the need for intensified prevention and control efforts [6].

Rawlings et al. conducted a retrospective study in Wales, UK, and quantified the burden of acute eyecare on healthcare providers [7]. They found that general practices and accident and emergency services handled most cases, with a significant impact from economic deprivation, access to services, and health scores. Their study suggested that better utilization of optometry and pharmacy services, coupled with improved public awareness, could help alleviate this burden, especially in urban areas with greater economic deprivation and lower overall health [7].

Getachew et al. studied in Ethiopia and assessed the prevalence and factors associated with visual impairment among adults aged 40 and above [8]. They found a high prevalence of visual impairment, particularly among older, less wealthy individuals, those without formal education, and those not using eyeglasses. The leading cause was refractive error. Their study underscored the need for increased awareness of spectacle use and expanded cataract surgery coverage in the region. This was particularly important given the wide-ranging public health, social, and economic issues caused by visual impairment, especially in developing nations [8].

Chiu et al. in Taiwan assessed the risk of eye diseases in relation to age and kidney failure [9]. They found that kidney failure and older age were independently associated with a higher risk of eye diseases, particularly cataract and retinal detachment. Their study also revealed a significant interaction between kidney failure and age on cataract, with a higher risk among patients with kidney failure aged below 50 and between 50 and 60 years. Their study suggested a bidirectional relationship between cataract and kidney failure, especially in individuals below 50 years, underscoring the need for screening [9].

<sup>1</sup>Faculty of Data Science, Musashino University, 3-3-3 Ariake Koto-ku, Tokyo 135-8181, Japan. ✉email: [takefuji@keio.jp](mailto:takefuji@keio.jp)

Zhang et al. highlighted the significant impact of exercise and physical activity on various ocular diseases, including dry eye disease, cataracts, myopia, glaucoma, diabetic retinopathy, and age-related macular degeneration [10]. They emphasized the potential of exercise in mitigating oxidative stress, reducing intraocular pressure, enhancing mitochondrial function, and promoting ocular blood circulation. Their study underscored the need for further exploration into the specific mechanisms through which exercise impacts ocular health, with the aim of developing innovative strategies for the treatment of eye diseases [10].

Eye diseases are a global concern, affecting people across age, race, and environment. Dry eye disease is globally widespread, with studies showing high prevalence even among young adults. The Middle East such as Saudi Arabia showing a high prevalence (74.6%) and North Africa see rising cases due to climate and lifestyle factors. Glaucoma, another prevalent cause of blindness, suffers from lower public awareness, highlighting the need for educational campaigns. Visual impairment heavily burdens low- and middle-income countries, impacting children's development in Nigeria and affecting older, less fortunate individuals in Ethiopia. Visual impairment disproportionately burdens developing nations, hindering children's development. Studies in Taiwan link kidney failure and aging to a higher risk of eye diseases, while research suggests exercise may play a protective role against various ocular conditions.

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## AUTHOR CONTRIBUTIONS

Yoshiyasu Takefuji completed this research and wrote this article.

## COMPETING INTERESTS

The author declares no competing interests.

## ADDITIONAL INFORMATION

**Correspondence** and requests for materials should be addressed to Yoshiyasu Takefuji.

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