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DIABETIC RETINOPATHY- AWARENESS, KNOWLEDGE, ATTITUDE AND PRACTICE AMONG DIABETIC PATIENTS VISITING A TERTIARY CARE CENTER IN PUNJAB: A QUESTIONNAIRE-BASED SURVEY

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ABSTRACT

Background: Purpose: To assess the awareness, knowledge, attitude, and practice patterns (KAP study) of diabetic retinopathy (DR) associated with other factors among patients with diabetes mellitus (DM).

Materials and Methods: A six-month cross-sectional study was conducted among DM patients who visited the tertiary care eye center in Punjab using a validated closed-ended structured questionnaire.

Results: A total of 385 diabetic patients (49.6% male and 50.4% female) with a mean age of 61.16±9.40 included. Among them, 66.2% were aware of DR with significant association with education ($p < 0.001$), locality ($p = 0.01$) and occupation ($p < 0.001$). Only 13% of the patients demonstrated good knowledge about DR, while 36.9% had fair knowledge and 50% had poor knowledge. A strong association was observed between good knowledge, education, and locality ($p < 0.001$). Of the patients, 19.2% showed a positive attitude, and 37.1% showed a right practice, with both groups showing a significant association with education and locality ($p < 0.001$). Patients with good knowledge were well aware of DR (OD=1.24; 95% CI: 1.17-1.32, $p < 0.001$) and had a positive attitude (OD=4.28; 95% CI: 2.27-8.04, $p < 0.001$) with good practice (OD=7.88; 95% CI: 3.88-15.99, $p < 0.001$).

Conclusion: Knowledge about DR is notably poor among rural and illiterate populations. As lack of knowledge was the most significant barrier to coming to an eye hospital, this highlights the need for screening camps coupled with targeted awareness campaigns at the grassroots level to educate and improve knowledge about DR.

Keywords: Diabetic Retinopathy, Diabetes Mellitus, Knowledge, Attitude, and Practice (KAP).

INTRODUCTION

India is considered the diabetes capital of the world, with one in every five adults in the country having diabetes.[1] The cases of diabetes in the country are approaching the distressing figure of 69.9 million by 2025 and 80 million by 2030.[2] DR is a significant complication of DM.As the prevalence of diabetes continues to rise globally, the incidence of DR follows suit, making it a critical public health concern.

A study by Teo et al. included 11 studies from India, which described that among diabetes individuals, the global prevalence for DR was 22.27%, 6.17% for vision-threatening DR, and 4.07% for CSME.[3] Recent meta-analyses showed that the prevalence of DR in India is 16.10%.[4]

Despite its potentially debilitating outcomes, DR is often asymptomatic in its early stages, underscoring the importance of regular screening and early detection. Timely intervention can significantly mitigate the progression of DR and preserve vision.[5]

Early detection and treatment of risk factors, along with photocoagulation, can prevent approximately 50-73% of cases of visual impairment or blindness caused by DR.[6,7]

Awareness is suggested as one of the factors that can influence an individual's behavior, such as their decision to attend screening sessions.[8] Studying the knowledge, attitude, and practice (KAP) of individuals with diabetes regarding DR is crucial for developing and implementing effective public health strategies. KAP assessments provide valuable insights into the gaps in knowledge, misconceptions, and behaviors that may hinder the effective management and prevention of DR.

This study aims to understand the prevalent awareness, knowledge, attitudes, and practices regarding retinopathy among diabetic patients visiting a tertiary eye hospital in Punjab.

MATERIALS AND METHODS

This cross-sectional study was conducted using a questionnaire-based survey among diabetic patients visiting the tertiary eye care center (Regional Institute of Ophthalmology, Amritsar) in Punjab between July and December 2021.

The questionnaire was designed after a detailed literature search on various similar published studies, and it was further validated in three steps. First, the questionnaire was sent to ten expert medical professionals for their opinions regarding its importance, relevance, and acceptability. Subsequently, the questionnaire was pre-tested to check the language, clarity, simplicity, and feasibility and their comments were incorporated. Finally, a pilot study was conducted with 100 respondents of the target population to check for statistical reliability and validity (Cronbach's alpha: 0.794 and intraclass correlation coefficient (0.762 – 0.824). The validity was checked by comparing the obtained result of Pearson's correlation coefficient against the critical values in the table with a degree of freedom at two-tailed N-2 with a 95% confidence interval (CI).

