

# Self-reported Confidence with Ocular Examination and Management of Eye Diseases by General Medical Practitioners

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**ABSTRACT**

**Aims:** The aim of the study is to determine the confidence of general practitioners (GPs) with ophthalmic exam and management of eye diseases. **Materials and Methods:** Using self-administered questionnaire, information on sociodemographics, medical practice experience, confidence with eye exam, and management of eye diseases was obtained from GP at the General Outpatient Department. Responses on level of confidence were ranked with Likert scale and analyzed with the Statistical Package for Social Science, version 23. **Results:** Twenty-two GPs with mean medical practice experience of  $17.4 \pm 8.5$  years participated. Twelve (54.5%) GPs routinely examined patients' eyes. Pen torch assessment of ocular surface was most commonly performed eye exam, 1 (4.6%) did visual acuity, while none performed ophthalmoscopy. Seventeen (77.3%) GPs rated themselves average or higher in interpreting pen torch examination of ocular surface. Expressed diagnostic confidence was highest for pterygium, 19 (86.4%), and low for interpreting visual acuity, 8 (36.4%); 13 (59.1%) were confident with diagnosing cataract. While all GPs (100.0%) were not confident with diagnosing and managing posterior segment diseases, 19 (86.4%) felt that they could confidently manage allergic and bacterial conjunctivitis, respectively. Seventeen (77.3%) GPs thought their undergraduate exposure in ophthalmology was inadequate and 21 (95.5%) felt that update courses in ophthalmology were necessary. **Conclusions:** Half of the GPs performed eye examination. Self-reported confidence in ophthalmoscopy, diagnosis, and management of posterior segment diseases was low among GPs. Diagnostic confidence was highest for pterygium. Continuing ophthalmic education and provision of basic ophthalmic equipment are recommended to improve confidence of GP in management of ocular disorders.

**KEYWORDS:** *Diagnosis, eye diseases, eye examination, general practitioners*

## INTRODUCTION

The general practitioner (GP) attends to patients' health care across a variety of ailments and is thus invaluable in the initial diagnosis, treatment, prevention, and rehabilitation of patients, including those with ocular diseases. The GP's ability to obtain a good history, examine, appropriately diagnose, promptly treat, and/or refer ocular patients is vital to the final outcome of patients' ocular problem.<sup>[1]</sup>

Diagnosis of most eye diseases seen in general practice may be confidently made through basic


ophthalmic history taking and eye examination with nonspecialist equipment.<sup>[2,3]</sup> Consultation with a GP indeed creates an opportunity for screening for ocular diseases.<sup>[4,5]</sup> Information concerning the ocular complications of systemic diseases such as diabetes, as well as screening of family members in diseases like glaucoma, could be obtained by the

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patients from consultation at the general outpatient department (GOPD).<sup>[6]</sup>

Ophthalmoscopy is invaluable in the diagnosis of many eye diseases and ocular complications of systemic diseases. It thus helps in making informed decision on referral of patients with eye disease to the ophthalmologist.<sup>[7]</sup> Perez-de-Arcelus *et al.*<sup>[8]</sup> suggested that inclusion of GPs in the screening of diabetic patients for diabetic retinopathy would be useful in alleviating the increasing demands on ophthalmologists. Sheldrick and Sharp,<sup>[9]</sup> on the other hand, opined that glaucoma screening by GPs using standard protocol could help in the early detection of the disease.

Currently, it is not clear how much of ocular examination and management of eye diseases are confidently performed by GPs. It is therefore important to determine the confidence of the GPs in ocular examination and management of the ophthalmic patients. This would help provide information useful in planning continued training that would better equip the GPs to carry out their expected roles in eye care. The present study is to determine the self-reported confidence of GPs with ophthalmic exam and management of eye diseases.

## MATERIALS AND METHODS

This study involved all the GPs at the GOPD, Enugu State University (ESUT) Teaching Hospital, Enugu, Nigeria. Ethical approval was obtained from the Ethics Committee of ESUT Teaching Hospital, Parklane Enugu on 8<sup>th</sup> March 2017. Informed consent was obtained from all participants. Using self-administered questionnaires, information was obtained on GP's sociodemographic variables, practice experience, practice of eye examination for patients, assessment of confidence in diagnosing, and managing patients with eye diseases. The responses were ranked using Likert scale and analyzed using the Statistical Package for Social Science (SPSS), version 23 (SPSS Inc., Chicago, IL, USA). Statistical tests of relationship between variables were done with Chi square and Fisher's exact tests with alpha level at 0.05.

