

Awareness of Diabetic Retinopathy Among Diabetic Patients of Chakwal Pakistan



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ABSTRACT

Objectives: To determine the level of awareness about diabetic retinopathy, its visual threatening effects treatment and source of information among diabetic patients visiting Munawar Memorial Hospital Chakwal.

Subjects & Methods: A cross-sectional descriptive study was carried out during 2021 among type-II diabetic patients who visited Munawar Memorial Hospital Chakwal in order to seek treatment for their visual problems. 114 diabetics were enrolled in study through consecutive non-probability sampling. A pretested structured questionnaire was used to gather information about demographic profile, various health aspects of the patients associated with diabetes mellitus and source of information for diabetic retinopathy. Data was analyzed by using Microsoft Excel 2010 and SPSS version 25.0. The association of duration of disease with degree of awareness about diabetic retinopathy was statistically verified by chi-square test. The association of literacy with adequacy of knowledge about diabetic retinopathy was also verified by applying chi-square test. $P < 0.05$ was considered significant.

Results: Of the total 114 diabetic patients assessed, 53.5% and 46.4% were females and males respectively. Mean age of the patients was 58.6 ± 22.4 years. About 50.9% of the patients were illiterate and 44% patients were diabetic for less than 5 years. Around 35.1% of the respondents were diagnosed with diabetes at 41-50 years of age and 68.4% were using glucometer for checking blood glucose level. About 40.1% were followed up on monthly basis at diabetic clinic. Perception about blood pressure and glucose control in addition to lifestyle modification in protection from diabetic retinopathy was determined to have statistically significant association with literacy ($P < 0.05$). About 57% patients attributed their visual defect to diabetes. Of the 15% patients with diabetic retinopathy, only 9.6% used to have routine checkup. Most (53%) learnt about diabetic retinopathy from physicians. About 51% respondents were adequately aware of diabetic retinopathy.

Conclusion: There was inadequate knowledge about sight threatening effects of diabetic retinopathy and its treatment options.

Keywords: Diabetic Retinopathy; Awareness; Type-II Diabetes Mellitus; Physicians

Introduction

Diabetes being a silent epidemic has ascended in both developed and underdeveloped regions of the world [1]. Approximately 93 million people across the globe are suffering from diabetic retinopathy [2] which is categorized as one of serious complications of diabetes mellitus [3]. About one third of diabetic retinopathy cases are suffering from visual impairment [4]. Although diabetic retinopathy (DR) is directly associated with duration of diabetes, however; it is now getting prevalent among newly diagnosed diabetics particularly those of Scotland and UK despite the universal health coverage [5]. About 51% of blindness among diabetic patients worldwide is attributed to the resultant retinopathy [6]. DR has been emanated as the prime cause of irreversible blindness. Unchecked hyperglycemia, smoking, hypertension and hypercholesterolemia are likely to exacerbate the DR related complications [7]. Numerous studies have been carried out globally to determine the degree of awareness pertinent to diabetic retinopathy [8]. Awareness about the complications ensuing from diabetes among diabetics is imperative so that they can pursue for adequate self-care. Such patients get guidance for their self-care by consulting with healthcare professionals on confrontation with associated risk factors [9]. Our healthcare professionals should vigilantly counsel such patients for their regular checkup and strict compliance with recommended medications [10]. Although diabetic retinopathy is asymptomatic initially but its non-treatment for one year or more may cause visual loss forever [11]. The present study is thus intended to determine the level of awareness about diabetic retinopathy among diabetic patients residing in Chakwal city of Pakistan. This study would enable us to take necessary measures for adequacy of knowledge pertinent to diabetic retinopathy among general population by keeping all respective stakeholders on board and arranging awareness sessions accordingly.

Subjects & Methods

A cross-sectional descriptive study was done during 2021 among type-II diabetic patients who visited Munawar Memorial Hospital Chakwal in order to seek treatment for their visual problems. 114 diabetics were enrolled in study through consecutive non-probability sampling. A pretested structured questionnaire

was used to gather information about demographic profile, various health aspects of the patients associated with diabetes mellitus and source of information. Data was analyzed by using Microsoft Excel 2010 and SPSS version 25.0. The relationship of disease duration with degree of awareness about diabetic retinopathy was statistically tested by chi-square test. The association of literacy with adequacy of knowledge about diabetic retinopathy was also determined by chi-square test. $P < 0.05$ was taken as significant. This article is based on thesis that was composed in partial fulfillment of BSc (Hons) Optometry & Orthoptics requirement.

