

TYPES OF EYE DISEASES IN PATIENTS REFERRED TO COMMUNITY EYE HEALTH UNITS IN PRIMARY HEALTH CARE CENTERS IN IRAQ 2017-2021

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ABSTRACT

Background: Visual impairment (VI) is a significant global health issue, impacting individuals' quality of life and placing a burden on healthcare systems, particularly in low- and middle-income countries. In Iraq, community eye health units are critical in diagnosing and managing various eye diseases. **Aim:** This study aimed to assess the prevalence and distribution of eye diseases in patients attending community eye health units in primary health care centers across Iraq from 2017 to 2021, focusing on gender, age groups, and provincial differences. **Method:** A cross-sectional study was conducted using data collected from community eye health units across Iraq, excluding provinces like Saladin, Anbar, Duhok, Sulaymaniyah, and Erbil. Data from 2017 to 2021 were obtained from the Iraqi Ministry of Health and analyzed using Microsoft Excel. The study included information on diagnosed eye conditions such as refractive errors, cataracts, glaucoma, and conjunctivitis, categorized by age, gender, and province. Data were analyzed as frequencies and percentages. **Results:** A total of 606,254 cases of eye diseases were recorded during the five-year period. The number of cases increased steadily from 2017 to 2019, peaking at 82,724 cases in 2019, before declining during 2020 and 2021, likely due to the impact of the COVID-19 pandemic. Refractive errors were the most common condition, accounting for the highest proportion of cases. The distribution of eye diseases was nearly equal between males and females. Baghdad–Alkarkh recorded the highest prevalence of eye diseases, followed by Basra and Dhi Qar. **Conclusion:** Eye disease diagnoses in Iraq showed a peak in 2019 followed by a decline, likely due to the pandemic's impact on healthcare services. Refractive errors were the most prevalent condition, and the distribution was similar across genders. Baghdad–Alkarkh had the highest prevalence of eye diseases, highlighting the need for enhanced eye care services in specific regions.

KEYWORDS: eye diseases, referred, eye health units, primary health care.

INTRODUCTION

Visual impairment (VI) is a severe disability that can affect learning, communication, work, health, and quality of life. Vision loss impacts not only individuals but also their families, communities, and society.^[1, 2] The World Health Organization (WHO) estimates that 314 million people globally have VI, with 45 million being blind.^[3] Around 90% of the visually impaired reside in low- and middle-income countries.^[4, 5] In Iraq, the prevalence of blindness is low at 0.2%, with VI and severe VI increasing significantly after the age of 60.^[6] Blindness imposes an economic burden on developing nations due to costs related to productivity loss, rehabilitation, and education.^[7] Notably, 80% of global VI is preventable or treatable.^[8] Diabetic retinopathy (DR) affects 35% of people with diabetes globally, with vision-threatening DR present in 12%.^[9] DR accounts for 4.8% of vision loss cases worldwide^[10], and it was responsible for 1.9%

of moderate to severe VI and 2.6% of blindness in 2010.^[11] It is the sixth leading cause of global VI.^[12] Glaucoma costs the U.S. economy \$2.86 billion annually^[13], while the cost of treating bacterial conjunctivitis in the U.S. is \$857 million each year.^[14] Community eye health focuses on delivering affordable eye care to all, including awareness promotion and prevention through health education.^[15] Conditions such as cataracts, responsible for half of all global blindness^[16], and refractive errors, the leading causes of VI, are prominent in these services.^[17] Other conditions include dry eye disease (DED), which impairs activities like reading and driving^[19], and DR, which can lead to visual loss due to abnormal retinal vessel growth.^[20] Glaucoma remains a major cause of irreversible blindness, particularly in the U.S.^[21] The WHO defines blindness as a visual acuity of less than 3/60 (20/200, 0.05) and low vision as less than 6/18 (20/50, 0.3) with

the best correction.^[22] Strabismus, a common childhood disorder, can lead to vision loss from amblyopia.^[23] This study aims to measure the prevalence of eye diseases among people referred to community eye health units in Iraq (2017-2021), identify trends, and describe the types of eye diseases by age, gender, and governorates.

