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ORIGINAL ARTICLE

Awareness of Age-Related Eye Diseases Among Adults Over 40 Years in Baghdad

Kefah H. Abid Al-Majeed*, Amal F. Jaffar, Ebtihal Al Bassam and Hamid K. Al-Zaid
Department of Optics Techniques, Al Hikma University College, Baghdad. Iraq

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ABSTRACT

Knowledge of common eye diseases plays an important role in encouraging people to seek treatment for eye problems. This study was conducted to assess awareness and knowledge of cataract, diabetic retinopathy and glaucoma in people 40 years and above. It was a descriptive cross-sectional study conducted by convenient sampling. Among 183 participants aged 40 years and above from the general population. Data was collected through a semi structured questionnaire and was conducted through direct interviews to 183 participants in Al Kindy hospital in Baghdad. The results showed awareness for cataract, diabetic retinopathy and glaucoma was 150 (82%), 142 (77.6%), and 132(72.1%) respectively. Knowledge about these diseases is treatable was 131(87.3%), 68 (47.9%) and 69 (52.3%) respectively and knowledge about the worst effect of these diseases is blindness was 71 (47.3 %), 114(80.3%) and 101(76.5%) respectively. About source of information for these diseases (44.3%) of the participants took their information from social media. There was a significant statistical association between age with awareness about cataract and occupation with awareness about glaucoma. Public education for periodic eye checks effective measures for its early detection and management regarding these three diseases.

Corresponding Author:

* Kefah H. Abid Al-Majeed
Department of Optics Techniques, Al Hikma University College, Baghdad. Iraq
Email: kifah.hamid@hiuc.edu.iq

1- INTRODUCTION

Ageing is a normal, universal, progressive, irreversible process. It is an inevitable physiological phenomenon [1]. According to the World Health Organization, more than two billion individuals worldwide experience vision impairment, with a significant proportion of these cases being preventable or untreated. In at least 1 billion of these, vision impairment could have been prevented or is yet to be addressed [2]. The main conditions causing distance vision impairment or blindness among this 1 billion people are cataract (94 million), refractive error (88.4 million), age-related macular degeneration (8 million), glaucoma (7.7 million), diabetic retinopathy (3.9 million) [2].

The World Health Organization (WHO) defines blindness as presenting visual acuity worse than 3/60 (or 20/400) in the better eye, with the best possible correction, or a corresponding visual field loss of 10 degrees or less. Cataract is responsible for almost half of global blindness. About 90% of the world's visually impaired lives in low-income countries. Of those people living with blindness, 82% are aged 50 and above [3]. Cataract refers to the progressive clouding of the eye's natural lens, leading to impaired vision. Although irreversible without intervention, it remains one of the most treatable causes of blindness through surgical removal of the opaque lens. [4]. In developed

countries, cataract accounts for only 5% blindness while in developing countries, cataract accounts for 50% of blindness[3]. Diabetic retinopathy (DR) is one of the most significant complications of poorly managed diabetes mellitus and remains a leading cause of vision loss among diabetic patients. The progression and severity of DR are closely linked to how long a person has lived with diabetes and how well their blood sugar levels are controlled. With global diabetes prevalence expected to rise sharply—from an estimated 382 million cases in 2013 to nearly 592 million by 2035—the burden of diabetic eye disease is anticipated to grow accordingly. [5].

Glaucoma is a group of eye diseases that damage the optic nerve and can cause vision loss and blindness. High eye pressure inside the eye or high intraocular pressure (IOP) is the only known risk factor for glaucoma that can be changed with treatment [6]. Glaucoma is a leading cause for irreversible visual impairment and blindness worldwide. Asia alone accounts for almost 60% of the world's total glaucoma cases [7]. Raising the public level of awareness through public education for periodic eye checks is one of the effective measures for its early detection and management [8]. In Iraq Cataract, the leading cause of blindness, was present in 378(76.1%) subjects, Followed by Advanced diabetic retinopathy (12.9%) followed by Primary open-angle glaucoma was the cause of blindness in 25(5%) subjects [9]. Awareness and knowledge of common eye diseases play an important role in encouraging people to seek treatment for eye problems. This further helps introducing the burden of visual impairment among the population in society [10]. The aim of the study is to assess the knowledge and awareness of people over forty years about Cataract, Diabetic retinopathy and Glaucoma and to know about source of information of people above forty regarding these eye diseases.

