



## Original Research Article

## Knowledge, attitude and practice in diabetic retinopathy among patients with type 2 diabetes mellitus: A hospital based cross sectional study

Soumya H V<sup>1</sup>, Priyamvada P V<sup>1,\*</sup>, Rajendra R<sup>1</sup>, Premnath Raman<sup>1</sup>, Prabhakar S K<sup>1</sup>

<sup>1</sup>Dept. of Ophthalmology, JSS Medical College Hospital, Mysore, Karnataka, India



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## ABSTRACT

**Background:** Diabetic retinopathy is a major microvascular complication of diabetes mellitus causing blindness in patients with diabetes mellitus. Lack of knowledge about diabetic retinopathy and its complications is the major cause for increasing blindness in India. The aim of the study is to evaluate the knowledge about diabetic retinopathy and its influence on attitude and practice in diabetic retinopathy among patients coming to a tertiary care centre in Karnataka.

**Materials and Methods:** Patients coming to tertiary care centre were interviewed by a single interviewer with questionnaire consisting of knowledge, attitude and practice questions prepared in English and responses noted and analysed. A pilot study was conducted in sample population before starting the study.

**Results:** Out of 300 patients, 173 were males (57.7%) and 127 were females (42.3%). The minimum age of males and females was 31 and 32 years respectively. Among 300 diabetic patients, 163 patients (54.3%) had no knowledge about diabetic retinopathy compared to 137 patients (45.7%) who had knowledge about diabetic retinopathy which is statistically significant with p value <0.05. Males had more knowledge (68.6%) compared to females (31.4%) which is statistically significant with p value of <0.05. As the educational status and socioeconomic status increased, there was statistically significant increase in knowledge. Patients with longer duration of diabetes had good knowledge which is statistically significant. Patients with more knowledge and longer duration of diabetes were found to follow a good practice in diabetic retinopathy which is statistically significant with a p value of less than 0.05.

**Conclusion:** Lack of knowledge about complications and screening methods is the cause for worsening the attitude and practice in diabetic retinopathy. Patient education at primary health care and community level can provide patients with positive attitude towards treatment and follow good practice patterns to prevent blindness due to diabetic retinopathy.

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### 1. Introduction

Diabetes mellitus is one of the major global public health problem among the working age group. According to current data of international diabetes federation, 463 million population are estimated to have diabetes worldwide which is expected to increase to 642 million in 2040.<sup>1</sup> Around 79% of this population is in lower and middle income age groups.<sup>1</sup> India is emerging as the diabetic capital of world. The prevalence of diabetes mellitus in India is 69.1 million (11.8%) which stands first worldwide.<sup>2</sup> There is

high prevalence of 5-17% in south India.<sup>3-9</sup>

Diabetic retinopathy is the major microvascular complication of diabetes mellitus. It is the most common cause of preventable blindness. 4.8% of worldwide blindness is due to diabetic retinopathy.<sup>10</sup> The prevalence of diabetic retinopathy in India is 21.7%.<sup>11</sup> Lack of awareness about diabetic retinopathy and its complications is the major cause for increasing blindness in India.

The aim of the study is to evaluate the knowledge about diabetic retinopathy and its influence on attitude and practice in diabetic retinopathy among patients coming to a tertiary care centre in Karnataka.

\* Corresponding author.

E-mail address: [priyamvadapv1590@gmail.com](mailto:priyamvadapv1590@gmail.com) (Priyamvada P V).

## 2. Methods and Materials

A cross sectional study was done over a period of 3 months in diabetic patients visiting outpatient clinic in ophthalmology department in a tertiary care centre (JSS Hospital, Mysore) in Karnataka after obtaining approval from institutional ethics committee. The knowledge, attitude and practice (KAP) questionnaire was prepared in English language after a thorough literature search. A pilot study was conducted among a sample population. After obtaining informed consent, the study population was interviewed by a single interviewer by using the questionnaire and responses noted. Patients less than 18 years of age, mentally challenged patients who were not able to give informed consent and those who were not able to understand and respond to the questions were excluded from the study.