Results

Of the total 114 patients assessed in our study, about 53.5% and 46.4% were females and males respectively. Mean age of the study subjects was 58.6 ± 22.4 years. The frequency of the patients in different age groups is shown below in Figure 1. Females in all age groups constituted the highest propensity except in 71-80 years age group as illustrated below in Table 1. Majority (50.9%) of the patients were illiterate. Duration of diabetes mellitus among most (43.9%) of the respondents was less than 5 years, however; 26.3%, 21.3% and 7.9% of the patients were suffering from diabetes for 6-10 years, 11-20 years and more than 20 years respectively. The highest propensity (35.1%) of our patients was diagnosed with diabetes mellitus at 41-50 years of age as revealed below in Figure 2. Most (68.4%) of the patients used to get their blood glucose levels checked at home with glucometer. About 67% affirmed the good control of their blood glucose levels. Around 40.1% of the patients visited the diabetic clinics for follow up every month as depicted below in Figure 3. Association of the patients' literacy was found to be statistically significant with their awareness about suffering from Diabetic Retinopathy (DR) as displayed below in Table 2. About 57% patients confessed that their vision is affected by diabetes mellitus while 15% cases were diagnosed with diabetic retinopathy and among them only 9.6% used to visit eye clinics for routine visual checkups. Around 51% patients had adequate knowledge about diabetic retinopathy. Most (53%) of our patients came to know about diabetic retinopathy from physicians as depicted below in Figure 4.

Table 1: Gender based distribution of diabetic patients in diverse age groups (n = 114).

Age Groups	Males	Females	Total
31-40 years	4	5	9
41-50 years	5	10	15
51-60 years	23	28	51
61-70 years	11	14	25
71-82 years	9	5	14
Total	52	62	114

Table 2: Association of the patients’ literacy was found to be statistically significant with their awareness about suffering from Diabetic Retinopathy (DR) as displayed below in Table 2.

Question	Responses		P-value
	Group A (Literate) n =58	Group B (Illiterate) n =56	
Perceiving the correction of DR with glasses	5	11	> 0.05
Occurrence of blindness with DR	48	42	>0.50
Knowing the treatment of DR with eye laser or eye injections	12	7	>0.10
Perceiving the good control of blood sugar, blood pressure and healthy lifestyle sufficient to protect from diabetic retinopathy	46	52	*<0.05

