

Diabetic Retinopathy Awareness Assessment Among Type 2 Diabetes Mellitus Patients in Bihar

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Abstract

Aim: The aim of the present study was to assess the awareness of diabetic retinopathy among Type 2 diabetes mellitus patients in Bihar region. **Methods:** This was a descriptive, cross sectional, non-randomized, questionnaire-based study conducted in the Department of Ophthalmology Vardhman Institute of Medical Sciences, Pawapuri, Bihar, India, for 1 year. A knowledge, attitude, practice questionnaire was prepared and pretested in a sample group of representative population. The response was analyzed as to whether the questions were understood or not. Social workers were trained in administering questionnaire. Diabetic patients were given questionnaires at primary health centres and filled in the presence of social workers. **Results:** Out of the 140 patients, 76(54.29%) had no knowledge of diabetic retinopathy compared to 64(45.71%) who had knowledge. This was statistically significant with p value <0.001. Knowledge was more in age group less than 25 years (68.75%) and least in 35 to 45 age group (48.84%) which was statistically significant with p value <0.001. There was no significant association between duration of diabetes and knowledge of diabetic retinopathy. About 73.44 % of individuals in knowledge group had right attitude which was significantly higher than non-knowledge group (56.58%) with a p value <0.001. Regarding source of information, 51.43% of patients in knowledge group got information about diabetic retinopathy from physicians, 12.14% from eye specialists, 10.71% from reading books, 10.71% from various media and 15% from other sources like family and friends. **Conclusion:** We concluded that increasing knowledge about diabetic retinopathy through awareness campaigns can improve attitude & practice. Early detection & timely intervention can help in preventing sight-threatening complications.

Keywords: Attitude, Diabetic retinopathy, Knowledge, Practice, Primary health centre.

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Introduction

Diabetes mellitus (DM) is a metabolic disease that is characterized by a defect in insulin action or secretion leading to an increase in the glucose level in blood which

is known as hyperglycemia[1]. DM is of three main types: type 1 (T1DM), type 2, (T2DM) and gestational diabetes[1]. The global prevalence of DM was reported to be

as low as 8% in 2011; however, it is expected to increase to 10% by 2030[2]. KSA and other Middle Eastern countries have a high prevalence of DM[3]. KSA was in the second rank having the highest prevalence of DM among the Middle East and the 7th rank among the world according to a WHO report. In KSA, the prevalence of DM reached an epidemic proportion[4,5], according to the Saudi Ministry of Health, there were 0.9 million individuals who were diagnosed with diabetes in 1992, this number increased by 2.7 times to 2.5 million in 2010[6]. DM can result in several complications such as diabetic retinopathy (DR) which is considered the most common microvascular complication of DM[7], neuropathy, neurologic, and cardiovascular complications[8]. DR is a retinal disease that involves the compromising of the oxygen and nutrients delivery to the retina[9]. DR may lead to vision impairment and loss[8,10,11]. DR develops among 34.6% of diabetic patients[12]. Among DM patients, there are several risk factors for DR have been reported including long duration of DM, uncontrolled DM, older age, presence of additive systematic diseases such as hypertension, dyslipidemia, and obesity[13]. The prevalence of DR varies among various regions in the world Awareness about DR among DM patients is an important factor for early diagnosis and the treatment of the disease to avoid further complications such as visual impairment Several studies reported low to average screening pattern where 31–53% of patients performed an annual eye examination.

The objective of the study was to assess the awareness of diabetic retinopathy among Type 2 diabetes mellitus patients in Bihar region.

Material and Methods

This was a descriptive, cross sectional, non-randomized, questionnaire-based study conducted in the department of ophthalmology Vardhman Institute of Medical Sciences, Pawapuri, Bihar, India,

for 1 year. After taking the approval of the protocol review committee and institutional ethics committee. After taking informed consent detailed history was taken from the patient or the relatives if the patient was not in good condition. The technique, risks, benefits, results and associated complications of the procedure were discussed with all patients. A detailed search in literature was done to create the knowledge, attitude and practice questionnaire which was prepared in English and the local language. Questionnaire was tested in a sample group of representative population. The response was analysed as to whether the questions were understood or not. Social workers were trained in administering the questionnaire. They were given the questionnaire and filled in presence of the social workers after obtaining informed consent. Diabetic patients of age less than 18 years, mentally challenged patients who were not able to give informed consent and patients who were not able to understand and respond to the questions administered were excluded from the study.