The questionnaire consisted of three parts. First part included consent and patient details like age, gender, occupation, economic status and educational status. Second part included duration of diabetes, current diabetic retinopathy status, treatment with pharmacological agents or laser and reason for not getting treated. Third part included questions to assess knowledge, attitude and practice. Those who know about diabetic retinopathy were labeled as knowledge group and those who did not know about diabetic retinopathy were labeled as no knowledge group. The responses to the attitude questions were noted as agree or disagree. Those who agreed were categorized to have positive attitude and those who disagreed were categorized to have negative attitude. Practice questions were scored as good and bad practice.

After obtaining the response, routine anterior segment examination and dilated fundus examination were done to grade the retinopathy status.

Statistical analysis were calculated using SPSS version22 by applying chi square, T tests and one way anova test. P value of <0.05 is considered as significant.

## 3. Results

Out of 300 patients, 173 were males (57.7%) and 127 were females (42.3%). The minimum age of males and females was 31 and 32 years respectively. A majority of 95 patients (31.7%) were in the age group of 51-60 years.

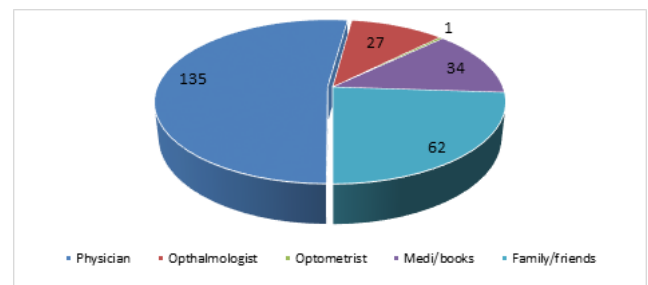
Among 300 diabetic patients, 34 patients (11.3%) had diabetic retinopathy. Out of 34 diabetic retinopathy patients, 27 were males and 7 were females. Majority of diabetic retinopathy patients were in the age group of 61-70 years(38.2%).

showing the demographic characteristics of population with respect to knowledge/ no knowledge about diabetic retinopathy

Out of 300 diabetic patients, 163 patients (54.3%) had no knowledge about diabetic retinopathy compared to

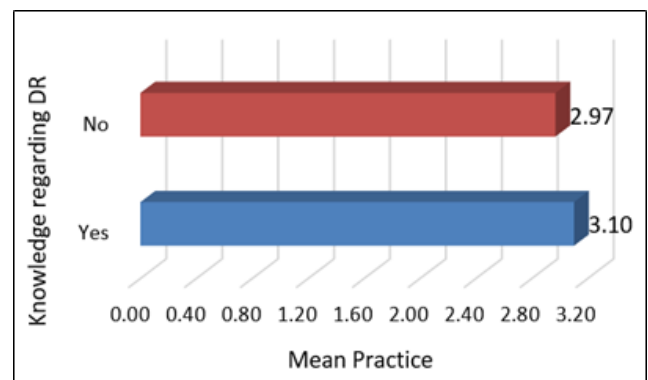
137 patients(45.7%) who had knowledge about diabetic retinopathy which is statistically significant with p value <0.05. In the knowledge group, maximum patients were in the age group of 51-70 years. Males had more knowledge (68.6%) compared to females (31.4%) which is statistically significant with p value of <0.05. As the educational status and socioeconomic status increased, there was statistically significant increase in knowledge. Patients with longer duration of diabetes had good knowledge which is statistically significant. Out of 34diabetic retinopathy patients, 26 had good knowledge. 11 and 19 patients were treated with pharmacological medications and laser respectively.

No significant association was noted between knowledge about diabetic retinopathy and duration of diabetes with attitude in our study. Source of information about diabetic retinopathy were mainly provided by physician (60.6%) followed by family (22.6%), 19% from books and media, 16.8% by ophthalmologist, 0.7% by optometrist as shown in Figure 1.