Note: *Statistically significant

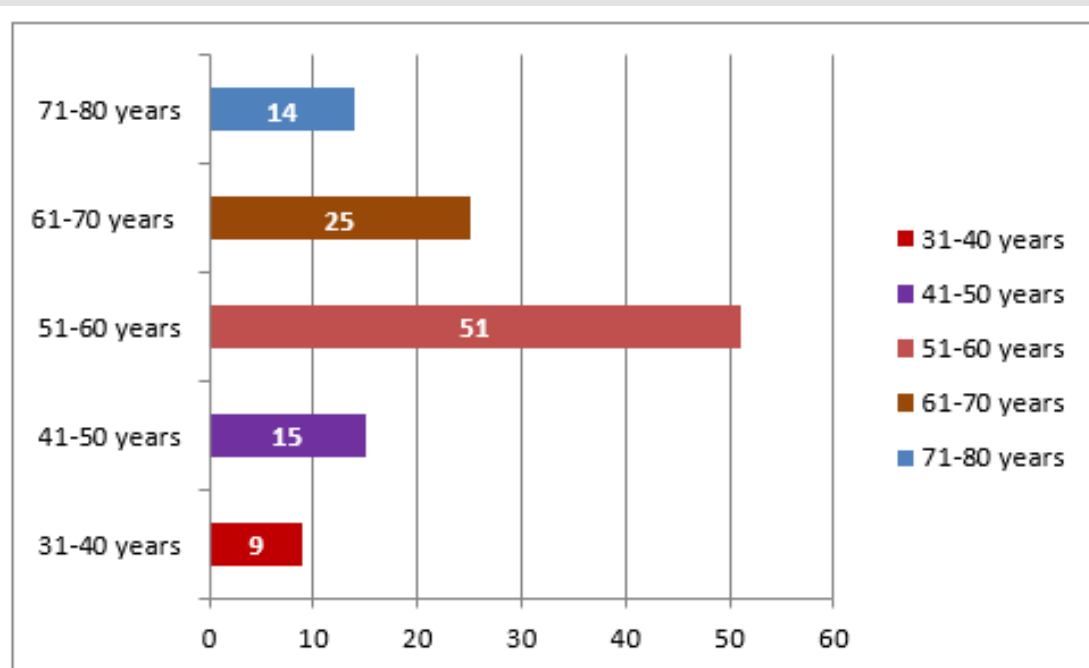


Figure 1: No. of diabetic patient in various age groups (n = 114).

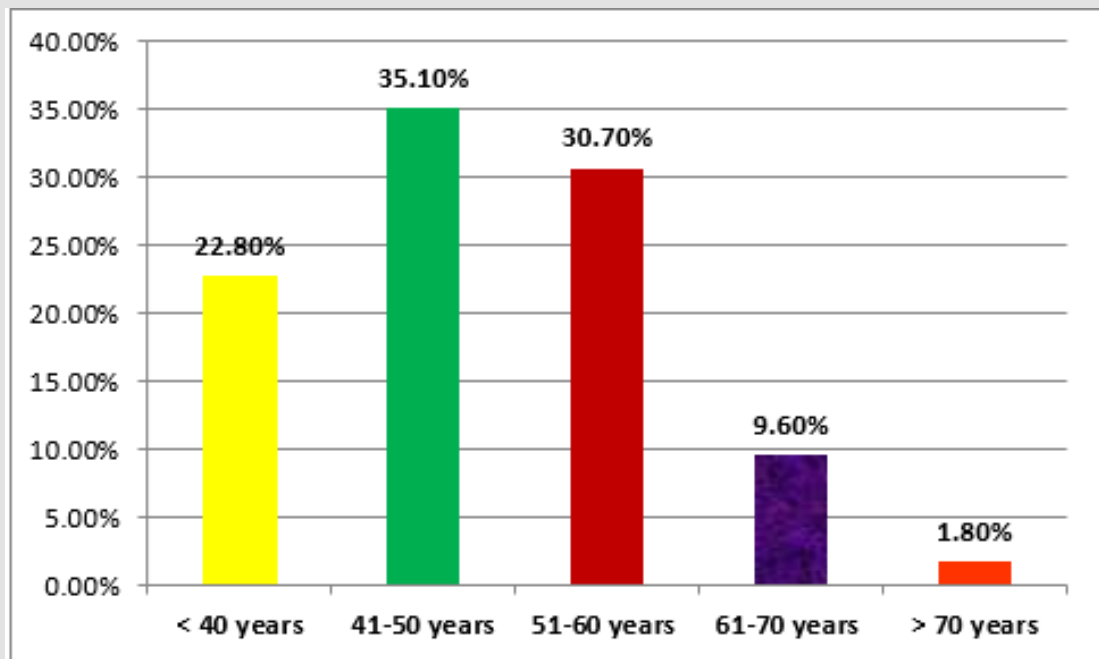


Figure 2: Age of diagnosing with diabetes mellitus among patients (n = 114).