Questionnaire consisted of three parts, first part contained the patient profile which included name, gender, occupation, socioeconomic status, educational status and their consent for the study. Second part included details of diabetes mellitus like duration, family history of diabetes and any eye complaints if present. Third part of the questionnaire contained the following questions.

1. Do you know that diabetes can affect many organs in the body?
2. Do you know whether diabetes can affect vision?
3. Do you know whether there is any relation between duration of diabetes mellitus and visual problems?
4. Do you feel eye check-ups are necessary in diabetes?
5. Do you know the frequency of eye check-up needed; if yes how frequently is it needed?
6. Do you know about the complications

of diabetic eye disease?

7. Have you ever done an eye check-up to know whether diabetes has affected your eye?

Knowledge group included participants who responded "yes" to above questions 1,2,3,4 and those who responded "no" to these questions were grouped under non knowledge group. Attitude was assessed by question number 5 and 6. Practice was assessed by question number 7.

Determinants of knowledge on diabetes and diabetic retinopathy such as age, gender, language, literacy and socioeconomic status were analysed between the groups using univariate analysis. The association of

knowledge of diabetic retinopathy with attitude and practices was evaluated between the groups using univariate analysis (chi square test). A two tailed P value <0.05 was considered statistically significant.

Results

The demographic characteristics of 140 patients recruited into the study are given in Table 1. Out of the 140 patients, 76(54.29%) had no knowledge of diabetic retinopathy compared to 64(45.71%) who had knowledge. This was statistically significant with p value

<0.001.

Table 1: Demographic characteristics of the study population

Age	Number=140	Percentage
Below 25	17	12.14
25-35	35	25
35-45	43	30.71
45-55	27	19.29
Above 55	18	12.86
Gender		
Male	38	27.14
Female	102	72.86
Educational status		
Uneducated	36	25.71
class 1-12	89	63.57
college level	15	10.71
Socio economic status		
Lower	75	53.57
Middle	40	28.57
Upper	25	17.86

Table 2: Association of age and knowledge of diabetic retinopathy (DR).

	Knowledge of DR			P-value
	Knowledge group	Non knowledge group	Total	
Below 25	11	5	16	
25-35	11	24	35	
35-45	21	22	43	0.00
45-55	12	15	27	01
Above 55	9	10	19	
Total	64	76	140	

Knowledge was more in age group less than 25 years (68.75%) and least in 35 to 45 age group (48.84%) which was statistically significant with p value <0.001 (Table 2). Knowledge was more among females than males which was not significant

statistically. Knowledge was found to be high among participants with higher educational status than in those who had college level education (60%) which was statistically significant with p value <0.001 (Table 3).

Table 3: Association of educational status and knowledge of DR

Educational status	Knowledge of DR			P-value
	Knowledge group	Non knowledge group	Total	
No education	17	19	36	
Class 1-12	38	51	89	0.00
College	9	6	15	01
Total	64	76	140	

Patients in the upper socioeconomic group had more knowledge about diabetic retinopathy (57.69%) which was statistically significant with a p value of 0.001 (Table 4).

Table 4: Association of socio-economic status and knowledge of DR

Income Level (Monthly income in rupees)	Knowledge of DR		Total	P-Value
	Knowledge group	Non knowledge group		
Lower (200-500)	30	45	75	0.0001
Middle (501-2000)	19	20	39	
Upper (>2000)	15	11	26	
Total	64	76	140	

There was no significant association between duration of diabetes and knowledge of diabetic retinopathy. About 73.44 % of individuals in knowledge group

had right attitude which was significantly higher than non-knowledge group (56.58%) with a p value <0.001 (Table 5).

Table 5: Association of knowledge of DR with attitude towards DR.

Attitude	Knowledge of DR			P - Value
	Knowledge group	Non knowledge group	Total	
Yes	47	43	90	0.0001
No	17	33	50	
Total	64	76	140	

Regarding source of information, 51.43% of patients in knowledge group got information about diabetic retinopathy from physicians, 12.14% from eye

specialists, 10.71% from reading books, 10.71% from various media and 15% from other sources like family and friends (table 6)

Table 6: Source of information about diabetic retinopathy

Physicians	51.43%
Eye Specialists	12.14%
Reading Books	10.71%
Various Media	10.71%
Family and Friends	15%

Table 7: Association of knowledge of DR with practice regarding DR

Practice	Knowledge of DR		Total	P value
	Knowledgeable	Non knowledgeable		
Yes	13	14	27	0.001
No	51	62	113	
Total	64	76	140	

About 20.31% in knowledge group had practice of visiting ophthalmologist for eye check-up which was significantly higher than non knowledge group with a p value <0.001 (Table 7).