The sample size was calculated using the Cochran formula for the large population with 5% precision and variability in proportion 0.5 with 95% CI, and the result was 385 patients. Inclusion criteria included 1) diabetic patients of ≥ 40 years of age and 2) patients with domicile of Punjab. Exclusion criteria included 1) patients who had received panretinal photocoagulation and intravitreal injection for DR. The study protocol was approved by the ethical committee of the institution and conducted following the tenets of the Declaration of Helsinki. The questionnaire was translated into Punjabi, the major dialect used in the region. The respondents were asked to provide informed consent before completing the questionnaire. The questions were read to the patient, and the responses were noted.

A structured questionnaire comprising 20 questions was used to gather information on demographics (5 questions), awareness (1 question, are you aware of DR), knowledge (5 questions), attitude (2 questions), practice (2 questions), duration of DM, compliance with the DM medication, history of prior fundus examination, source of information and a most significant barrier to come to tertiary eye care center. The responses to the awareness and KAP study in the questionnaire were recorded as correct or incorrect.

Out of a total of five knowledge questions, (Can diabetes affect your vision, Can patient with controlled diabetes have eye problems, Can early treatment of diabetes prevent damage to the eyes, Which part of the eye gets affected the most in diabetes, and what is the treatment for diabetic retinopathy) patients with either none or only one correct response were considered to have poor knowledge, those with two correct responses possessed fair knowledge and with ≥3 correct responses demonstrated good knowledge about DR.

The section related to attitude consisted of two questions (Should a patient with diabetes go for regular eye checkups and how often a patient with diabetes should go for regular eye checkups). None or one correct response was considered a negative attitude and patients with two correct responses were regarded as having a positive attitude. Similarly, the practice segment included two questions (Which health care professional do you prefer in case of eye problems and Can an individual with controlled diabetes avoid visiting an ophthalmologist), where no or one correct response denoted incorrect practice and two correct responses indicated correct practice.

Each patient's fundus examination and DR grading were done according to ETDRS classification. They are further categorized into within normal limits (WNL), Non-sight threatening diabetic retinopathy (NSTDR) and sight-threatening diabetic retinopathy (STDR). NSTDR included patients with mild and moderate non-proliferative diabetic retinopathy (NPDR), and STDR included with severe NPDR, PDR and patients with clinically significant macular edema (CSME) at any stage. The eye of each patient with more severe retinopathy was considered for study enrollment.

Statistical Analysis

Data were imported to an Excel spreadsheet, and IBM SPSS 27 statistical software was utilized for data analysis. Methods such as frequency, percentages, and Chi-square tests were employed to compare the associations between two categorical variables. Logistic regression analysis was done to identify associations and predictors among the respondents, and the results were expressed as odds ratios (OR) and 95% confidence intervals (CI). A p-value of less than 0.05 was considered significant.

RESULTS

A total of 385 patients were evaluated. Most participants (37.4%) were 60-69 years old, with

females (50.4%) being slightly more common. (Table 1)

Most patients presented with decreased vision as the chief complaint (80%) and only 1% were referred from primary or secondary centers. 76% of patients were taking medication for DM prescribed by a qualified doctor, 13.3% from local practitioners, and 10.7% were not taking any treatment. 57.5% of patients showed good compliance with DM medication, while 42.5% showed poor compliance. 62.3% of the participants in our study thought that people who are effectively managing their diabetes could skip regular visits to an ophthalmologist. Most patients (78.7%) had no other medical conditions, whereas 21.3% had other conditions such (as hypertension and cardiac history).

Table 1: Demographic profile and other factors

Demographic profile and other factors	No. (%)
Age (inyears)	
40-49	51 (13.2)
50-59	74 (19.2)
60-69	144 (37.4)
70 and above	116 (30.1)
Gender	
Male	191 (49.6)
Female	194 (50.4)
Locality	
Rural	176 (45.7)
Urban	209 (54.3)
Education	
Illiterate	146 (37.9)
Primary	137 (35.6)
Secondary	80 (20.8)
Graduate	22 (5.7)
Occupation	
Working	97 (25.2)
Non-working	192 (49.9)
Retired	96 (24.9)
Duration of DM	
<1 year	40 (10.4)
1-5 years	91 (23.6)
5-10 years	130 (33.8)
>10 years	124 (32.2)
Grading of DR	
WNL	136 (35.3)
NSTDR	122 (31.7)
STDR	127 (33.0)
Compliance with diabetes medication	
Yes	220 (57.1)
No	165 (42.9)
History of prior fundus examination	
Yes	81 (21.0)
No	304 (79.0)

