

Original Research Article

A study of knowledge, attitude and practice in diabetic retinopathy among patients attending a primary health care centre

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Received: 19 June 2018

Accepted: 14 July 2018

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ABSTRACT

Background: Diabetic retinopathy is a major cause of preventable blindness. Sufficient knowledge about the disease can prevent sight threatening complications. Aim of this study is to evaluate the knowledge and its influence on attitude and practice in diabetic retinopathy among patients attending a primary health centre.

Methods: 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 centre and filled in the presence of social workers.

Results: Out of 324 patients 60.8% had no knowledge of diabetic retinopathy compared to 39.19% who had knowledge ($p < 0.001$). Knowledge was more in age < 40 years (82.60%) and least in 51-60 years (29.34%) ($p < 0.001$) and more among females (38.59%) than males (61.4%). Knowledge was significantly higher among upper socioeconomic group (77.8%). About 83.46% in knowledge group had right attitude which was significantly higher than non knowledge group (32.48%) ($p < 0.001$). 42.51% in knowledge group had practice of visiting ophthalmologist for eye check-up which was significantly higher than non knowledge group (13.19%) ($p < 0.001$).

Conclusions: The attitude and practice of diabetic retinopathy was statistically significant in knowledge group compared to those who had no knowledge of diabetic retinopathy. Improving knowledge about diabetic retinopathy through awareness campaigns can increase attitude and practice. Early detection can help in preventing sight threatening complications of diabetic retinopathy.

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

INTRODUCTION

Diabetes mellitus has been termed as a significant global public health problem. It was estimated that there were 415 million people with diabetes worldwide in 2015 and this is expected to increase to 642 million in 2040.¹ In India there are 69.2 million people with diabetes at present and it is estimated to increase to 122.5 million by 2040.¹

Diabetic retinopathy is one among the leading causes of preventable blindness worldwide. The overall global prevalence of diabetic retinopathy is 34.6% and it accounts for 4.8% of blindness in the world.^{2,3} The prevalence of diabetic retinopathy in India from various studies range from 7.3% to 20%.⁴⁻⁷ Wisconsin Epidemiological study has proved that micro vascular complications such as diabetic retinopathy are linked to duration of diabetes.⁸

Routine dilated fundus examination is recommended at the time of diagnosis of diabetes and then yearly review is required in all patients having type 2 diabetes mellitus. Awareness of importance of routine check-up for the screening of diabetic retinopathy is poor even in developed countries and the situation is much worse in a developing country like India. Previous studies have shown that 63% of the rural diabetic population has not had an eye examination.⁹ Magnitude of blindness caused by diabetic retinopathy is increasing. Lack of awareness about diabetic retinopathy and the preventable complications associated with it worsens the situation. Kerala is noted to be the diabetic capital of India with a prevalence of diabetes around 20% which is double the national average.¹⁰ The current literacy rate of Kerala according to 2011 Census is 93.91% which is at par with the developed countries. Even with this high literacy rate diabetes related ocular problems is on the rise and lots of patients are reporting with complications of diabetic retinopathy.

This study aims to evaluate the knowledge and its influence on attitude and practice in diabetic retinopathy among patients attending a primary health centre.

METHODS

This is a cross sectional study done over a period of 6 months. The study was conducted after getting institutional ethics committee approval. A detailed search in literature was done to create the knowledge attitude and practice questionnaire which was prepared in English and the local language Malayalam. 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. All diabetic patients who attended Vamanapuram primary health care centre (Nellanad panchayat) in Trivandrum district, Kerala and consented to participate in the study were included. 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.

- Do you know that diabetes can affect many organs in the body?
- Do you know whether diabetes can affect vision?
- Do you know whether there is any relation between duration of diabetes mellitus and visual problems?

- Do you feel eye check-ups are necessary in diabetes?
- Do you know the frequency of eye check up needed; if yes how frequently is it needed?
- Do you know about the complications of diabetic eye disease?
- 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.

Statistical analysis was performed with SPSS v20 (SPSS Inc; Chicago, IL, USA). 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 the 324 patients recruited into the study are given in Table 1. Out of the 324 patients, 197 (60.8%) had no knowledge of diabetic retinopathy compared to 127 (39.19%) who had knowledge. This was statistically significant with p value <0.001.

Table 1: Demographic characteristics of the study population.