2- MATERIALS AND METHODS

A descriptive cross-sectional study was done during the period from 1\12\2023 until 1\9\2024 in Al-Kindy hospital in Baghdad through direct interview with exclusion of medical and health care personnel. A convenient sample of 183 persons, forty years and above, whom was agreed to participate in this study. Collection of data from study participants using semi structured questionnaire [11, 12]. The questionnaire includes three parts ,first part was related to sociodemographic characteristics like age (years), sex, level of education, occupation, some medical characteristics of the eyes (medical history of eye ,Complain of visual problems, the type of visual spectacles, any visit ophthalmologist, reason for the visiting and reason of not visiting ophthalmologist, any medical history of eye therapy . Second part includes four questions related to the three eye diseases (1- Heard about disease,2- definition of disease, 3-worst effect of disease and 4-is the disease is treatable) through choosing the correct answer from the questionnaire.

The third part was related to Source of information about different visual problems from Ophthalmologist, Primary health doctor (PHC), Books & magazines, TV educational programs or social media. Having heard of the eye disease in question was defined as "awareness" and having some understanding of the eye disease was defined as "knowledge".

(i) Cataract – lens opacity [12] (ii) Glaucoma-- pressure problem related to the eye, causes vision [10] loss/blindness, causes tunnel vision, problem at the back of the eye [10].(iii) Diabetic retinopathy: A preventable side effect of diabetes or high blood sugar on eyes [12]. Statistical analysis was done and the collected data were coded, entered, presented, and analyzed by computer using the available data base software program statistical package of IBM SPSS-29 (IBM Statistical Packages for Social Sciences- version 29, Chicago, IL, USA). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values).
The significance of difference of different percentages (qualitative data) was tested using Pearson Chi-square test.
Statistical significance was considered whenever the P value was less than 0.05.

3- RESULTS

A total of 183 participants aged 40 years and above from both sexes were included in this study. Most ages are from 40-49 years (36%), Females are more than males, College graduation constitutes (51%) and employee percent was (51%) as seen in table 1.

Table (1): Demographic characteristics of the Participants

		No. (183)	100%
Age (years)	40---49	67	36.6
	50---59	52	28.4
	60---69	54	29.5
	=>70years	10	5.5
	Mean ±SD (Range)	53.4±8.5 (42-79)	
Gender	Male	74	40.4
	Female	109	59.6
	6-12 school study	29	15.8
	College	95	51.9
	Higher	59	32.2
Occupation	Employee	94	51.4
	Worker	-	-
	Retired	54	29.5
	Not working	5	2.7
	Housewife	30	16.4

Table 2 showed visual characteristics of the participants in which 65 (44.5%) of the participants complained of near vision problem, most of them 140 (76.5%) had history of visiting ophthalmologist because of eye problems and only 28 (15.3%) had medical history of main therapy to eyes as shown in table 2.

Table (2): Visual characteristics of the study sample

		No (183)	100%
Complain of visual problems	Near vision	56	30.6
	Far vision	39	21.3
	Combined problem	51	27.9
	No problem	37	20.2
The type of visual spectacles	For near vision	65	44.5
	For far vision	40	27.4
	For combined problem	41	28.1
Visit ophthalmologist	Yes	140	76.5
	No	43	23.5
Reason for the visit of ophthalmologist	Yes, for eye problem	75	53.6
	Yes, for check up	65	46.4
Reason for not visiting ophthalmologist	No eye problem	24	55.8
	For financial reasons	4	9.3
	For limited time	15	34.9
	For other reasons	-	-
Have medical history for main therapy to eye	Yes	28	15.3
	No	155	84.7

According to awareness most of the participants were aware of cataract (82%), while knowledge about cataract only one third of the participants define cataract, 71(47.3%) knew that blindness is the worst effect of cataract and 131 (87.3%) of the participants answered that cataract is treatable condition as seen in table (3).