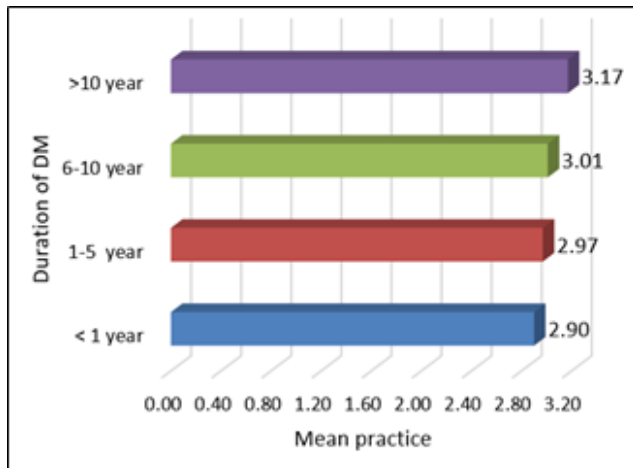


**Fig. 1:** Showing source of information regarding diabetic retinopathy

Patients with more knowledge and longer duration of diabetes were found to follow a good practice which is statistically significant with a p value of less than 0.05 as shown in Figure 2 and Figure 3 respectively.



**Fig. 2:** Showing association between knowledge regarding DR and practice



**Fig. 3:** Showing association between duration of DM and practice

There was no significant association between socioeconomic status and practice in diabetic retinopathy. No significant association was noted between attitude about diabetic retinopathy and practice in diabetic retinopathy.

#### 4. Discussion

Diabetes retinopathy is a major microvascular complication of diabetes mellitus leading to blindness in Indian population. Lack of awareness about the complications of diabetic retinopathy and screening practices in diabetes are the most common cause for worsening of blindness in diabetic patients.

In our study, 54.3% had no knowledge about diabetic retinopathy while 45.7% had good knowledge. Similar results were observed in previous studies conducted in South India by Hussain R et al., and Rani PK et al., who reported good knowledge in 40.7% and 49.9% respectively.<sup>12</sup> Majority of diabetic retinopathy patients in our study were in the age group of 61-70 years out of which males were more. Knowledge was more in age group of 51-70 years probably because more people were there in this age group. In our study, people of higher socioeconomic status and educational qualifications had good knowledge. Williamset al. and Al zarea et al. also reported that knowledge increased with higher socioeconomic status and educational status.<sup>13,14</sup> Our study showed a significant increase in knowledge as the duration of diabetes increased.

In our study, 60.6% of source of information regarding diabetic retinopathy was available to the study population from physicians. Srinivasan et al reported in his study about source of information as obtained mainly from physicians.<sup>15</sup> This is especially important in the Indian health care scenario as most of the patients first approach physicians and general practitioners in case of any health issues.

General practitioners, physicians, ophthalmologists and optometrists should be made aware of the lack of knowledge

about diabetic retinopathy among diabetic patients, so as to promote patient education and awareness programme at primary health care setup and community level.

In our study, no significant association was seen between knowledge about diabetic retinopathy and their attitude regarding diabetic retinopathy. 163 patients had negative attitude compared to 137 patients who had positive attitude. This can be overcome by health education measures implemented at primary, secondary and tertiary levels of health care. Health education through mass media, pamphlets, posters and diabetic retinopathy screening camps on special days like World Diabetes Day and World Sight Day would help in creating awareness of diabetic retinopathy, especially among people in the lower educational and socio-economic status groups.<sup>15</sup>

In our study, practice was significantly increased in knowledge group compared to non knowledge group. The study also showed that practice became more with longer duration of diabetes. Similar observations were reported by Oveneri et al and Mwangi et al.<sup>16,17</sup> Mahesh G et al., also found a statistically significant association between knowledge of diabetic retinopathy and good practice regarding retinopathy.

Knowledge about the disease and its complications is a powerful tool, which helps patients in developing good practice patterns that will ultimately help them in keeping the disease under good control and avoiding preventable blindness.<sup>15</sup>

#### 5. Limitations

One of the limitations of the study is that majority of the diabetic patients were in the age group of 51-60 years compared to very less young adults. Patients in upper socioeconomic status were very less. A population based study would have solved this disparity.

#### 6. Conclusion

Diabetic retinopathy is a major cause of preventable blindness in developing country like India. Lack of knowledge about complications and screening methods is the cause for worsening the attitude and practice in diabetic retinopathy. So, our study stressed on the need for patient education at health care and community level to provide positive attitude toward treatment and practice patterns for control of complications of diabetes.

#### 7. Source of Funding

None.

#### 8. Conflict of Interest

None.

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## Author biography

**Soumya H V** Assistant Professor

**Priyamvada P V** Post Graduate

**Rajendra R** HOD

**Premnath Raman** Professor

**Prabhakar S K** Professor

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