METHOD

This cross-sectional study was conducted using the records of all patients attending community eye health units in primary health care centers across Iraq between 2017 and 2021. The study setting involved the Ministry of Health (MOH) – Iraqi Public Health Directorate, specifically the Non-Communicable Disease Department and the Eye Health and Blindness Prevention Section. This section supervises, plans, implements, monitors, and evaluates services related to eye health across Iraq. The study excluded the Health Directorates of Saladin, Anbar, Duhok, Sulaymaniyah, and Erbil due to unavailable data. Data collection occurred from September to November 2022, with records gathered centrally by the Eye Diseases and Blindness Prevention Section. The data for the years 2017–2019 was initially collected through paper forms and later entered electronically into the Excel system. For 2020 and 2021, the data was collected and stored electronically. A structured data collection form was used, which included demographic information (age, gender) and details of the

diagnosed eye conditions, such as refractive errors (RE), cataracts, glaucoma, conjunctivitis, dry eye diseases, diabetic retinopathy, strabismus, and other eye conditions. The national strategy for non-communicable disease prevention and control in Iraq facilitated the provision of eye care services in 67 community eye health units within primary health care centers. These units were responsible for diagnosing blindness and visual impairments and referring patients to hospitals, especially for cataract surgeries. Depending on the unit, eye care services were provided by ophthalmologists, ophthalmic practitioners, sight examiners, or optometrists. Data analysis was performed using Microsoft Excel 2016. Categorical data, including the frequencies and percentages of patients based on age, gender, and eye diseases, was presented in tables and graphs. The study received administrative approval from the Iraqi Public Health Directorate, Non-Communicable Disease Department, and Eye Health and Blindness Prevention Section.

RESULTS

In the current study (606) registration recorded of the eye diseases from the last five years were reviewed. 2017-2021_Figure (1) shows the reviewed data by number of eye diseases (2017–2021), the lowest number were during the year 2020 (28731) and highest during the year 2019 (82724).

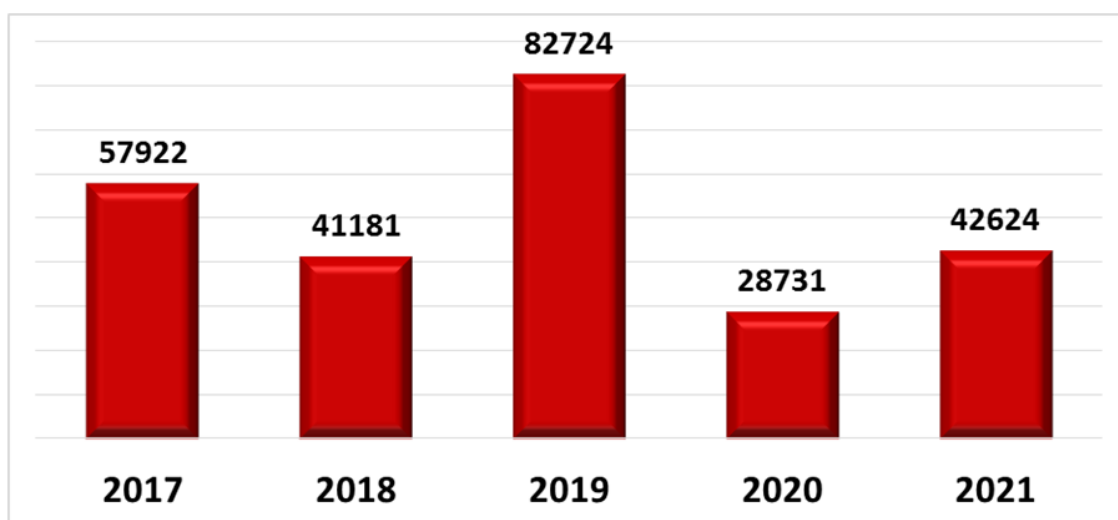


Figure 1: Total number of eye disease cases (2017 – 2021)

Regarding the distribution of eye diseases by gender, it was found that in 2017 male (30648) was more than female while in other years female was more than male, in general the number of eye disease according to the gender were approximately equal, figure(2). The

proportion of eye diseases for 5 years showed that the highest one was conjunctivitis (45983, 16.9%) followed by hyperopia (34916, 15.3) and the lowest one was tear duct obstruction (2536, 1.0%) Figure (3).