Table (3): Distribution of participants in relation to awareness and knowledge about cataract

		No (183)	100%
Heard about cataract	Yes	150	82.0
	No	33	18.0
Definition of cataract (n=150)	White spot in the eye	-	-
	White pupil	28	18.7
	Lens opacity	50	33.3
	the lens looks cloudy or white	54	36
	vision loss by blocking the light rays that enter the eye.	18	12.0
	Do not know	-	-
Worst effect of cataract (n=150)	Blindness	71	47.3
	Low vision	73	48.7
	Pain	2	1.3
	Cosmetic problems	3	2.0
	Others	1	0.7
Is cataract a treatable condition (n=150)	Yes	131	87.3
	No	1	0.7
	Do not know	18	12.0

In this study most participants 142 (77.6%) had awareness about diabetic retinopathy but only 26 (18.3) participants defined diabetic retinopathy as a side effect of diabetes or high blood sugar on eyes, 114 (80.3%) knew that blindness is the worst effect of diabetic retinopathy, 68 ((47.9%) answered yes for diabetic retinopathy is treatable condition and 73 (51.4%) choose the first presentation of diabetic retinopathy in most cases may start without any red flags as shown in table 4.

Table (4): Distribution of participants in relation to awareness and knowledge about diabetic retinopathy

		No. (183)	100%
Heard about diabetic retinopathy	Yes	142	77.6
	No	41	22.4
Definition of diabetic retinopathy (n=142)	A preventable side effect of diabetes or high blood sugar on eyes	26	18.3
	A side effect of diabetes on posterior parts of eye	23	16.2
	Damage to the eye's blood vessels caused by diabetes	56	39.4
	A vision-impairing condition caused by high blood sugar	37	26.1
Worst effect of diabetic retinopathy (n=142)	Blindness	114	80.3
	Low vision	24	16.9
	Pain	3	2.1
	Cosmetic problems	1	.7
	Others	-	-
Diabetic retinopathy is a treatable condition (n=142)	Yes	68	47.9
	No	20	14.1
	Do not know	54	38.0
The first presentation of diabetic retinopathy in most cases (n=142)	Visual loss	34	23.9
	Pain	33	23.2
	It may start without any alarming symptoms or signs	73	51.4
	Blurring vision	2	1.4
	Others	-	-

In this study 132 (72.1%) participants had awareness about glaucoma, of those 92 (69.9%) define glaucoma as high pressure of the eye, 101(76. %) answered that the worst effect of glaucoma is blindness, 69 (52.3%) know that it is treatable disease and 37 (28%) of the participants answered that it may start without any alarming symptoms or signs as shown in table (5).

Table (5): Distribution of participants in relation to awareness and knowledge about glaucoma

		No. (183)	100%
Participants had heard about cataract.	Yes	132	72.1
	No	51	27.9
Definition of glaucoma (n=132)	High pressure of the eye	92	69.7
	Any eye disease which impairs the visual field	33	25.0
	Ocular disorders resulting in optic nerve damage	7	5.3
	Elevation of intraocular fluid	-	-
Worst effect of glaucoma (n=132)	Blindness	101	76.5
	Low vision	24	18.2
	Pain	7	5.3
	Cosmetic problems	-	-
	Others	-	-
Glaucoma is a treatable condition (n=132)	Yes	69	52.3
	No	15	11.4
	Do not know	48	36.4
The first presentation of glaucoma in most cases (n=132)	Visual loss	38	28.8
	Pain	54	40.9
	It may start without any red flags	37	28.0
	Blurring vision	3	2.3
	Others	-	-

About source of information related to eye problems most participants 81 (44.3%) said that the source of information from social and only 6 (3.3%) participants said that the source of information was from TV educational programs as seen in Table (6).