## RESULTS

Twenty-two GPs, made up of 11 males and 11 females, were interviewed. They were made up of 12 (54.5%) resident doctors, 6 (27.3%) consultant public health physicians, and 4 (18.2%) medical officers. The mean duration of medical practice was  $17.4 \pm 8.5$  years; range: 4–36 years. Six (27.3%) had practiced for more than 20 years, 12 (54.5%) GPs for 11–20 years, and 4 (18.2%) were within 10 years of practice.

Sixteen (72.7%) GP had not received any ophthalmic training since graduation from medical school; six (27.3%) had undergone ophthalmic training after graduation from medical school; three (13.6%) had such training less than one year prior to the present study, one (4.5%) within the previous 5 years; and two (9.1%) did so more than 10 years before this study.

Twelve (54.5%) GPs performed eye examination on their patients; 11 (50.0%) examined the eyes of only patients with complaints, 2 (9.1%) examined all diabetics, and another 2 (9.1%) examined patients' eyes only on request. Only one (4.6%) GP examined the eyes of all patients.

Table 1 shows the reasons given by the 10 GPs who did not examine the eyes of the patients. While lack of equipment was the commonest reason given by 8 out of the 10 (80.0%) GPs, 2 (20.0%) admitted to lack of ocular examination skills. Table 2 shows the types of eye examination performed by GPs for their patients. All the 12 (54.5%) GPs who performed eye examination did pen torch examination of the anterior segment; 1 (4.6%) did visual acuity for their patients and another performed confrontation visual field test. None performed ophthalmoscopy.

**Table 1: Reasons for not examining patients' eyes**

Reason	No	Percentage*
No equipment	8	80.0
Not my job	4	40.0
No skill	2	20.0
No time	2	20.0

\*Percentage based on 10 general practitioners that did not perform eye examination. There were multiple responses

**Table 2: Types of eye examination performed for patients by general practitioners**

Type of eye examination	No	Percentage*
Pen torch examination	12	54.5
Visual acuity	1	4.6
Visual field (confrontation method)	1	4.6
Direct ophthalmoscopy	0	0.0

\*Some general practitioners did more than one type of examination for their patients. Percentages based on 22 GPs

**Table 3: Years of experience of general practitioners versus performance of eye examination for patients**

Experience (years)	Eye examination		Total No. (%)
	Performed No. (%)	Not performed No. (%)	
≤15	4 (36.4)	7 (63.6)	11 (100.0)
>15	8 (72.7)	3 (27.3)	11 (100.0)
Total	12 (54.5)	10(45.5)	22 (100.0)

Fisher's exact test: 2.933; df: 1;  $P=0.099$  (not significant)

**Table 4: Self-reported confidence of general practitioners in interpreting ocular examination findings**

Activity	Below average No. (%)	≥Average No. (%)	Chi squared	P
Visual acuity	14 (63.6)	8 (36.4)	1.636	0.201
Pen torch examination (ocular surface)	5 (22.7)	17 (77.3)	6.545	0.011*
Pen torch examination (anterior chamber, iris, and lens)	13 (59.1)	9 (40.9)	0.727	0.394
Pen torch examination (pupil)	6 (27.2)	16 (72.8)	4.545	0.033*
Visual field test (confrontation)	15 (68.2)	7 (31.8)	2.333	0.127
Ophthalmoscopy	16 (72.8)	6 (27.2)	4.545	0.033*

\*Statistically significant

**Table 5: Self-reported confidence of general practitioners in diagnosing eye diseases**

	Not confident No. (%)	Confident No. (%)	Chi squared	P
Bacterial conjunctivitis	5 (22.7)	17 (77.3)	6.545	0.001
Allergic conjunctivitis	10 (45.5)	12 (54.5)	0.182	0.670
Pterygium	3 (13.6)	19 (86.4)	11.636	0.001
Stye	14 (63.6)	8 (36.4)	1.636	0.201
Chalazion	18 (81.8)	4 (18.2)	8.909	0.003
Blepharitis	20 (90.9)	2 (9.1)	14.727	0.001
Corneal ulcer	21 (95.5)	1 (4.5)	18.182	0.001
Orbital cellulitis	18 (81.8)	4 (18.2)	8.909	0.003
Hyphema	16 (72.7)	6 (27.3)	4.545	0.033
Refractive errors	16 (72.7)	6 (27.3)	4.545	0.033
Cataract	9 (40.9)	13 (59.1)	0.727	0.394
Glaucoma	21 (95.5)	1 (4.5)	18.182	0.001
Retinal detachment	22 (100.0)	0 (0.0)	–	–
AMD*	22 (100.0)	0 (0.0)	–	–
Diabetic retinopathy	21 (95.5)	1 (4.5)	18.82	0.001