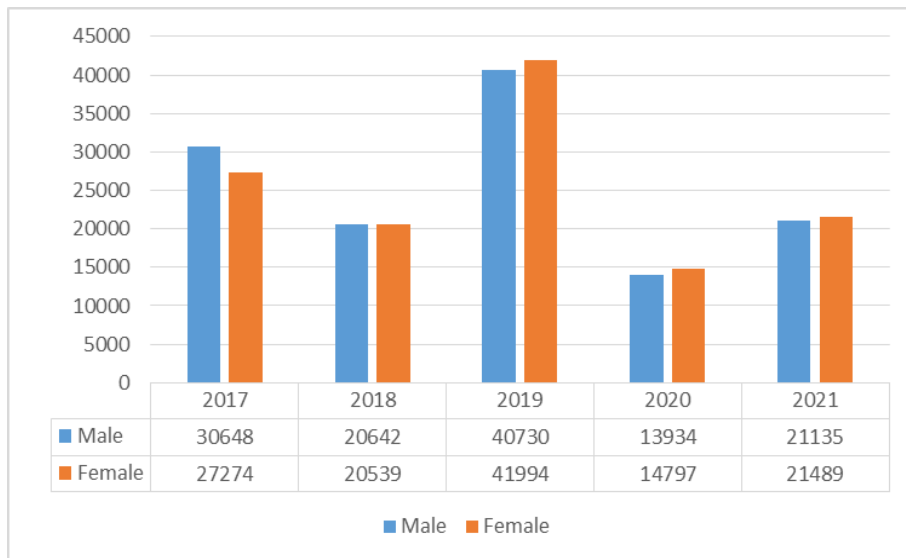


Figure 2: Total number of eye diseases according to gender (2017 – 2021)

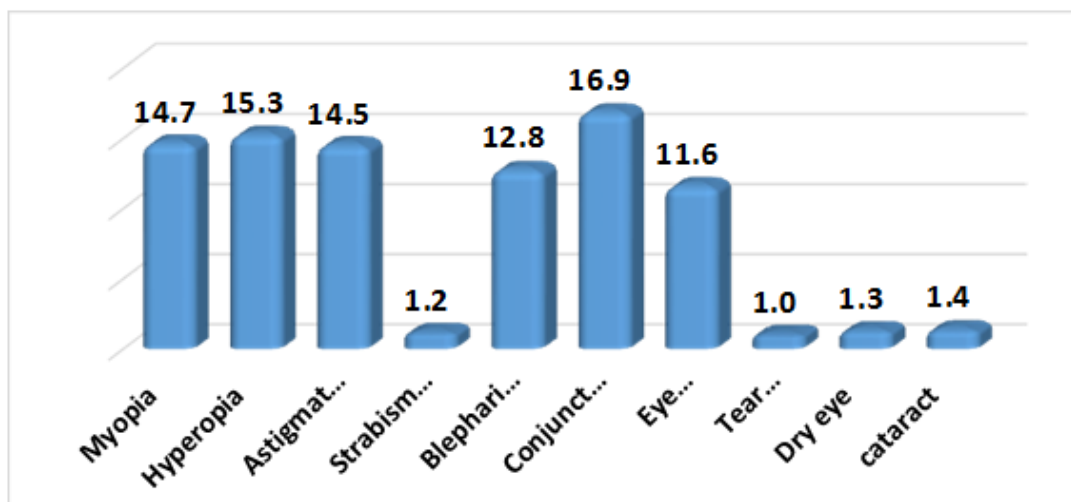


Figure 3: Proportion of eye diseases (2017 – 2021)

The proportion of male was higher than female in tear duct obstruction (1.06%), eye allergy (1.04%), dry eyes disease (1.03%), Blepharitis (1.02%) and strabismus

(1.02%). On the other hand female was higher than male in other diseases, figure (4).