Awareness of DR [n=255 (66.2%)] was significantly associated with higher education levels (p = <0.001), locality (p < 0.012), and occupation (p= 0.026), but not with age (p= 0.220) or gender (p= 0.106). (Table 2)

Out of five knowledge questions, patients with either none or only one correct response were considered to have poor knowledge [n=193 (50.1%)], those with two correct responses possessed fair knowledge [n=142 (36.9%)], and with ≥3 correct responses demonstrated good knowledge [n=50 (13%)] about DR. (Table 2)

Table 2: Demographics and other variables associated with awareness and knowledge of DR

	n=385 (%)	Aware of DR n=255 (66.2%)	OD (95% CI)	P value	Good Knowledge n=50 (13%)	OD (95% CI)	P value
Age group (yrs)							
40-49	51 (13.2)	47 (18.4)	1.0		15 (30.0)	1.0	
50-59	74 (19.2)	40 (15.7)	0.10 (0.03-0.30)	0.022	04 (8.0)	0.14 (0.04-0.44)	0.501
60-69	144 (37.4)	95 (37.3)	0.17 (0.06-0.49)		10 (20.0)	0.18 (0.07-0.43)	
70 +	116 (30.1)	73	0.14		21	0.53	

		(28.6)	(0.05-0.43)		(42.0)	(0.25-1.14)	
Gender							
Male	191 (49.6)	119 (46.7)	1.0	0.010	26 (52.0)	1.0	0.892
Female	194 (50.4)	136 (53.3)	1.42 (0.93-2.17)		24 (48.0)	0.90 (0.50-1.62)	
Locality							
Rural	176 (45.7)	105 (41.2)	1.0	0.012	11 (22.0)	1.0	0.047
Urban	209 (54.3)	150 (58.8)	1.72 (1.12-2.63)		39 (78.0)	3.44 (1.70-6.95)	
Education							
Illiterate	146 (37.9)	63 (24.7)	1.0	<0.001	03 (6.0)	1.0	<0.001
Primary	137 (35.6)	91 (35.7)	2.61 (1.61-4.22)		20 (40.0)	8.15 (2.36-28.10)	
Secondary	80 (20.8)	79 (31.0)	10.07 (2.09-27.41		15 (30.0)	11.00 (3.08-39.39)	
Graduate	22 (5.7)	22 (8.6)	21.48 (7.27-47.20)		12 (24.0)	57.20 (13.85-236.24)	
Occupation							
Working	97 (25.2)	52 (20.4)	1.0	0.026	15 (30.0)	1.0	0.015
Non-working	192 (49.9)	137 (53.7)	2.16 (1.30-3.58)		18 (36.0)	0.57 (0.27-1.18)	
Retired	96 (24.9)	66 (25.9)	1.90 (1.06-3.43)		17 (34.0)	1.18 (0.55-2.52)	
Duration of DM							
<1 yrs	40 (10.4)	14 (5.5)	1.0	0.096	04 (8.0)	1.0	0.436
1-5yrs	91 (23.6)	66 (25.9)	4.90 (2.21-10.87)		05 (10.0)	0.52 (0.13-2.06)	
5-10yrs	130 (33.8)	97 (38.0)	5.46 (2.55-11.68)		14 (28.0)	1.08 (0.34-3.51)	
>10yrs	124 (32.2)	78 (30.6)	3.15 (1.50-6.63)		27 (54.0)	2.50 (0.82-7.66)	
Grading of DR							
WNL	136 (35.3)	99 (38.8)	1.0	0.089	09 (18.0)	1.0	0.179
NSTDR	122 (31.7)	76 (29.8)	0.62 (0.37-1.05)		27 (54.0)	4.01 (1.80-8.92)	
NSTDR	127 (33.0)	80 (31.4)	0.64 (0.38-1.07)		14 (28.0)	1.75 (0.73-4.19)	
Compliance with diabetes medication							
Yes	220 (57.1)	176 (69.0)	1.0	<0.001	22 (44.0)	1.0	0.692
No	165 (42.9)	79 (31.0)	0.23 (0.15-0.36)		28 (56.0)	1.84 (1.01-3.35)	
History of prior fundus examination							
Yes	81 (21.0)	69 (27.1)	1.0	<0.001	17 (34.0)	1.0	<0.001
No	304 (79.0)	186 (72.9)	0.27 (0.14-0.53)		33 (66.0)	0.46 (0.24-0.87)	