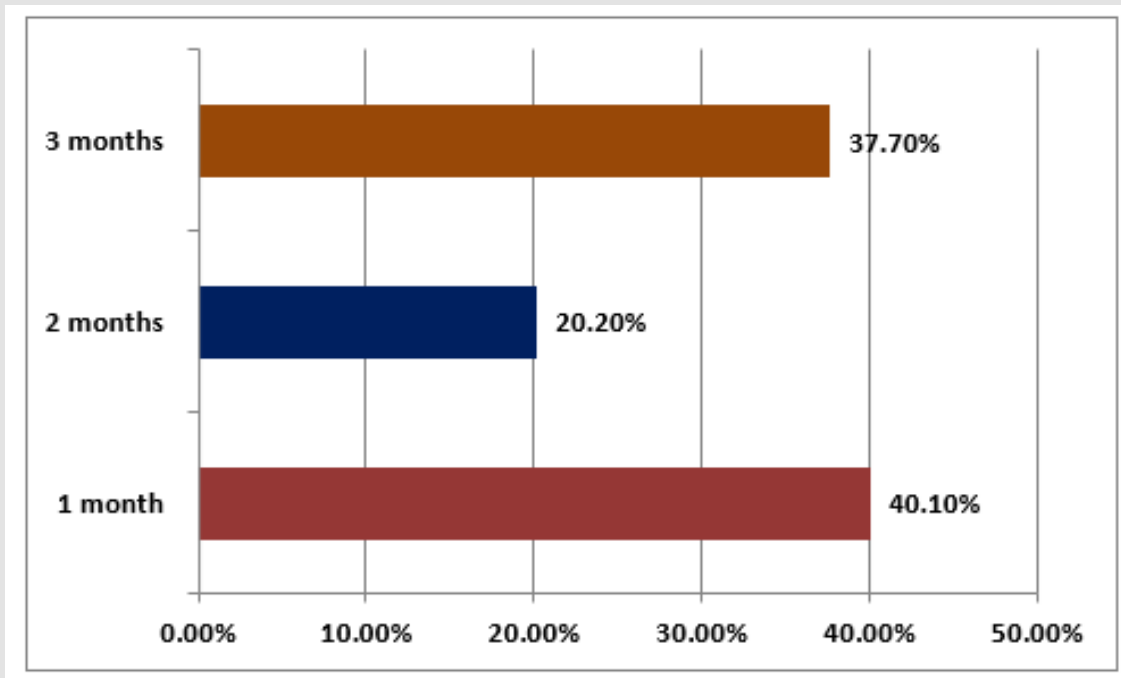


Figure 3: Follow up of the diabetic patients (n = 114).

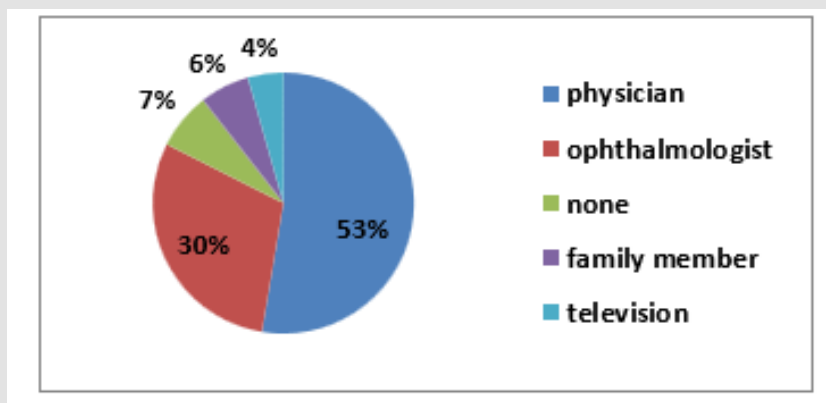


Figure 4: Source of information about diabetic retinopathy.

Discussion

Diabetes mellitus being a silent epidemic has been reported many people across the globe along with its complications. Even its frequency is predicted to double in third world countries till 2030 [12]. National Diabetes Survey of Pakistan carried out in 2016-17 highlighted the fact that about 27.4% million people in Pakistan above 20 years of age are diabetics and about one third of them are at risk of developing diabetic retinopathy [13]. These statistics are noteworthy in considering the gravity of this non-communicable disease in our population. In our study, mean age of the patients suffering from diabetic retinopathy was 58.6 ± 22.4 years. About 53.5% and 46.4% were male and female patients in present study. Age is determined as one of the precipitation factors for developing diabetic retinopathy and visual impairment among elders above 50 years of age with diabetic retinopathy has been reported about 9.6% [14]. Likewise, a retrospective study by Gupta M et al revealed mean age of the diabetic retinopathy patients to be 57.2 ± 11.1 years. Similar to our results, most (64.7%) of them were males [15]. Likewise, a cross-sectional study done among diverse group of diabetic retinopathy patients discovered significant statistical association of diabetic retinopathy with male gender ($P < 0.001$) that seemed to be linked with shorter axial length of eyeball [16]. A community-based study by Thapa R et al among Nepal populates explored increased prevalence of vision threatening diabetic retinopathy among elderly males; however, this study emphasized significant relationship of the said disease with duration of diabetes, alcoholism and hypertension [17]. There is need to study other gender linked contributing factors that account for escalated propensity of diabetic retinopathy among males.