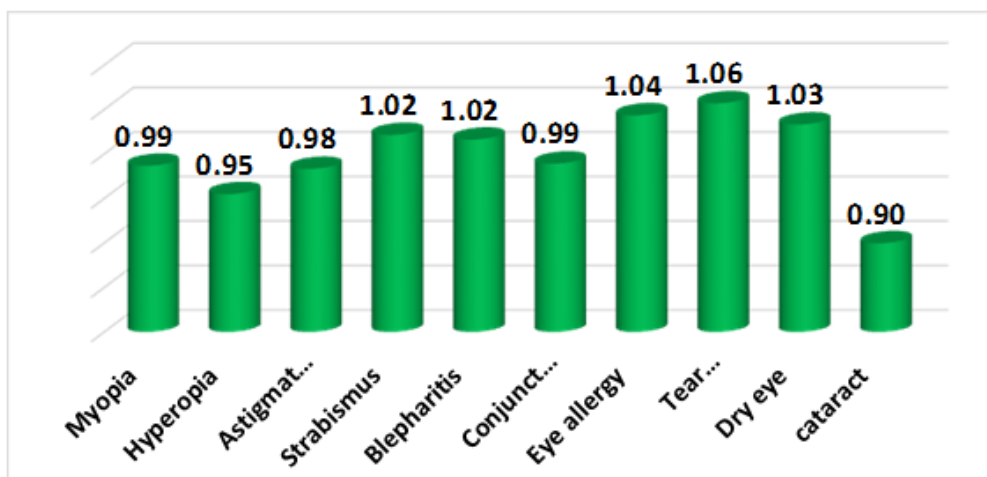


Figure 4: Proportion of male to female ratio of eye diseases (2017 – 2021)

The distribution of eye diseases for five years (2017-2021) shows that there is slightly differences between male and female table (1).

Table 1: Distribution of eye diseases according to gender (2017-2021).

Dis. Gender	Myopia	Hyperopia	Astigmatism	Strabismus	Conjunctivitis	Eye allergy	Tear Duct obstruction	Dry Eye disease	Blepharitis	Cataract
Male	16563 6.5%	17219 6.8%	16100 6.3%	1421 0.561%	22955 9.06%	15955 6.3%	1320 0.52%	1666 0.65%	17876 7.06%	1474 0.58%
Female	16789 6.6%	17803 7.0%	16204 6.4%	1434 0.566%	22936 9.05%	14600 5.7%	1215 0.47%	1557 0.61%	17581 6.9%	1591 0.62%

Regarding the proportion of eye diseases according to the Iraqi provinces, Baghdad-Alkarkh (21.1), Basra (10.3) and Theeqar (8.0) were the highest prevalence eye

diseases and the lowest was found in Babil (0.3), figure (5).

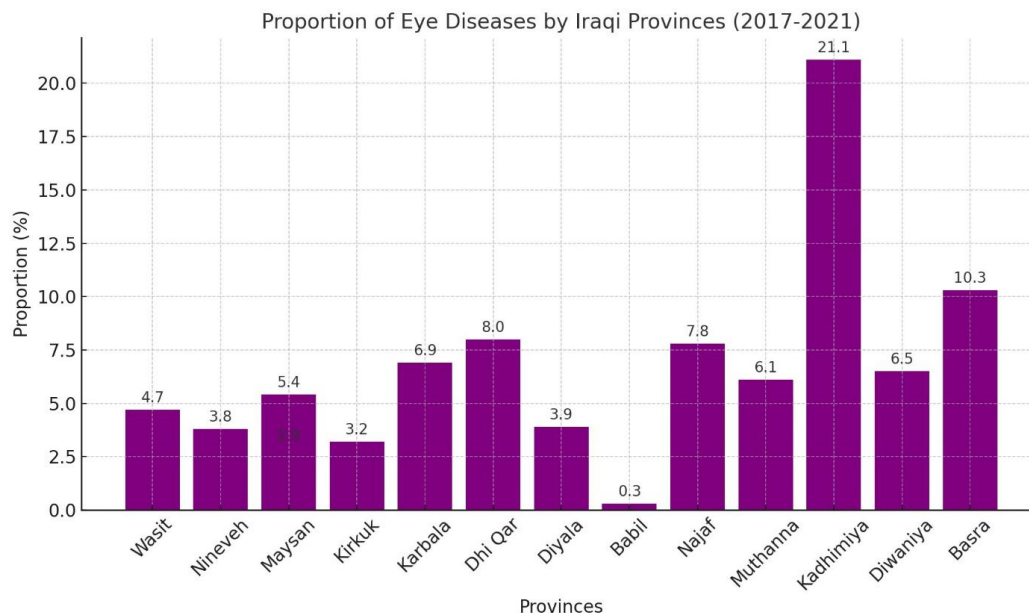


Figure 5: proportion of eye diseases according to the Iraqi provinces (2017 – 2021)

Table 2: Distribution of eye diseases according to age.