In our study, only 74 (19.2%) of the patients showed a positive attitude towards the disease, with the remaining displayed a negative attitude [n=311 (80.8)]. Right practice had been shown by 143 (37.1%) patients and wrong practice by 242 (62.9%). Both attitude and practice patterns exhibited a highly significant association with education (p = <0.001) and locality (p = <0.001). The duration of diabetes was significantly associated with good knowledge (p = 0.002) and a positive attitude towards DR (p = 0.034). Grading of DR did not show a significant association with awareness (p = 0.089), knowledge (p = 0.258) and attitude (p = 0.610). Compliance with DM medications was significantly associated with awareness (p = <0.001) and knowledge (p = 0.044) but not with attitude (p = 0.219) and practice (p = 0.627). A previous history of prior fundus examination had a highly significant association with awareness, knowledge, attitude and practice (p = <0.001).

Patients with good knowledge of DR demonstrated a highly significant association with awareness (OD=1.24; 95% CI: 1.17-1.32, p < 0.001), attitude (OD=4.28; 95% CI: 2.27-8.04, p < 0.001) and practice (OD=7.88; 95% CI: 3.88-15.99, p < 0.001). Similarly, attitude and practice had a significant association (OD=10.63; 95% CI: 5.72-19.75, p < 0.001) (Table 3) (Table 3)

Table 3: Demographics and other variables associated with attitude and practice of DR

	n=385 (%)	Positive attitude n=74 (19.2%)	OD (95% CI)	P value	Right Practice n=143 (37.1%)	OD (95% CI)	P value
Age group(in yrs)							
40-49	51 (13.2)	47 (18.4)	1.0	<0.001	15 (30.0)	1.0	0.857
50-59	74 (19.2)	40 (15.7)	0.68 (0.09-4.99)		04 (8.0)	0.76 (0.37-1.57)	
60-69	144 (37.4)	95 (37.3)	7.57 (1.75-32.78)		10 (20.0)	0.64 (0.33-1.23)	
70+	116 (30.1)	73 (28.6)	11.02 (2.54-47.84)		21 (42.0)	0.89 (0.46-1.75)	
Gender							
Male	191 (49.6)	119 (46.7)	1.0	<0.001	26 (52.0)	1.0	<0.001
Female	194 (50.4)	136 (53.3)	0.14 (0.07-0.27)		24 (48.0)	0.27 (0.18-0.42)	
Locality							
Rural	176 (45.7)	105 (41.2)	1.0	<0.001	11 (22.0)	1.0	<0.001
Urban	209 (54.3)	150 (58.8)	2.72 (1.55-4.75)		39 (78.0)	2.33 (1.52-3.59)	
Education							
Illiterate	146 (37.9)	63 (24.7)	1.0	<0.001	03 (6.0)	1.0	<0.001
Primary	137 (35.6)	91 (35.7)	2.25 (1.07-4.73)		20 (40.0)	2.72 (1.64-4.54)	
Secondaryy	80 (20.8)	79 (31.0)	6.70 (3.18-14.10)		15 (30.0)	2.31 (1.29-4.16)	
Graduate	22 (5.7)	22 (8.6)	7.73 (2.75-21.76)		12 (24.0)	5.76 (2.23-14.90)	
Occupation							
Working	97 (25.2)	52 (20.4)	1.0	0.009	15 (30.0)	1.0	0.325
Non-wworking	192 (49.9)	137 (53.7)	0.20 (0.09-0.43)		18 (36.0)	0.25 (0.15-0.42)	
Retired	96 (24.9)	66 (25.9)	1.99 (1.08-3.69)		17 (34.0)	0.76 (0.43-1.35)	
Duration of DM							
<1 yrs	40 (10.4)	14 (5.5)	1.0	0.034	04 (8.0)	1.0	0.218
1-5yrs	91 (23.6)	66 (25.9)	0.20 (0.06-0.64)		05 (10.0)	0.66 (0.28-1.52)	
5-10yrs	130 (33.8)	97 (38.0)	1.03 (0.44-2.41)		14 (28.0)	2.99 (1.39-6.39)	
>10yrs	124 (32.2)	78 (30.6)	1.09 (0.47-2.59)		27 (54.0)	1.03 (0.47-2.24)	
Grading of DR							
WNL	136 (35.3)	99 (38.8)	1.0	0.610	09 (18.0)	1.0	0.004
STDR	122 (31.7)	76 (29.8)	2.38 (1.30-4.36)		27 (54.0)	2.83 (1.66-4.80)	
NSTDR	127 (33.0)	80 (31.4)	0.79 (0.39-1.59)		14 (28.0)	2.16 (1.28-3.67)	
Compliance with diabetes medication							
Yes	220 (57.1)	176 (69.0)	1.0	0.219	22 (44.0)	1.0	0.627
No	165 (42.9)	79 (31.0)	0.72 (0.42-1.22)		28 (56.0)	0.90 (0.59-1.37)	
History of prior fundus examination							
Yes	81 (21.0)	69 (27.1)	1.0	<0.001	17 (34.0)	1.0	<0.001
No	304 (79.0)	186 (72.9)	0.27 (0.15-0.46)		33 (66.0)	0.41 (0.25-0.67)	