Table (6): Source of information among participants

Source of information about different visual problems	No	100%
Ophthalmologist	44	24.0
PHC doctor	15	8.2
Books & magazines	37	20.2
TV educational programs	6	3.3
Social media	81	44.3

Table (7) showed association between awareness of cataract in the various age groups, sex level of education and occupation. It also showed no statistically significant association between awareness of cataract with age, sex, level of education and occupation.

Table (7): Association between awareness of cataract in the various age groups with sex, level of education and occupation

Awareness of Cataract with Sociodemographic characteristics			
Age Group	**Yes (%)**	**No (%)**	**Total (%)**
40-49	54 (80.5)	13 (19.5)	67 (100)
50-59	42 (80.7)	10 (19.3)	52 (100)
60 -69	49 (90.7)	5 (9.3)	54 (100)
70+	5 (50)	5 (50)	10 (100)
Total	150 (81.9)	33 (18.1)	183 (100)
The Chi-square statistic is 9.8614. The P-value is .019782 result is significant at p< 0.05			
Sex	**Yes (%)**	**No (%)**	**Total (%)**
Female	90 (82.5)	19(17.5)	109 (100)
Male	58 (78.3)	16 (21.7)	74 (100)
Total	148 (80.8)	35 (19.2)	183 (100)
Chi−square = 0.501. The p-value is 0.4791. Not significant at p < 0.05.			

Education	**Yes (%)**	**No (%)**	**Total (%)**
6-12 years school study	22 (75.8)	7 (24.2)	29 (100)
College	76 (80)	19 (20)	95 (100)
Higher	49 (83.1)	10 (16.9)	59 (100)
Total	147 (80.3)	36 (19.7)	183 (100)
The Chi-square statistics is 0.64933. The p-value is 0.722781. Not significant at p < 0.05.			

Occupation	**Yes (%)**	**No (%)**	**Total (%)**
Employee	75 (79.8)	19 (20.2)	94 (100)
Retired	44 (81.5)	10 (18.5)	54(100)
Unemployed	27 (77.1)	8 (22.9)	35 (100)
Total	146 (79.8)	37 (20.2)	183(100)
Chi-square is 0.25 p value 0.8824, Not significant at p < 0.05.			

Table (8) showed no statistically significant association between awareness of diabetic retinopathy with age, sex, level of education and occupation.

Table (8): Association between Awareness of diabetic retinopathy in the various age groups with sex, level of education and occupation

Awareness of Diabetic retinopathy with Sociodemographic characteristics			
Age Group	**Yes (%)**	**No (%)**	**Total (%)**
40-49	52 (77.6)	15 (22.4)	67(100)
50-59	43 (82.6)	9 (17.4)	52 (100)
60 -69	41 (75.9)	13 (24.1)	54 (100)
70+	6 (60)	4 (40)	10 (100)
Total	142 (77.6)	41(22.4)	183(100)
Chi-square = 2.64, p-value 0.45052, Not significant at p < 0.05.			
sex	**Yes (%)**	**No (%)**	**Total (%)**
female	86 (78.8)	23 (21.2)	109 (100)
male	53 (71.6)	21 (28.4)	74 (100)
Total	139 (75.5)	44 (24.5)	183 (100)
The chi-square statistic is 1.2782. The p-value is .258232 not significant at p < 0.05			
Education	**Yes (%)**	**No (%)**	**Total (%)**
6-12 years school study	18 (62.1)	11(37.9)	29 (100)
College	76 (80)	19(20)	95 (100)
Higher	46 (77.9)	13 (22.1)	59 (100)
Total	140(76.5)	43(23.5)	183(100)
The chi-square statistic is 4.0776. The p-value is .130183, the result is not significant at p <0 .05.			
Occupation	**Yes (%)**	**No (%)**	**Total (%)**
Employee	74 (78.7)	20 (21.3)	94(100)
Retired	38 (70.3)	16(29.7)	54(100)
Unemployed	28 (80)	7 (20)	35 (100)
Total	140 (76.5)	43 (23.5)	183(100)
The chi-square statistic is 1.6257. The p-value is .443594, the result is not significant at p <0 .05			

Table (9) showed association between glaucoma in the various age groups with sex, level of education and occupation, and showed no statistically significant association between awareness of glaucoma with age, sex, but there is a significant relation with level of education and occupation.