	< 1 year		1 – 4 years		5 – 14 year		15 -44 year		45 -65 year		>65 year		total		
year	male	Female	male	female	male	female	male	female	male	female	male	female	male	female	total
2017	1171 3.82	1296 4.75	2089 6.82	2647 9.71	7115 23.22	8002 29.34	10791 35.21	8933 32.75	6861 22.39	5371 16.69	2621 8.55	1025 3.76	30648 52.91	27274 47.09	57922
2018	1646 7.98	1668 8.05	2102 10.19	2170 10.48	5162 25.02	5176 24.99	5839 28.30	6269 30.27	4213 20.42	3877 18.72	1668 8.09	1549 7.48	20630 49.90	20709 50.10	41339
2019	2807 6.95	3050 7.32	5093 12.62	5566 13.37	10045 24.88	9988 23.98	11516 28.53	13131 31.53	7871 19.50	7681 18.44	3036 7.52	2230 5.35	40368 49.22	41646 50.78	82014
2020	419 1.70	418 1.58	909 3.69	1073 4.07	3139 12.75	3642 13.81	4890 19.86	5614 21.29	3587 14.50	3380 12.82	11678 47.43	12246 46.43	24622 48.28	26373 51.72	50995
2021	489 2.31	519 2.37	627 2.97	809 3.69	4059 19.21	4551 20.76	7385 34.94	8417 38.40	5894 27.89	5469 24.95	2680 12.68	2153 9.82	21134 49.09	21918 50.91	43052

DISCUSSION

Although most causes of visual impairments are preventable, the number of eye diseases increased from 2017 to 2019, followed by a decline during 2020 and 2021. This decrease could be attributed to the COVID-19 pandemic, as primary health care centers shifted their focus toward diagnosing and managing COVID-19 cases and improving vaccine response. The findings of this

study align with those of Marzieh Katibeh et al., who investigated the prevalence and causes of visual impairment and blindness in central Iran. Their Yazd Eye Study revealed slight differences in the distribution of eye diseases between genders.^[24] Regarding the mean prevalence of eye diseases, refractive errors (RE) were the most common, similar to findings in studies from Saudi Arabia^[25] and Nigeria.^[26] In terms of gender

distribution, males had a higher proportion of tear duct obstruction, eye allergies, dry eye disease, blepharitis, and strabismus. Conversely, females had a higher proportion of RE (myopia, hyperopia, and astigmatism), cataracts, and conjunctivitis. This mirrors findings from Nigeria, where RE and cataracts were more prevalent in females than males.^[26] Over the five-year period, conjunctivitis, RE, and eye allergies were the most prevalent conditions, likely due to their significant impact on quality of life, as well as their educational, social, and economic consequences. The lower prevalence of other eye diseases may be due to their painless, progressive nature, causing patients to seek treatment only in emergencies.^[27] In terms of the mean prevalence of eye diseases by Iraqi province, Baghdad–Alkarkh had the highest rates, likely due to the larger number of community eye care units and a higher number of patients attending primary health care centers in the area.

CONCLUSION

The number of diagnosed eye diseases in community eye health units increased from 2017 to 2019, followed by a decrease during 2020 and 2021. The number of eye diseases in males and females was approximately equal. Refractive errors were the most prevalent eye conditions among patients referred to community eye health units in primary health care centers across Iraq during the period 2017–2021. In terms of prevalence by province, Baghdad–Alkarkh recorded the highest number of eye disease cases.