\*AMD=Age-related macular degeneration

**Table 6: Self-reported confidence of 22 general practitioners in managing eye diseases**

Disease	Confident managing without referral No. (%)	Would initiate treatment and refer later if necessary No. (%)	Would refer immediately No. (%)	Fishers exact (P)
Bacterial conjunctivitis	9 (40.9)	10 (45.5)	3 (13.6)	3.909 (0.142)*
Allergic conjunctivitis	5 (22.7)	14 (63.6)	3 (13.6)	9.364 (0.009)
Stye	1 (4.5)	8 (36.4)	13 (59.1)	9.909 (0.007)
Chalazion	2 (9.1)	1 (4.5)	19 (86.4)	27.909 (0.007)
Blepharitis	2 (9.1)	1 (4.5)	19 (86.4)	27.909 (0.001)
Corneal ulcer	1 (4.5)	1 (4.5)	20 (90.9)	32.818 (0.001)
Orbital cellulitis	1 (4.5)	2 (9.1)	19 (86.4)	27.909 (0.001)
Cataract	1 (4.5)	0 (0.0)	21 (95.5)	18.182 (0.001)
Pterygium	1 (4.5)	0 (0.0)	21 (95.5)	18.182 (0.001)
Glaucoma	1 (4.5)	0 (0.0)	21 (95.5)	18.182 (0.001)
Retinal detachment	1 (4.5)	0 (0.0)	21 (95.5)	18.182 (0.001)
Refractive errors	1 (4.5)	0 (0.0)	21 (95.5)	18.182 (0.001)
Hyphema	1 (4.5)	0 (0.0)	21 (95.5)	18.182 (0.001)
AMD	1 (4.5)	0 (0.0)	21 (95.5)	18.182 (0.001)
Diabetic retinopathy	0 (0.0)	1 (4.5)	21 (95.5)	18.182 (0.001)

\*Not statistically significant

Table 3 shows relationship between the GP years of medical practice experience and performance of eye examination. Although a higher proportion of GP with over 15 years' experience examined their patients' eyes, there was no statistically significant

association ( $P > 0.05$ ) between years of medical experience and performance of eye examination.

Only three of the six GPs that had ophthalmology training after qualification as medical doctors performed

eye examination. Having an ophthalmology training after qualification had no statistically significant association with performance of eye examination ( $P > 0.05$ ).

The self-reported confidence of the GP in interpreting ocular examination findings is shown in Table 4. There was no statistically significant difference between GPs who rated themselves below average and those who rated themselves above average in interpretation of findings of visual acuity, pen torch examination of anterior chamber, iris and lens and confrontation visual field test. However, a statistically significant higher proportion of GP reported average or above average confidence in pen torch examination of ocular surface, 17 (77.3%), and pupillary examination, 16 (72.8%). Sixteen (72.8%) expressed below average confidence in interpreting ophthalmoscopy. This was statistically significant ( $P = 0.33$ ).

Table 5 shows the self-reported confidence of GP in diagnosing eye diseases. Seventeen (77.3%) and 19 (86.4%) were confident with making diagnosis of bacterial conjunctivitis and pterygium, respectively. On the other hand, there was lack of confidence in diagnosing chalazion, 18 (81.8%); blepharitis, 20 (90.9%); corneal ulcer, 21 (95.5%); glaucoma, 21 (95.5%); and diabetic retinopathy, 21 (95.5%). These findings were statistically significant ( $P < 0.05$ ). Although 13 (59.1%) could confidently diagnose cataract, 9 (40.9%) expressed lack of confidence. However, the difference just fell short of statistical significance ( $P = 0.05$ ). On the other hand, no GP had confidence in diagnosing retinal detachment and age-related macular degeneration.

Table 6 shows the self-reported confidence of GPs in managing eye diseases. Nineteen (86.4%) GPs could manage cases of allergic conjunctivitis and bacterial conjunctivitis. Thirteen (59.1%) and 19 (86.4%), respectively, would immediately refer patients with sty or chalazion. Twenty (90.9%) would immediately refer patients with corneal problems. Twenty-one (95.5%) GPs would immediately refer patients with cataract, pterygium, glaucoma, retinal detachment, refractive errors, hyphema, and all retinal diseases.

