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Original Research Article

Assessment of knowledge, attitude and practice of diabetic eye care among non-ophthalmic speciality doctors at a tertiary institute in India

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ABSTRACT

Background & Aim: Aim of this study was to assess the knowledge, attitude and practices (KAP) in eye care of diabetics by non-ophthalmic doctors of different specialization.**Materials and Methods:** The was a cross-sectional questionnaire based KAP survey among 108 non-ophthalmic diabetes mellitus treating faculties of various departments at our institute. The level of Knowledge was considered excellent if the overall average score was > 75%, similarly questionnaire focusing on attitude was considered positive if the average score was > 50% and excellent practice constituted an average score > 75%. The findings will be noted in percentages with 95% confidence interval limit.**Results:** Out of the 108 subjects, 75.57% {95%CI(61%-78%)} of participants had excellent knowledge, while >87.6% {95%CI(73%-88%)} of participants had a positive attitude towards diabetic eye care, whereas there were glaring deficits in diabetic eye care practices accounting to only 45.5% {95%CI(32.8%-51.4%)} which was considered poor.**Conclusion:** Knowledge and attitude regarding diabetic eye care was excellent, there was glaring deficits in the practice of diabetic eye care by non-ophthalmic treating doctors. The deficit was probably due to busy schedule of some doctors, due to lack of uniform eye care protocols of diabetic patients, and lack of updated timely education of eye care practices among non-ophthalmic medical professionals. Hence based on the findings of our study we aim to train and educate our non-ophthalmic medical faculty regularly for adequate and better management of spectrum of diabetic eye disease.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: reprint@ipinnovative.com

1. Introduction

India being the diabetic capital of the world with a predicted 80 million cases as of 2030, it is imperative to control this epidemic as early and as best as we can to prevent further morbidity & mortality.¹ In India the urban areas account for 25-30% of the population whereas 4-6% of the rural areas accounted for diabetes.^{2,3}

Diabetes can present with a multitude of symptoms and it might also be a chance finding or diagnosis especially

in a country like ours where there is still a considerable hesitancy in accessing health care services.¹ More often than not, the primary physician or treating doctor can be a surgeon, paediatrician, obstetrician or anyone of the other specializations available. Hence it is important for these non-ophthalmic speciality doctors to have adequate knowledge about the possible ocular problems encountered by diabetics, which will be of great help in reducing diabetes related eye morbidity.^{4,5}

Diabetics are prone to a spectrum of eye afflictions from dry eye to diabetic retinopathy, which can lead to diminution of vision and blindness. Global statistics

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of ophthalmic morbidity due to diabetes may well cross estimates of 600 million by 2025.^{6,7} A diabetic patient is several times more vulnerable to blindness as compared to non-diabetics, hence it is imperative to adequately and timely manage diabetic eye problems. Diabetics can present with dry eye, meibomian gland dysfunction, early cataracts, primary open angle glaucoma, diabetic retinopathy, vitreous haemorrhage and tractional retinal detachment.⁸ Incidence of diabetic retinopathy in India approximates around 16.9% of diabetics.⁹ This high percentage of prevalence of diabetic retinopathy and ocular morbidity in diabetics is aided not only by lack of patient education, awareness and timely intervention mainly but also contributed by lack of knowledge, practice and attitude of non-ophthalmic treating faculty of hospitals as described in earlier studies conducted by Abu-Amara TB et al.¹⁰

In our current study we aim to assess the knowledge, attitude and practice regarding diabetic eye care among non-ophthalmic treating faculty at our institute. We also intend to increase awareness and knowledge of diabetic eye disease and provide a vertical integrated approach towards management of diabetes mellitus patients.

2. Materials and Methods

The current study was a cross-sectional assessment of 108 non-ophthalmic treating faculties (medical professionals) of our institute. The study period was from February 2021 and April 2021 and the study was approved by the Institutional Ethics Committee (IEC) of our institute. Those subjects who were will willing to participate in the study were provided with a printed questionnaire and their responses collected and analysed further. The Questionnaire responses is assessed and responses tabulated below.

The questionnaire consisted of 7 knowledge based questions, 5 attitude and 6 practice based questions. The non-ophthalmic treating doctor’s medical education, demographic data like age and gender was collected. Based on responses each question was scored and assessed separately for knowledge, attitude and practices respectively. A knowledge score of >75% was considered excellent, 51-74% as good and <50% was scored as poor. For attitude score, a positive attitude constitutes >50% correct responses whereas <50% was scored as negative attitude. Practices were scored based on scores >75% as excellent, 51-74% as good and <50% was considered as poor.