Table (9): Association between glaucoma in the various age groups with sex, level of education and occupation

awareness about glaucoma with sociodemographic charcterstics.			
Age Group	**Yes (%)**	**No (%)**	**Total (%)**
40-49	41(61.2)	26(38.8)	67(100)
50-59	40 (76.9)	12(23.1)	52 (100)
60 -70	43(79.6)	11(20.4)	54 (100)
70+	7 (70)	3 (30)	10 (100)
Total	131(71.5)	52(28.5)	183(100)

Occupation	**Yes (%)**	**No (%)**	**Total (%)**
Employee	67(71.2)	27(28.8)	94(100)
Retired	45 (83.3)	9(16.7)	54(100)
Unemployed	17 (48.5)	18 (51.5)	35 (100)
Total	129 (70.4)	54 (29.6)	183(100)

The chi-square statistic is 12.3939. The p-value is .002036. The result is significant at p < 0.05.

The chi-square statistic is 6.0153. The p-value is 0.110869. The result is not significant at p < 0.05.

sex	**Yes (%)**	**No (%)**	**Total (%)**
female	81(74.3)	28(25.7)	109 (100)
male	50 (67.5)	24(22.5)	74 (100)
Total	131(71.5)	52(28.5)	183 (100)

The chi-square statistic is 0.9856. The p-value is 0.320812. Not significant at p <0 .05.

Education	**Yes (%)**	**No (%)**	**Total (%)**
6-12 years school study	16 (55.1)	13(44.9)	29 (100)
College	72 (75.7)	23 (24.3)	95 (100)
Higher	46 (77.9)	13(22.1)	59 (100)
Total	134(73.2)	49(26.8)	183 (100)

The chi-square statistic is 5.8154. The p-value is 0.054601. The result is not significant at p <0 .05.

4- DISCUSSION

In the current study, about 30% of the participants had near-vision problems, and only 20% reported no visual issues. These findings do not align with results reported in a previous study [12] in which 44.8% of the participant do not have visual problem regarding near and far vision, this might be attributed to consulting ophthalmologist is more in this sample as seen in about three quarter of the participants in this study so they were diagnosed more with visual problem.

Awareness of the three eye diseases was generally good, with participants being most aware of cataract (150; 82%), followed by diabetic retinopathy (142; 77.6%) and glaucoma (132; 72.1%). These findings are consistent with those reported in earlier studies [10] which showed that awareness of cataract was 88.2%, diabetic retinopathy 83.5%, and glaucoma 71.5% among the study population, aligning with findings from previous research [13] which showed that over 75% of respondents reported awareness of cataracts and glaucoma, although this level of awareness was not fully consistent with findings from previous research [14] which concluded that awareness of diabetic retinopathy was 63.3%, and it also differed from a study conducted in Baghdad [1] which showed that awareness of cataract was 56%. Another study reported that [15] showed awareness (71.3%) for cataract, diabetic retinopathy (62.3%) and glaucoma awareness (57.7%). These differences in these studies might be attributed to differences in health education about eye diseases in participants in the studies mentioned above.

Regarding cataract knowledge, the findings of this study are consistent with those reported in previous research [12] that showed approximately 35% of participants recognized the definition of the condition as lens opacity, that is consistent with this study (33.3%). In addition the current study showed (48.7%) of the participants acknowledged that it could result in vision loss, while nearly87.3% were aware that it is a treatable disease which is more than the result of previous study in which(75.9%) answered that it is treatable condition, this might be due to regular checkup at ophthalmic clinic and listening to instructions of ophthalmologists .

Diabetic retinopathy results indicated that most participants had good knowledge that the condition can lead to blindness, but their understanding of its definition was limited, which is consistent with findings from previous research [16] although globally, the prevalence of diabetic retinopathy among diabetic patients is estimated to be 27.0% [17]. Nearly 70% of participants knew the definition of glaucoma, more than 75% were aware that it can cause blindness, and over 50% recognized it as a treatable condition; these results differ from those reported in a previous study [18] in which only 22.5% of the participants knew definition of glaucoma and (63.1%) knew that there is treatment for glaucoma.