For most patients, the primary source of information was media (47.5%), followed by family and friends (33%). The primary barrier to seeking care at a tertiary eye care center was lack of knowledge (35.3%), followed by absence of symptoms (33%). (Table 4)

Table 4: Biggest barriers to come to tertiary eye care centre

Biggest barrier	n=385 (%)
Lack of knowledge	136 (35.3)
Lack of symptoms	127 (33)
Time	53 (13.9)
Cost	29 (7.5)
Other family problem	18 (4.7)
Lack of access	14 (3.6)
No one to accompany	08 (2)

DISCUSSION

Diabetic retinopathy (DR) is a significant complication of DM and is widely recognized as a leading cause of vision impairment. Our study, which aimed to report the levels of awareness of DR and KAP among diabetic patients visiting eye OPD, has provided crucial insights.

Our study's findings on the prevalence of DR among diabetic patients are significant. We found that 64.7% of patients had DR, 31.7% had NSTDR (non-sight-threatening DR), and 33% had STDR (sight-threatening DR). These results align with similar studies, indicating the consistency of our findings.[9,10,11] The higher number of STDRs in our study, which was hospital-based and included severe NPDR and CSME in STDR, could be a critical insight for healthcare providers. This contrasts with a hospital-based study from North India, where the prevalence of DR was 33.1%.[12] The prevalence of diabetic retinopathy in our study was significantly greater compared to the 21.7% reported in the nationwide study.[13] This variation is likely since our research was conducted within a hospital environment, whereas the nationwide study surveyed the general population.

Our study found that 66.2% of diabetic patients knew diabetes can affect their eyesight and vision. Various studies in India and abroad have observed similar results.[14,15,16,17,18,19] This is a significant finding, as it indicates a notable increase in awareness compared to a similar study conducted in Punjab over a decade ago, where 69.1% of diabetic patients were unaware of diabetic retinopathy.[20] Our study also revealed that awareness regarding DR is lower than in studies conducted in Goa, North India, Hyderabad, and South India, which were reported as 76.3%,79%, 74%, and 84%, respectively.[21,12,22,14] These variations in awareness levels across different studies, including ours, may stem from differences in the educational level of each population, the resources available within each community, the guidance provided by physicians, and the information disseminated to patients. This underscores the importance of our study's findings in understanding and addressing the awareness gap of DR.

In our study, we investigated variables that may affect the level of awareness. It was found that awareness of DR showed significant associations with higher education levels. Several other studies have reported similar findings.[23, 24, 25] A significant association was observed between awareness of DR and locality. This might be because urban residents have better access to health facilities and media like TV, newspapers, or the Internet. Other scholarly articles have observed these patterns as well.[12,25]

Awareness and knowledge are not synonyms. Awareness is related to the general recognition of the disease, while knowledge implies a deeper, more comprehensive understanding. In the current study, 50.1% of the participants exhibited inadequate knowledge regarding DR. These results align with those reported in other research articles.[22,27,28,29] Our study noted a significant association between education and knowledge of DR. Consistent results has been observed in several different research investigations.[23,30,31] However, in a survey by Assem et al., the educational level wasn't significantly associated with knowledge.[18]

The lack of knowledge among diabetes patients underscores gaps in the medical community's efforts to provide them with disease-specific information. Improving understanding of diabetic ocular complications is crucial for enhancing patient care. This involves public health campaigns, training of healthcare provider, and integrating eye care into diabetes management.[32] Technological advancements like portable imaging and teleophthalmology can improve screening accessibility, while integrated treatment strategies may enhance long-term effectiveness.[33]

Patients with good knowledge of DR demonstrated a significant association with awareness, attitude and practice. These findings resonate with numerous other studies.[11,34,35,36,37] Good knowledge about the disease results in better follow-up and screening practices rather than the false belief of getting an eye examination done only if symptomatic.