All the respondents completed the questionnaire without consulting manuals, textbooks or colleagues. The responses and data were analysed by Microsoft excel spread sheet. All statistical analysis was performed by Statistical Package for Social Sciences SPSS Ver 21. P-value of < 0.05 was considered statistically significant.

3. Results

The current study was conducted on 108 non-ophthalmic treating doctors of different specialization at our institute. The mean age of the study population was 44.6 ± 5.3 years, with 68 male and 40 female subjects as depicted in Table 1. Specialists from various departments participated in the study and categorised in Table 2. The responses were assessed for knowledge, attitude and practices and catalogued in Table 3.

Table 1: Demographic data

	Male	Female
Non-Ophthalmic Practitioners	68 (62.96%)	40 (37.03%)

Table 2: Category of non-ophthalmic practitioners

Category	Male	Female
Professor/HOD	6	2
Associate prof/Asst prof	24	17
Senior Resident	16	10
Junior Resident	22	11
Total	68	40

3.1. Knowledge

Questions based on Knowledge of ophthalmic manifestations of diabetes mellitus was excellent in more than (n=82) 75% {95% CI(61.33%-78.62%)} of participants. While questions related to knowledge of definitive management of diabetic retinopathy and its complications were above average consisting of 72%. Questions regarding preventive screening and follow-up of retinopathy of DM were above average constituting 73.6% of the study population.

3.2. Attitude

Out of the 5 questions based on the attitude of the non-ophthalmic doctors, average positive attitude was noted in (n=95) 87.6% {95%CI(73.73%-88.49%)} of the subjects under study. 95% of non-ophthalmic practitioners were of the impression that all diabetic patient should be referred to a ophthalmologist. >80% of the doctors enrolled in our study were open to the idea of refresher course on preliminary fundus examination sessions for screening diabetic retinopathy and diabetic eye manifestations. >90% doctors were of the view that a good counselling is important among diabetics for better management of diabetic ophthalmic morbidity.

3.3. Practice

Out of the 6 questions framed for assessing practice perceptions, the average score was (n=49) 45.5%

Table 3: Questionnaire on Knowledge, attitude and practices in diabetic eye care among non-ophthalmicpractitioners

S.No	Questions	% of Correct responses
	Knowledge	
	1. Can you enlist the ophthalmic manifestations of diabetes mellitus?	90%
	2. When do you advise ocular examination in a newly diagnosed 50 year old type 2 DM patient?	78%
	a). Soon after diagnosis	
	b). Only when the patient develops ocular symptoms	
	c). After 5 years	
	d). After 1 year	
1	3. When do you advise ocular examination in a newly diagnosed 10 year old type 1 DM patient?	66%
	a). Soon after diagnosis	
	b). Only when the patient develops ocular symptoms	
	c). Anytime within 3-5 years of diagnosis	
	d.) After 1 year	
	4. Do you know the gross classification/staging/grading of DM? If yes can you enlist it?	77%
	5. How frequently do you have to do an ophthalmic review in a diabetic patient without diabetic retinopathy?	56%
	6. Diabetic nephropathy patients are at a higher risk of developing diabetic retinopathy? YES/NO	90%
	7. Can you mention any treatment modality for Diabetic retinopathy?	72%
	Total Average	75.57%
	Attitude	
2	1. Do you think all doctors treating diabetic patients should refer them to an ophthalmologist for regular eye examination?	95%
	Agree/ disagree	
	2. Do you think it's not necessary for diabetes patients to go for retinal examination even if blood sugars are well controlled?	95%
	Agree/ Disagree	
	3. Do you think all doctors managing diabetics should learn to do preliminary diabetic retinopathy screening?	78%
	Agree/ Disagree	
	4. Do you think refresher course or medical education on fundus examination for non-ophthalmologist will be helpful?	80%
	Agree/Disagree	
	5. Do you think all diabetic patients should be counselled about ocular manifestations of diabetes?	90%
	Agree/Disagree	
	Total Average	87.6%
	Practice	
3	1. Do you routinely do screening fundus examination on all your diabetic patients / have you tried to preliminarily assess the patients eye by using an ophthalmoscope?	28%
	Yes/No	
	2. Do you refer all your diabetic patients to a ophthalmologist?	48%
	Yes/No	
	3. Do you educate & counsel all your diabetic patients about diabetic ocular manifestations and importance of retinopathy screening by ophthalmologist?	35%
	Yes/No	
	4. Have you been referred cases from ophthalmologists for suspected diabetes evaluation?	50%
	Yes/No	
	5. When do you refer your diabetic patients for urgent/ emergency ophthalmologic consultation? Kindly enumerate	80%
	6. Have you attended any workshops on eye care for diabetic patients & do you implement those learning's in your daily practice?	32%
	Total Average	45.5%