The collected data indicate that 44.3% of participants obtain information about age-related eye diseases from social media, followed by ophthalmologists (24%), which differs from findings reported in previous research [12] which showed that participants primarily obtained information from books and magazines, followed by family members and friends, which differs from findings reported in other studies [19] that showed (28.80%) information from social media and (21.80%) information from TV. The association between awareness for cataract and sociodemographic characteristics there is statistically significant association between age and awareness for cataract in which those aged 60-70 years old more aware than others, there is also a statistically significant association between occupation, including the retired group, and awareness of glaucoma, which is consistent with findings from previous research [20] in which the analysis revealed a statistically significant relationship between participants' age and their awareness of cataract, but not with diabetic retinopathy or glaucoma. This differs from a previous study that reported a significant association between educational level and awareness of cataract and diabetic retinopathy [8], this study demonstrated no significant statistical association in glaucoma awareness among different age groups and sex and not goes with the same study in which there was statistically significant association between those who had higher education and their awareness of glaucoma.

5- CONCLUSION

Knowledge about cataract is more than knowledge about diabetic retinopathy and glaucoma but still there is a need for more health education by ophthalmologists and primary health center physicians to this age group to increase knowledge regarding these three diseases and education about periodic eye examination is an effective measure for its early detection and management of these diseases.

REFERENCES

[1] Ahmad, A. S., Douri, N. A. al, & Khudher, K. S. (2023). Older adults' knowledge and attitude toward cataract at primary health care centers in Baghdad City. Azerbaijan Pharmaceutical and Pharmacotherapy Journal, 22(2), 187–192. https://doi.org/10.61336/appj/22-2-39

[2] World Health Organization. (2023, October 10). WHO updates fact sheet on blindness and vision impairment. https://communitymedicine4asses.wordpress.com/2023/10/13/who-updates-fact-sheet-on-blindness-and-vision-impairment-10-october-2023/ (Accessed July 6, 2024)

[3] Wolde Kentayiso, T., Alto, A. A., Abebaw, Z., Misker, D., & Godana Boynito, W. (2023). Cataract prevalence and its associated factors among adult people aged 40 years and above in South Ari District, Southern Ethiopia. Advances in Public Health, 2023, Article 1996608. https://doi.org/10.1155/2023/1996608

[4] Mencucci, R., Stefanini, S., Favuzza, E., Cennamo, M., de Vitto, C., & Mossello, E. (2023). Beyond vision: Cataract and health status in old age, a narrative review. Frontiers in Medicine, 10, 1110383. https://doi.org/10.3389/fmed.2023.1110383

[5] Al Ashoor, M., Al Hamza, A., Zaboon, I., Almomin, A., & Mansour, A. (2023). Prevalence and risk factors of diabetic retinopathy in Basrah, Iraq. Journal of Medicine and Life, 16(2), 299–306. https://doi.org/10.25122/jml-2022-0170

[6] National Eye Institute. (2023, July 17). Glaucoma research. https://www.nei.nih.gov/research/clinical-trials/landmark-clinical-vision-and-eye-research/glaucoma-research (Accessed July 15, 2024)

[7] Chan, E. W., Li, X., Tham, Y. C., Liao, J., Wong, T. Y., Aung, T., & Cheng, C. Y. (2016). Glaucoma in Asia: Regional prevalence variations and future projections. British Journal of Ophthalmology, 100(1), 78–85. https://doi.org/10.1136/bjophthalmol-2014-306102

[8] Nkum, G., Lartey, S., Frimpong, C., Micah, F., & Nkum, B. (2015). Awareness and knowledge of glaucoma among adult patients at the eye clinic of a teaching hospital. Ghana Medical Journal, 49(3), 195–199. https://doi.org/10.4314/gmj.v49i3.11

[9] Al-Shakarchi, F. I. (2011). Blindness in Iraq: Leading causes, target patients, and barriers to treatment. Middle East African Journal of Ophthalmology, 18(3), 199–203. https://doi.org/10.4103/0974-9233.84044

[10] Chew, Y. K., Reddy, S. C., & Karina, R. (2004). Awareness and knowledge of common eye diseases among the academic staff (non-medical faculties) of University of Malaya. Medical Journal of Malaysia, 59(3), 305–311.