The present study revealed a notable lack of understanding about treatment options for DR, with 9% aware of the laser option. This is consistent with previous research by Balasubramaniyan et al., Srinivasan et al., Koshi et al., and Rani et al.[16,29,20,23] The exclusion of patients who had undergone treatments such as laser and anti-VEGF prior to the study may explain this observation. Patients likely learn about DR treatment primarily during eye clinic visits rather than diabetes clinic follow-ups.

The study found a significant association between the duration of diabetes and good knowledge and a positive attitude toward DR, consistent with previous research.[12,27,35,38] This may be attributed to participants' frequent interactions with doctors in health centers, where they receive basic information

about the disease. Interestingly, the duration of diabetes was not associated with good eye checkup practice, which aligns with findings by Hamzeh et al.[39] This is in contrast to studies done in South India and Bangladesh.[29,40] Therefore, there is a need to fill these lacunae by providing better counseling. It's essential to investigate the factors contributing to the low follow-up rates among diabetic patients. Prior fundus examination history was also significantly associated with awareness, good knowledge, positive attitude, and good practices related to DR, as also reported by Hussain R et al.[24]

The primary barriers to seeking care at a tertiary eye center were lack of disease awareness (35.3%) and absence of symptoms (33%). Other reasons included limited access, time constraints, and financial issues. Similar findings were reported in a study from North India.[12] Challenges in communicating with less literate patients, work pressures, and the asymptomatic nature of the disease were highlighted as significant barriers to follow-up care,as reported by healthcare providers.[41] Various national and international studies reported similar findings.[42,43,44]

Compliance with DM medications was significantly associated with awareness and good knowledge about DR. Albadrani MS et al. and Alsaidan AA et al. reported similar results.[35,45]

In the present study, 80.8% of the patients had a negative attitude, and 62.9% had wrong practices towards DR. Similar trends have been noted in studies in Goa, Bangladesh, and South Africa.[21,34,46]

Both attitude and practice patterns were significantly associated with education and locality. Most participants in our study believed that individuals managing diabetes effectively could bypass the need for regular ophthalmologist visits, a finding similar to another study.[25]The findings of this study suggest that individuals diagnosed with diabetes have insufficient awareness regarding the advised frequency of undergoing eye screenings. Similar results were reported by Akansha et al. and Assem. et al.[12,18]

It is recommended that patients with type 2 DM undergo a fundus examination at the time of diagnosis and annually after that. In the present study, only 21% of diabetics had a history of prior fundus examination. Comparable results were noted in other research investigations.[5,46,47,48,49] Several studies have indicated even lower rates, with figures as low as 9.6%, 6.8% and 6.3%.[50,51,52]

Most patients in this study came to the OPD due to a decrease in vision, with only 1% visiting for routine eye check-ups upon referral from a physician. Numerous other studies have documented notably low rates of referrals by primary healthcare providers for ophthalmological assessment and screening for DR.[12,53,54] Primary care physicians significantly modify this behavior and undergo regular screening for DR.

In the present study, the primary sources of information for most patients were family and friends (33.3%), followed by media (47.5%). This signifies the need to improve the role of healthcare providers. Most of the studies reported healthcare providers as an essential source of information regarding diabetes and its complications, including DR.[12,18,28,39] Physicians are often the first point of contact for people with diabetes. They are vital in raising awareness about the risk of vision loss due to DR and educating patients about the importance of regular screening to prevent permanent vision loss.

CONCLUSION

Diabetic retinopathy remains a significant public health challenge amidst the rising prevalence of diabetes. Awareness and education about DR are pivotal in preventing and managing this disease. Assessing the knowledge, attitude, and practice of diabetic patients regarding DR is a vital component of effective public health strategies. By understanding the factors influencing patient behavior, healthcare providers and policymakers can design interventions that promote early detection, effective management, and prevention of DR, ultimately reducing the burden of this potentially blinding condition.

Strength

The study underscores the need to educate diabetes patients about ocular complications to reduce vision impairment from diabetes. It offers valuable insights into hospital-visiting DR patients and will aid in developing targeted educational interventions.

Limitation

The study is hospital-based, so caution must be exercised when extrapolating it to the general population. The prevalence of diabetic retinopathy (DR) observed in our study may not be representative of the broader population. To gain a clearer understanding of awareness, knowledge, attitudes, and practices (KAP) regarding DR, additional population-based studies and multi-center studies are needed in the region. A universal tool is needed to assess the awareness and KAP of diabetic patients regarding DR so that results from other studies can be compared efficiently.

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