{95%CI(32.82%-51.44%)}, which was considerably poor when compared with the knowledge and attitude of the same subjects. Although almost all the doctors referred their diabetic patients to an ophthalmologist, they themselves had not tried or trained well enough for DR fundus examination with an ophthalmoscope. There was a glaring level of deficiency in this regard, with only 28% of doctors having ever done ophthalmoscopic examinations themselves on their diabetic patients. Another point of note is that out of this, the mean age group of doctors who performed ophthalmoscopic DR review were in the age group of 29-44years. <32% of non-ophthalmic doctors admitted to ever having attended any eye care workshops for diabetic patients. Only 35% of practitioners admitted to consistently counselling their diabetic patients about ophthalmic manifestations of diabetes mellitus.

of diabetic eye disease in diabetics. Hence early detection and diagnosis of diabetic eye disease would considerably help in improving the long term quality of life and minimize the cost of diabetic eye morbidity treatment in our country.^{8,9} To achieve this, it is imperative for all non-ophthalmic diabetic treating doctors to have some preliminary knowledge, attitude and practices regarding diabetic eye care.¹⁰

The level of knowledge regarding diabetic eye care among non-ophthalmic physicians at our institute was excellent. Although there was a particular lack of knowledge with regards to subject specific questions like classification of DR and emergency referral options in diabetic retinopathy. This was in stark contrast to the findings of the study conducted by Abu-Amara TB et al, which showed a less than desired knowledge levels regarding diabetic eye care among non-ophthalmic private practitioners.¹⁰ Whereas similar studies conducted in China and South Africa showed excellent diabetic eye care knowledge among non-ophthalmic practitioners.^{11,12}

The attitude for diabetic eye disease screening was found to be positive in >85% of the participants in our study. There was a positive attitude towards learning and attending workshops and medical education seminars for acquiring necessary skills for preliminary eye examination of diabetics among doctors at our institute.¹² Whereas when assessment of practices was analysed there were glaring deficits. Less than 30% participants of the study had ever tried to do ophthalmoscopic examination and only about 28% had ever attended any clinical workshops of diabetic eye care. The current findings in our study is seconded by similar findings in a study conducted by Hussain I et al¹³ wherein only 31.2% of non-ophthalmologists had ever tried to do an ophthalmoscopic assessment of fundus to evaluate diabetic retinopathy changes. Practice regarding guidance and education of eye problems in diabetics among non-ophthalmic doctors was about 32%.^{10,13,14} The practice of referral of diabetics for eye care to ophthalmologists was about 48% which is poor and probably due to high work load and time constraints. However a study conducted by Ghosh et al showed screening and referral practices to be as low as 35%.^{15,16} The current study among non-ophthalmic doctors managing diabetics shows a good level of knowledge and attitude but a glaring deficit in practices. This deficit is probably due to high patient volume, extremely busy schedule especially in a high volume medical units of our country, decreased counselling time per patient and sometimes probably due to burnout due to high work pressures. The deficits in counselling of diabetic patients as noticed in our study at 35%, had a more detrimental effect on the long term diabetic care. This finding was seconded by a study conducted by Daskivich LP et al, who opined that diabetic care & management improves when patients are counselled by their attending

ATTENDED DIABETIC EYE CARE WORKSHOP & CME



Fig. 1: % of doctors who attended diabetic eye care workshops & CME (Continued medical education)

Ophthalmoscopic examination for DR screening



Fig. 2: % of doctors who performed ophthalmoscopic examination for DR screening

4. Discussion

Diabetes has reached epidemic proportions in India and the prevalence has consistently showed an increasing trend year on year, and so has the complications and consequences

doctors.¹⁷

5. Conclusion

Considerable deficits in the practices of diabetic eye care among different specialization of doctors were noticed, although the knowledge and attitude of eye care in diabetics among non-ophthalmic practitioners was excellent. This deficit in diabetic eye care practices was more so among extremely busy schedule of some doctors, also due to lack of uniform eye care protocols of diabetic patients, and updated timely education & workshops of eye care practices among non-ophthalmic medical professionals. Younger age group practitioners were more inclined to learn and perform ophthalmoscopic review for retinopathy screening on their diabetic patients. To conclude all health care institutions should aim to provide adequate diabetic eye care workshops and education to all their non-ophthalmic practitioners for better management and prevention of diabetic eye morbidity.

6. Source of Funding

None.

7. Conflict of Interest

The authors declare no conflict of interest.

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