[11] Katibeh, M., Ziaei, H., Panah, E., Moein, H. R., Hosseini, S., Kalantarion, M., Eskandari, A., & Yaseri, M. (2014). Knowledge and awareness of age-related eye diseases: A population-based survey. Journal of Ophthalmic & Vision Research, 9(2), 223–231.

[12] Sultan, I., Alsaedi, M. G., Ahmed, F. A., Alharbi, K. F., & Alasiri, N. M. (2019). Knowledge and awareness of age-related eye diseases in the population of the western region of Saudi Arabia. World Family Medicine, 17(12), 35–46. https://doi.org/10.5742MEWFM.2019.93711

[13] Kamińska, A., Pinkas, J., Wrześniewska-Wal, I., Ostrowski, J., & Jankowski, M. (2023). Awareness of common eye diseases and their risk factors—A nationwide cross-sectional survey among adults in Poland. International Journal of Environmental Research and Public Health, 20(4), 3594. https://doi.org/10.3390/ijerph20043594

[14] Thapa, R., Poudyal, G., Maharjan, N., & Bernstein, P. S. (2012). Demographics and awareness of diabetic retinopathy among diabetic patients attending the vitreo-retinal service at a tertiary eye care center in Nepal. Nepal Journal of Ophthalmology, 4(1), 10–16. https://doi.org/10.3126/nepjoph.v4i1.5844

[15] Parrey, M. U. R., Abdul-Latif, M. M., Alruwaili, S. M. M., Alshammari, K. H. S., Alsayer, R. I. A., Alanazi, N. K. J., & Abd El Mawgod, M. M. (2024). Public awareness of common age-related eye diseases in Northern Saudi Arabia. Cureus, 16(3), e56841. https://doi.org/10.7759/cureus.56841

[16] Makhdoum, H. M., Mahrous, F. A., Alshareef, E. K., Ghunaim, R. S., Abukhodair, A. O., & Alburkani, M. A. (2024). Knowledge, attitude, and practices regarding diabetic eye disease among general population in Medina City, Saudi Arabia. Open Journal of Ophthalmology, 14(1), 18–43. https://doi.org/10.4236/ojoph.2024.141003

[17] Zegeye, A. F., Temachu, Y. Z., & Mekonnen, C. K. (2023). Prevalence and factors associated with diabetic retinopathy among type 2 diabetic patients at Northwest Amhara Comprehensive Specialized Hospitals, Northwest Ethiopia (2021). BMC Ophthalmology, 23(1), Article 1. https://doi.org/10.1186/s12886-022-02746-8

[18] Albaqami, F. M., Aljuaid, S. A., Alrabie, W. K., Alotaibi, M. A., Albaqami, M. M., Alharthi, F. S., & Alghamdi, A. (2023). Knowledge and awareness of glaucoma among people living in Taif City in the Western Region of Saudi Arabia. Cureus, 15(10), e47728. https://doi.org/10.7759/cureus.47728

[19] bin Shibrayn, M. S., Aljarbou, A. M., & Alanazi, Y. A. (2018). General awareness and knowledge about cataracts, glaucoma, and diabetic retinopathy in Saudi Arabia. The Egyptian Journal of Hospital Medicine, 70(9), 1603–1609. https://doi.org/10.12816/0044690

[20] Islam, F. M. A., Chakrabarti, R., Islam, S. Z., Finger, R. P., & Critchley, C. (2015). Factors associated with awareness, attitudes and practices regarding common eye diseases in the general population in a rural district in Bangladesh: The Bangladesh population-based diabetes and eye study (BPDES). PLoS ONE, 10(7), e0133043. https://doi.org/10.1371/journal.pone.0133043