In present study, most (35.10%) of the patients were diagnosed with diabetes mellitus type-II in 41-50 years of age. According to a cross-sectional study by Zou W et al, getting diagnosed with diabetes before 40 years of age increases the likelihood of developing di-

abetic retinopathy [18]. On the other hand, previous international studies illustrated lower incidence of diabetic retinopathy among older diabetics than those of young patients [19]. The onset of diabetic retinopathy should thoroughly be studied in connection with family history and other comorbidities instead of just considering age as criteria for susceptibility. In our study, illiterate subjects were found to be relatively more aware pertinent to significance of blood pressure control, good glycemic maintenance and adoption of healthy lifestyle as essential elements for protection against diabetic retinopathy ($P < 0.05$). A retrospective study among diabetics of Thailand emphasized duration of diabetes mellitus, glycated hemoglobin levels and albuminuria as independent risk factors for diabetic retinopathy [20]. About 57% of our study subjects opined that visual defects are linked with diabetes mellitus; however only 9.6% of diabetics enrolled in our study used to have visual check-ups routinely. About 39.6% of the diabetics assessed in Ethiopian hospital used to visit eye clinic regularly for visual defects [21]. Likewise, a study done among diabetics attending OPD of a Gulf teaching hospital revealed that despite knowing the occurrence of visual defects with diabetes, only 67% used to have routine eye examination and about 33% of them pursued for visual check up on worsening of their vision [22].

About 53% and 30% came to know about diabetic retinopathy from treating physicians and eye specialists. Likewise, diabetics of Ethiopia also came to know about diabetes associated visual impairment from physicians and ophthalmologists [23]. About 4% respondents in present study were familiarized with diabetic retinopathy due to awareness given in a television program. No doubt, this is an era of social media; information spreading through multiple modes has now become possible and most of our general population has got access to it. So, information dissemination pertinent to visual soundness of diabetics through various awareness campaigns in healthcare facilities can help a great deal in sensitizing them for visual examination regularly.

Conclusion & Recommendations

There was insufficient knowledge regarding sight threatening effects of diabetic retinopathy and its treatment among type-II diabetics. Prompt counselling by health care providers, ophthalmologists and mass media is required to make the patients aware of the resultant complications. Awareness campaigns at primary care level are needed to enhance the knowledge pertinent to diabetic retinopathy. There should be ample coordination between general physicians and visual care providers to screen the population for diabetic retinopathy.

Conflict of Interest

None to declare.

Funding Source

None.