Age	Number	Percentage
<40	23	7.09%
40-50	88	27.16%
51-60	92	28.39%
61-70	48	14.81%
71-80	32	9.87%
Gender		
Male	96	29.63%
Female	228	70.37%
Educational status		
Uneducated	93	28.70%
class 1-10	175	54.01%
college level	56	17.28 %
Socio economic status		
extreme lower	78	24.07%
Lower	139	42.90%
Middle	71	21.90%
Upper	36	11.11%

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

	Knowledge of DR		Total	P-value
	Knowledge group	Non knowledge group		
<40	19	4	23	0.0001
40-50	23	65	88	
51-60	27	65	92	
61-70	41	48	89	
71-80	17	15	32	
Total	127	197	324	

Knowledge was more in age group less than 40 years (82.60%) and least in 51 to 60 age group (29.34%) 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 (91.07%) 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		Total	P-value
	Knowledge group	Non knowledge group		
No education	11	82	93	0.0001
Class 1-10	65	110	175	
College	51	5	56	
Total	127	197	324	

Patients in the upper socioeconomic group had more knowledge about diabetic retinopathy (77.8%) 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		
Extreme Lower (<200)	13	65	78	0.0001
Lower (200-500)	45	94	139	
Middle (501-2000)	41	30	71	
Upper (>2000)	28	8	36	
Total	127	197	324	

There was no significant association between duration of diabetes and knowledge of diabetic retinopathy. About 83.46 % of individuals in knowledge group had right attitude which was significantly higher than non knowledge group (32.48%) with a p value <0.001 (Table 5).

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

Attitude	Knowledge of DR		Total	P-Value
	Knowledge group	Non knowledge group		
Yes	106	64	170	0.0001
No	21	133	154	
Total	127	197	324	

Regarding source of information, 40% of patients in knowledge group got information about diabetic retinopathy from physicians, 15% from eye specialists, 6% from reading books, 6% from various media and 33% from other sources like family and friends (Figure 1).

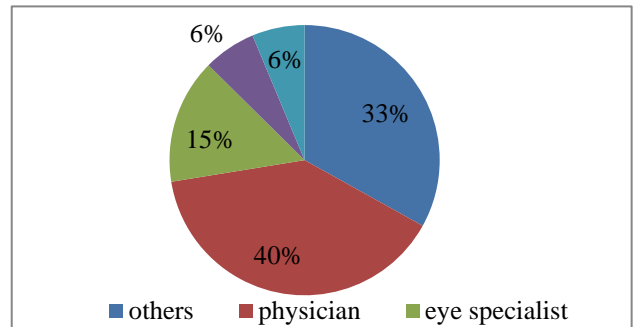


Figure 1: Source of information about diabetic retinopathy.

Table 6: Association of knowledge of DR with practice regarding DR.

Practice	Knowledge of DR		Total	P-value
	Knowledgeable	Non knowledgeable		
Yes	54	26	80	0.0001
No	73	171	244	
Total	127	197	324	

About 42.51% in knowledge group had practice of visiting ophthalmologist for eye checkup which was significantly higher than non knowledge group with a p value <0.001 (Table 6).

DISCUSSION

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 Kerala 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 more than half of the respondents (60.8%) had no knowledge of diabetic retinopathy. Knowledge was present in 39.19%. Results were similar to study by Rani et al in which knowledge about diabetic retinopathy was noted as 37.1% and Dandonna et al who reported it as 27%.^{11,12} 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.¹³

In this study, knowledge was significantly more in those with higher education and among upper socioeconomic group. Literacy and its influence on knowledge about diabetes was studied in other studies also.^{14,15} 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.¹² Al Zarea in Saudi Arabia reported that knowledge regarding ocular complications in diabetes was 75.62% which was an urban study.¹⁶

In this study, 85.46% in knowledge group had right attitude which was statistically significant. 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.^{11,13} 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.^{11,16}

In this study, 42.51% in knowledge group had practice of going for eye check-up which was statistically significant. Ovenseri-Ogbomo et al, also reported that knowledge of diabetic retinopathy was significantly related to practice of undertaking eye examinations.¹⁷ Mwangi et al, reported that 50% of the participants in their study went for eye check-up.¹⁸ Hussain et al, reported that practice was present in 57.6%.¹³ In the study

by Al Zarea practice was reported to be 95% which was an urban study.¹⁶ 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.^{19,20}

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. About 39.37 % of patients in knowledge group in our study got information about diabetic retinopathy from physicians and 15 % from eye specialists. 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.²⁰ About 66.4 % obtained their knowledge from general practitioners and nurses in the study by Ovenseri-Ogbomo et al.¹⁷

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.

One of the limitations of this study was that majority of the participants were between age group 50-80 years and the young diabetes were less. Majority of the participants were in low and middle socio-economic status and those from high socioeconomic status were less. A population-based study would have correctly reflected the level of knowledge, attitude and practice in the non urban area. Knowledge, attitude and practice patterns regarding association of good control of diabetes mellitus and retinopathy and regarding available treatment modalities for diabetic retinopathy were not included in our study.

CONCLUSION

The attitude and practice pattern of diabetic retinopathy was statistically significant in knowledge group compared to those who had no knowledge of diabetic retinopathy. Increasing knowledge about diabetic retinopathy through awareness campaigns can improve attitude and practice. Early detection and timely intervention can help in preventing sight threatening complications of diabetic retinopathy.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Geethadevi M, Thampi B, Antony J, Raghavan R, Sasidharan RR, Mohan A. A study of knowledge, attitude and practice in diabetic retinopathy among patients attending a primary health care centre. *Int J Res Med Sci* 2018;6:3020-4.