Seventeen (77.3%) GPs thought that their undergraduate exposure in ophthalmology was not adequate for managing eye diseases in their practice. Twenty one (95.5%) of the doctors felt that update courses in ophthalmology were necessary and all expressed willingness to attend update courses in ophthalmology.

## DISCUSSION

The results of this study suggest low performance of ocular examination by GPs as part of patient care.

This may result in misdiagnosis or mismanagement of patients with ocular disorders. Similar findings were reported in a study by Nwosu<sup>[10]</sup> in Onitsha, Nigeria, and other studies in United States<sup>[11]</sup> and South Africa.<sup>[12]</sup> The reasons for nonperformance of ocular examination for patients underscore the need for training and motivation of GPs in ocular examination skill and roles in eye care as well as provision of basic ophthalmic equipment. Lack of essential equipment was also reported by Onua and Fiebai<sup>[13]</sup> in Port Harcourt, Nigeria, and as was lack of time by Raman *et al.*<sup>[14]</sup> in India as reasons by GPs for not examining eyes of patients.

The low performance of visual acuity, a simple but important test of visual function, in the present study is worrisome and may result in poor patient assessment and inappropriate management decisions as visual acuity serves as a basis for clinical decision-making. Teo<sup>[15]</sup> reported substantial improvement in eye care practice of GPs through training in visual acuity. More GPs (42%), than in the present study, did visual acuity for their patients as reported by Elnagien and Saleem<sup>[16]</sup> in a study done in Khartoum, Sudan.

Pen torch examination of the ocular surface was the most commonly performed eye examination reported by the GPs while none performed ophthalmoscopy. This may account for the higher confidence expressed for diseases of the ocular surface than for posterior segment diseases in this study. Nonperformance of ophthalmoscopy may result in missed diagnosis of potentially blinding posterior segment diseases. Ophthalmoscopy in persons at risk has been identified as useful tools in glaucoma case detection and has been advocated for use in general practice.<sup>[6,17]</sup>

It was surprising to find no statistically significant association ( $P > 0.05$ ) between having received ophthalmic training and performing eye examination. The content and duration of the said trainings were not determined in the present study. Nevertheless, this may be related to the fact that most common reason given by the GP for not performing eye examinations was lack of equipment, which may prevent those with training from practicing. To ensure that benefit of ophthalmic training is maximized, it is vital to ensure availability of equipment for the GP.

Similar to the findings reported by Gibson and Roche<sup>[18]</sup> in Ireland, many GPs expressed average or higher confidence in their ability to interpret pen torch examination of the ocular surface and pupil findings while few ranked themselves as confident in interpreting ophthalmoscopy findings. Thus, it is not surprising that the GP expressed higher confidence for conjunctival



diseases than for other diseases, especially posterior segment diseases. Featherstone *et al.*<sup>[19]</sup> in the United Kingdom reported higher confidence among GP for diagnosing all eye diseases than in this study. Pterygium was however not considered in that study. They also reported that basic ophthalmic equipment was available to most of the GP studied.<sup>[19]</sup>

Featherstone *et al.*<sup>[19]</sup> in the United Kingdom reported that over 70% of the GPs would manage minor eye diseases, such as bacterial conjunctivitis and allergic conjunctivitis without referral. Similarly, a good proportion of GPs felt that they were confident managing these conditions entirely or at least initially.

It was encouraging to find that majority of the GPs would immediately refer cataract and all posterior segment diseases to the ophthalmologist. However, these conditions may be missed and referrals not initiated to the ophthalmologist since confidence expressed in diagnosing most of them was low in this study. Furthermore, they may coexist with other nonophthalmic conditions for which patients sought care, and the GPs do not routinely examine the eyes of all patients.

Considering the short ophthalmology exposure in undergraduate medical training,<sup>[20]</sup> it is understandable that majority (77.3%) of the GPs felt that their exposure in ophthalmology during the undergraduate medical training was not adequate for management of eye diseases in their current eye care practice. Similar findings were reported in the United Kingdom,<sup>[21]</sup> Ireland,<sup>[18]</sup> and Israel.<sup>[22]</sup> As in other studies,<sup>[23,24]</sup> a need for update courses in ophthalmology for GPs has been identified.

The assessment of the GPs' eye care practices in the present study was based on what they reported. This may have given room for bias. The GPs' knowledge of ocular disease entities was not ascertained in this study. A more objective means of assessment may have been more revealing.