References

- Zheng Y, He M, Congdon N (2012) The worldwide epidemic of diabetic retinopathy. *Indian J Ophthalmol* 60(5): 428-431.
- Tilahun M, Gobena T, Dereje D, Welde M, Yideg G, et al. (2020) Prevalence of diabetic retinopathy and its associated factors among diabetic patients at Debre Markos referral hospital, Northwest Ethiopia, 2019: Hospital-based cross-sectional study. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy* 13: 2179-2187.
- Ghanchi F, Bailey C, Chakravarthy U, Cohen S, Dobson P, et al. (2013) The royal college of ophthalmologists' clinical guidelines for diabetic retinopathy guidelines: A summary. *Eye (Lond)* 27(2): 285-287.
- Lee R, Wong TY, Sabanayagam C (2015) Epidemiology of diabetic retinopathy, diabetic macular edema and related vision loss. *Eye Vis (Lond)* 2(1): 1-25.
- Thapa R, Joshi DM, Rizyal A, Maharjan N, Joshi RD, et al. (2014) Prevalence, risk factors and awareness of diabetic retinopathy among admitted diabetic patients at a tertiary level hospital in Kathmandu. *Nepal J Ophthalmol* 6(11): 24-30.
- Chua J, Xin C, Lim Y, Wong TY (2018) Diabetic retinopathy in the asia-pacific. *Asia Pacific J Ophthalmol* 7(1): 3-16.
- Tan GS, Gan A, Sabanayagam C, Tham YC, Neelam K, et al. (2018) Ethnic differences in the prevalence and risk factors of diabetic retinopathy: The Singapore epidemiology of eye diseases study. *Ophthalmology* 125: 529-536.
- Kizor-Akaraiwe NN, Ezegwui IR, Oguego N, Uche NJ, Asimadu IN, et al. (2016) Prevalence, awareness and determinants of diabetic retinopathy in a screening centre in Nigeria. *J Community Health* 41(4): 767-771.
- Mersha GA, Alimaw YA, Woredekal AT, Assaye AK, Zeleke TC, et al. (2021) Awareness and knowledge of diabetic retinopathy in diabetic patients at a General Hospital in Northwest Ethiopia. *SAGE Open Medicine* 9: 1-7.
- Kumar A, Agarwal D, Kumar A (2021) Diabetic retinopathy screening and management in India: Challenges and possible solutions. *Indian J Ophthalmol* 69(3): 479-481.
- Congdon N, O Colmain B, Klaver CC, Klein R, Muñoz B, et al. (2004) Causes and prevalence of visual impairment among adults in the United States. *Arch Ophthalmol* 122(4): 477-485.
- Mumtaz SN, Fahim MF, Arslan M, Shaikh SA, Kazi U, et al. (2018) Prevalence of diabetic retinopathy in Pakistan; A systematic review. *Pak J Med Sci* 34(2): 493-500.
- Basit A, Fawwad A, Qureshi H, Shera AS (2018) Prevalence of diabetes, pre-diabetes and associated risk factors: Second National Diabetes Survey of Pakistan (NDSP), 2016-2017. *BMJ Open* 8: e020961.
- Flaxman SR, Bourne RRA, Resnikoff S, Ackland P, Braithwaite T, et al. (2017) Global causes of blindness and distance vision impairment 1990–2020: a systematic review and meta-analysis. *Lancet Glob Health* 5(12): e1221–e1234.
- Gupta M, Singh A, Duggal M, Singh R, Bhadada S, et al. (2021) Natural history of diabetic retinopathy through retrospective analysis in type 2 diabetic patients – An exploratory study. *Front Public Health* 9: 791378.
- Qian J, Haq Z, Yang D, Stewart JM (2022) Male sex increases the risk of diabetic retinopathy in an urban safety-net hospital population without impacting the relationship between axial length and retinopathy. *Sci Rep* 12: 9780.
- Thapa R, Twyana SN, Paudyal G, Khanal S, van Nispen R, et al. (2018) Prevalence and risk factors of diabetic retinopathy among an elderly population with diabetes in Nepal: the Bhaktapur Retina Study. *Clin Ophthalmol* 12: 561-568.
- Zou W, Ni L, Lu Q, Zou C, Zhao M, et al. (2016) Diabetes Onset at 31–45 Years of Age is Associated with an Increased Risk of Diabetic Retinopathy in Type 2 Diabetes. *Sci Rep* 6: 38113.
- Segato T, Midena E, Grigoletto F, Zucchetto M, Fedele D, et al. (1991) The epidemiology and prevalence of diabetic retinopathy in the Veneto region of northeast Italy. *Diabetic Medicine* 8(S2): S11-S16.
- Boonsaen T, Choksakunwong S, Lertwattanarak R (2021) Prevalence of and factors associated with diabetic retinopathy in patients with diabetes mellitus at Siriraj hospital – Thailand's largest national tertiary referral center. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy* 14: 4945-4957.
- Assem AS, Tegegne MM, Alemu DS, Woredekal AT, Tefera TK, et al. (2020) Knowledge about diabetic retinopathy, eye check-up practice and associated factors among adult patients with diabetes mellitus attending at debark hospital, Northwest Ethiopia. *BMC Ophthalmol* 20(1): 453.
- Mukhaseer MH, Salman BAR, Mohammed IA (2019) Diabetic patients' knowledge and practice regarding annual visual checking. *Al-Kindy College Medical Journal* 15(2): 23-27.
- Mersha GA, Alimaw YA, Woredekal AT, Assaye AK, Zeleke TC, et al. (2021) Awareness and knowledge of diabetic retinopathy in diabetic patients at a General Hospital in Northwest Ethiopia. *SAGE Open Medicine* 9.

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