Discussion

The lack of awareness about diabetic retinopathy in diabetic patients is considered as a major cause of diabetic blindness in our community. The main objective of this study was to ascertain the awareness level and the practice patterns adopted by diabetic patients in the community.

Diabetic retinopathy is an upcoming cause of visual impairment and prevalence of diabetic retinopathy is more in developing countries. Even though health education statistics and literacy rate in Bihar is superior than national average and close to that of developed countries, diabetes related ocular complications are on the rise. The facilities in primary health centres which are provided free of cost are not utilized properly and this is reflected in the results of our study.

In this study 140 patients recruited into the study are given in Table 1. Out of the 140 patients, 76(54.29%) had no knowledge of diabetic retinopathy compared to 64(45.71%) who had knowledge. This was statistically significant with p value <0.001. Results were similar to study by Rani et al

in which knowledge about diabetic retinopathy was noted as 37.1% and Dandona et al who reported it as 27%[14,15]. In a population-based awareness study in a sub urban area by Hussain R et al, among diabetic patients only 40.7% had knowledge about diabetic retinopathy[16].

In this study, patients in the upper socio-economic group had more knowledge about diabetic retinopathy (57.69%) which was statistically significant with a p value of 0.001. Literacy and its influence on knowledge about diabetes was studied in other studies also[17,18]. All these studies support the fact that providing education can increase awareness and knowledge about diabetic retinopathy. Dandona et al, also reported increased awareness among subjects older than 30 years or more and those with any level of education and among those belonging to upper and middle socio-economic strata in their study in urban population in India[15]. Al Zarea in Saudi Arabia reported that knowledge regarding ocular complications in diabetes was 75.62% which was an urban study[19].

About 73.44 % of individuals in knowledge group had right attitude which was significantly higher than non-knowledge group (56.58%) with a p value <0.001. In the study by Rani et al attitude among knowledge group about diabetic retinopathy was 93.3% and this was 53.8% in the study by Hussain et al.[14,16] Rani et

al, noted that 36.5% with knowledge about diabetic retinopathy thought that there was no need to consult an ophthalmologist if their blood sugar was under control and this was 38.49% in Saudi Arabia study[14,19].

In this study, 20.31% in knowledge group had practice of going for eye check-up which was statistically significant. Oveneri-Ogbomo et al, also reported that knowledge of diabetic retinopathy was significantly related to practice of undertaking eye examinations[20]. Mwangi et al, reported that 50% of the participants in their study went for eye check-up[21]. Hussain et al, reported that practice was present in 57.6%[16]. In the study by Al Zarea practice was reported to be 95% which was an urban study[19]. Mahesh G et al and Srinivasan N K et al, also found a statistically significant association between awareness of diabetic retinopathy and good practice patterns regarding retinopathy in their studies[22,23].

In primary health centres, physicians can play a major role in creating awareness and imparting knowledge about diabetic retinopathy. Data from our study also reflects this. Regarding source of information, 51.43% of patients in knowledge group got information about diabetic retinopathy from physicians, 12.14% from eye specialists, 10.71% from reading books, 10.71% from various media and 15% from other sources like family and friends. Srinivasan NK et al, also reported that doctors (both physicians and ophthalmologists) constituted the most important source of information in 71.4 % in knowledge group in their study[23]. About 66.4 % obtained their knowledge from general practitioners and nurses in the study by Oveneri-Ogbomo et al.[20].

Knowledge about diabetes and diabetic retinopathy help patients in developing good practice patterns which can prevent sight threatening complications. Strategies to educate diabetic patients about this potentially blinding disease should be evolved. Health education measures should

be implemented at primary, secondary and tertiary levels.

At the primary level, this can be done through regular awareness campaigns, posters, pamphlets, diabetic retinopathy screening camps and through community-based education strategies. Hospital based patient education can be done by involving general practitioners, physicians and endocrinologists in addition to ophthalmologists. Data about source of information in our study also correlates with this.

Conclusion

There is a difference in the level of knowledge about diabetes mellitus among patients. The patients were more familiar with general than specific information about diabetic retinopathy, this leads to gaps between knowing and acting. The current study concludes that more awareness campaigns need to be conducted to target DM complications and the appropriate attitude towards this disease, the information must be more inclusive & easy for the general public to understand and include it in the importance topics that doctors must inform DM patients about, It can also be included in the high school activities, hanging awareness posters with the main information in the waiting areas of all hospitals and health care centres.

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