In conclusion, half of the GPs performed eye examination. Diagnostic confidence was highest for pterygium. Self-reported confidence in ophthalmoscopy, diagnosis, and management of posterior segment diseases was low among GPs. Continuing ophthalmic education, provision of basic ophthalmic equipment is recommended to improve confidence of GP in diagnosis and management of ocular disorders.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be

reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

#### REFERENCES

1. Statham M, Sharma A, Pane A. Misdiagnosis of acute eye diseases by primary health care providers: Incidence and implications. *Med J Aust* 2008;189:402-4.
2. Sheldrick JH, Wilson AD, Vernon SA, Sheldrick CM. Management of ophthalmic disease in general practice. *Br J Gen Pract* 1993;43:459-62.
3. Sheldrick JH, Vernon SA, Wilson A. Study of diagnostic accord between general practitioners and an ophthalmologist. *BMJ* 1992;304:1096-8.
4. Vashist P, Singh S, Gupta N, Saxena R. Role of early screening for diabetic retinopathy in patients with diabetes mellitus: an overview. *Indian J Community Med* 2011;36:247-52.
5. Long CA, Holden R, Mulkerrin E, Sykes D. Opportunistic screening of visual acuity of elderly patients attending outpatient clinics. *Age Ageing* 1991;20:392-5.
6. Labuschagne MJ. Glaucoma: What should the general practitioner know? *South African Fam Pract* 2013;55:493-7.
7. Chatziralli IP, Kanonidou ED, Keryttopoulos P, Dimitriadis P, Papazisis LE. The value of funduscopy in general practice. *Open Ophthalmol J* 2012;6:4-5.
8. Perez-de-Arcelus M, Andonegui J, Serrano L, Eguzkiza A, Ramon Maya J. Diabetic retinopathy screening by general practitioners using non- mydriatic retinography. *Curr Diabetes Rev* 2013;9:2-6.
9. Sheldrick JH, Sharp AJH. Glaucoma screening clinic in general practice: Prevalence of occult disease, and resource implications. *Br J Gen Pract* 1994;44:561-5.
10. Nwosu SN. Medical practitioners and eye-care of diabetic patients. *Niger Med J* 2000;38:42-5.
11. Zoorob RJ, Khouri AS, Malpani V. Screening and referral patterns for glaucoma in family practice. *J La State Med Soc* 1999;151:521-6.
12. Leslie K, Nkombua L. Evaluation of general practitioners' routine assessment of patients with diabetes in Tshwane, South Africa. *South African Fam Pract* 2012;54:68-71.
13. A. Onua A, Fiebai B. Knowledge and practice of funduscopy among medical doctors in Port Harcourt, Nigeria. *Open J Ophthalmol* 2016;6:164-9.
14. Raman R, Paul PG, Padmajakumari R, Sharma T. Knowledge and attitude of general practitioners towards diabetic retinopathy practice in South India. *Community Eye Heal* 2006;19:13-4.
15. Teo MAL. Improving acute eye consultations in general practice: A practical approach. *BMJ Qual Improv Reports* 2014;3:u206617.w2852.
16. Elnagieb F, Saleem M. Knowledge, attitudes, and practices on diabetic retinopathy among medical residents and general practitioners in Khartoum, Sudan. *Al-Basar Int J Ophthalmol* 2017;4:66-73.
17. Cook C. Glaucoma in Africa: Size of the problem and possible solutions. *J Glaucoma* 2009;18:124-8.

18. Gibson C, Roche E. A survey of general practitioners' knowledge and perceived confidence with clinical ophthalmology. *Ir Med J* 2014;107:173-5.
19. Featherstone PI, James C, Hall MS, Williams A. General practitioners' confidence in diagnosing and managing eye conditions: A survey in south Devon. *Br J Gen Pract* 1992;42:21-4.
20. Ayanniyi A, Balarabe A, Isa A, Monsudi K. Do medical practitioners perform eye examination as a component of managing diabetic patients? *Saudi J Heal Sci* 2014;3:32-6.
21. Shuttleworth GN, Marsh GW. How effective is undergraduate and postgraduate teaching in ophthalmology? *Eye* 1997;11:744-50.
22. Rotshtein A, Karkabi K, Geyer O, Cohen Castel O. Primary care physicians' role perception and self-reported performance in glaucoma care: A survey study. *BMC Res Notes* 2015;8:776.
23. Monsudi K, Ayanniyi A, Olatunji F, Panti A, Isa A. Survey of medical officers attitudes and knowledge of eye conditions in older patients. *Br J Med Med Res* 2015;5:889-94.
24. van Zyl LM, Fernandes N, Rogers G, du Toit N. Primary health eye care knowledge among general practitioners working in the Cape Town metropole. *South African Fam Pract* 2011;53:52-5.

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