REFERENCES

- Brown MM, Brown GC, Sharma S, Busbee B. Quality of life associated with visual loss: a time tradeoff utility analysis comparison with medical health states. *Ophthalmology*, 2003; 110: 1076–81.
- Welp A, Woodbury RB, McCoy MA, Teutsch SM. *Making Eye Health a Population Health Imperative: Vision for Tomorrow*. Washington (DC): National Academies Press (US); 2016. ISBN-13: 978-0-309-43998-5, ISBN-10: 0-309-43998-1.
- Resnikoff S, Pascolini D, Mariotti SP, Pokharel GP. Global magnitude of visual impairment caused by uncorrected refractive errors in 2004. *Bull World Health Organ.*, 2008; 86(1): 63–70.
- Thylefors B. A global initiative for the elimination of avoidable blindness. *Am J Ophthalmol.*, 1998; 125(1): 90–3.
- Cunningham ET Jr. World blindness—no end in sight. *Br J Ophthalmol.*, 2001; 85(3): 253.
- Ministry of Health/World Health Organization. *Chronic Non-communicable Disease Risk Factors Survey in Iraq*, 2015.
- World Health Organization. *Implementation of VISION 2020 in the Eastern Mediterranean Region: Report on a Regional Planning Workshop*, Cairo, Egypt, 14–17 December 2003. Cairo: World Health Organization; 2004. Available from: <https://apps.who.int/iris/handle/10665/255053>
- World Health Organization. *Action Plan for the Prevention of Avoidable Blindness and Visual Impairment*. Geneva: World Health Organization; 2009.
- World Health Organization. *TADDS: Tool for the Assessment of Diabetic Retinopathy and Diabetes Management Systems*. Geneva: World Health Organization; 2015.
- Resnikoff S, Pascolini D, Etya'ale D, et al. Global data on visual impairment in the year 2002. *Bull World Health Organ.*, 2004; 82: 844–51.
- Bourne RR, Stevens GA, White RA, et al. Causes of vision loss worldwide, 1990–2010: a systematic analysis. *Lancet Glob Health.*, 2013; 1(6)–49.
- Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. *Br J Ophthalmol.*, 2012; 96(5): 614–8.
- National Eye Institute. *Glaucoma Data and Statistics*. Available from: <https://www.nei.nih.gov/learn-about-eye-health/resources-for-health-educators/eye-health-data-and-statistics/glaucoma-data-and-statistics>. Accessed November 19, 2019.
- Shekhawat NS, Shtein RM, Blachley TS, Stein JD. Antibiotic prescription fills for acute conjunctivitis among enrollees in a large United States managed care network. *Ophthalmology.*, 2017; 124: 1099–107.
- Konyama K. Essential components of primary eye care. *Community Eye Health.*, 1998; 11: 19–21.
- Brian G, Taylor H. Cataract blindness: challenges for the 21st century. *Bull World Health Organ.*, 2001; 79: 249–56.
- Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. *Br J Ophthalmol.*, 2012; 96: 614–8.
- Bourne RA, Dineen BP, Huq DM, Ali SM, Johnson GJ. Correction of refractive error in the adult population of Bangladesh: meeting the unmet need. *Invest Ophthalmol Vis Sci.*, 2004; 45: 410–7.
- Miljanovic B, Dana R, Sullivan DA, Schaumberg DA. Impact of dry eye syndrome on vision-related quality of life. *Am J Ophthalmol.*, 2007; 143(3): 409–15.
- Fong DS, Aiello L, Gardner TW, et al. Retinopathy in diabetes. *Diabetes Care.*, 2004; 27(Suppl 1)–7.
- BrightFocus Foundation. *Glaucoma: Facts and Figures*. Available from: <https://www.brightfocus.org/glaucoma/article/glaucoma-facts-figures>. Accessed November 19, 2019.
- Thylefors B, Negrel AD, Pararajasegaram R, et al. Global data on blindness. *Bull World Health Organ.*, 1995; 73: 115–21.
- Cotter SA, Varma R, Tarczy-Hornoch K, et al. Risk factors associated with childhood strabismus: the multi-ethnic pediatric eye disease and Baltimore pediatric eye disease studies. *Ophthalmology.*, 2011; 118(11): 2251–61.
- Katibeh M, Pakravan M, Yaseri M, et al. Prevalence and causes of visual impairment and blindness in

- central Iran: The Yazd Eye Study. *J Ophthalmic Vis Res.*, 2015; 10(3): 279–85.
25. Al-Shaalin FF, Bakrman MA, Ibrahim AM, Wong TY, Saw SM. Prevalence and causes of visual impairment among Saudi adults attending primary health care centers in northern Saudi Arabia. *Ann Saudi Med.*, 2011; 31: 473–80.
 26. Kyari F, Gudlavalleti MV, Sivsubramaniam S, et al. Prevalence of blindness and visual impairment in Nigeria: The National Blindness and Visual Impairment Study. *Invest Ophthalmol Vis Sci.*, 2009; 50: 2033–9.
 27. Kauser H, Khan T. Changing trend in the pattern of ocular diseases in patients attending ophthalmology department of a teaching institute in North India during COVID-19 pandemic. *J Family Med Prim Care*, 2021; 10(3): 1197–203.