Practice of Eye Checks among Medical Doctors in South-East Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Visual impairment greatly affects one's quality of life. The number of persons with visual impairment and blindness in the world is on the increase. Eye screening allows for early detection of sight-threatening diseases and timely intervention could be sight-saving.
Aim: To determine the practice of eye checks and identify the factors that affect periodic eye checks among medical doctors in south-east Nigeria.
Methodology: This study was a descriptive, cross-sectional study conducted among practicing medical doctors in private and public hospitals in Anambra State Nigeria, using a self-administered semi-structured questionnaire. Information obtained from the participants included the sociodemographics data, type and duration of practice, presence of any medical and/or ocular condition, family history of eye diseases, history of use of spectacles, practice of eye check and

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interval of eye check, factors affecting the practice of eye check, and ways of promoting regular eye check. Data obtained were analysed using the Statistical Package for the Social Sciences version 23. Statistical significance was set at p<0.05.

Results: One hundred and eighty-seven practicing medical doctors were interviewed. There were 123 (65.8%) males and 64 (34.2%) females. Their ages ranged from 24 to 80 years, with a mean age of 44.81 ± 12.73 years. The mean duration of professional practice was 18.16 ± 11.9 years. Majority, 124 (66.3%) works in government-owned hospitals. Among the study participants, 93(49.7%) doctors had been diagnosed with different ocular diseases; 99(52.9%) had a family history of ocular problems; 94(50.3%) had used prescription lenses; and 51(27.3%) had medical conditions. One hundred and twelve (59.9%) had undergone at least eye examinations once, of which 54(48.2%) had their last eye examination over 5 years ago. The prevalence of eye check was 59.9% (95%CI: 52.9 – 66.9%). Eye checks were significantly associated with medical practice of over 20 years (P=0.030), working in a private practice (P=0.001), having eye diseases such as cataract (P=0.006), refractive error (P<0.001), presbyopia (P<0.001), and use of prescription spectacles (P<0.001). 'Belief of not having eye problems' and 'No time' which accounted for 58.7% and 24.0% respectively were the commonest reasons for not regularly having eye examinations.

Conclusion: Poor attitude to periodic eye examinations was seen in medical doctors in south east Nigeria.

1. INTRODUCTION

There are 2.2 billion people of the world population with visual impairment [1]. In 2007, the Nigerian National Blindness and Visual Impairment Survey reported that 4.2 million people aged 40 years and above are estimated to be visually impaired in Nigeria, [2] 80% of which is either preventable or treatable,3 and with a projected increase of greater than 40% a decade after the survey [3]. Visual impairment and blindness affect one's quality of life with greater effect on personal care, especially with difficulty in walking and working [4].

The importance of periodic eye checks cannot be overemphasized [5]. This broadly determines one's ocular health status [5]. It also allows for early detection and diagnosis of ocular problems as well as instituting proper management plan which increases the chances of cure [5]. It limits the risk of complication by closely monitoring existing eye diseases. It identifies risk factors for ocular diseases, and risk factors for systemic diseases based on findings on ocular examination [5]. Timely intervention has significantly improved vision in eyes with visual impairment [5]. Routine eye check has been recommended by medical organizations. The recommended frequency for subsequent ocular examination after an initial comprehensive medical eye examination in adults depends on factors such as age, associated risk factors for ocular diseases like glaucoma, family history of some eye diseases, and associated systemic diseases such as diabetes mellitus [6]. The interval of visits to an eye hospital for eye check is shorter in older age group as well as in persons with ocular and systemic diseases [7].

Several studies have been done on the practice of eye check in Africa and other continents [8–13]. Foreman et al. [7]. in a population-based study on the indigenes and non-indigenes of Australia documented 8.2% of indigenous Australians who have never had an eye examination.8 Of those indigenous population who had eye exam, 47% and 66.9% underwent eye examination within the previous year and 2years respectively.8 Amongst the non-indigenous group, 1.6% had never had an eye exam; while but 59.3% and 82.5% of the group who have had eye examination, were done in the past 1 year and 2 years respectively.

Hospital-based surveys among physicians in Lagos and Ekiti states in Nigeria revealed that the proportion of doctors who had never had an eye examination to be 13.5% and 40.8% respectively [14,15]. However, among family physicians in Israel, 32.9% did not have any eye examination in the past 5 years preceding the study [16].

Several factors have been documented to influence the uptake of eye care services with ocular examinations inclusive [17]. These include factors such as old age, male sex, higher literacy level, proximity of residence to the hospital, blindness, family history of blindness, positive

ocular symptoms, eye diseases such as cataract and glaucoma, and positive history of co morbidities such as diabetes mellitus and hypertension [8,10,12,17]. However, factors such as no time, lack of awareness, unavailability of eye care services, illiteracy, long waiting times in hospitals, fear in different forms, and attitudinal characteristics such as need not felt and preference for other treatment options have limited visits to eye clinic for ocular examination [9,11–13,15,17].

World Health Organization (WHO) defined a medical doctor as a health professional who engages in health care delivery with the primary aim to improve health [18]. WHO latest report on the number of medical doctors revealed that as at 2018, there were 74,543 medical doctors in Nigeria [19]. This translates to a ratio of about 3.8 medical doctors per 10,000 of the population [19]. These group of people who work tirelessly to care for the masses are not without health issues [20].

1.1 Aims

The aim of this study was to determine the practice of eye checks and identify factors that affect periodic eye checks among medical doctors in Anambra State, South-east Nigeria.

2. MATERIALS AND METHODS

2.1 Study Area

Anambra state is one of the states in the south eastern geopolitical zones of Nigeria. It has 3 senatorial districts and 21 Local Government Area (LGA), with a 2018 projected population of 5,527,809 [21]. The Igbos are the indigenous ethnic group in the community. There are 3 public and 8 private hospitals that offer comprehensive eye care within the state.

2.2 Sample Size Calculation

The sample size was estimated using the formular[22], $n = Z2P(1-P)d2$ Where n is the desired sample size, Z is the statistics corresponding to the confidence level (At 95% confidence level, Z= 1.96), P= 86% is the estimated prevalence rate of doctors who had previously had ocular examination;[14] d is the degree of accuracy desired, set at 5% (0.05). Substituting the values, n= 185.

Since the population to be surveyed is less than 10,000, therefore Cochran's formula for determining sample size in small samples using results obtained from calculation for large samples was used. $S = n1+ (n-1)$ N, where S is the adjusted sample size to be determined, N is the study population size (2101), n is the sample size determined for large sample size (185).

Substituting the values, S= 170. Adding 10% attrition, (170 + 17= 187). Therefore, the minimum sample size was 187.

2.3 Study Design, Sampling Design and Data Collection

This was a descriptive, cross-sectional, hospital-based qualitative study on practicing medical doctors from different specialties in both private and public hospitals within Anambra state. Samples were drawn from the three senatorial districts of the state using the simple random sampling technique. Information on all eligible participants was collected by using a pretested self-administered semi-structured questionnaire. The questions were centered on sociodemographics, field of specialization, type of practice (private or public health sector), duration of practice, presence of any medical condition, presence of any ocular condition, family history of eye diseases and type, history of use of spectacles, practice of eye care and interval of eye check, factors affecting the practice of eye check and ways of promoting eye check.

2.4 Inclusion Criteria

Consenting medical doctors practicing within the state during the time of the study.

2.5 Exclusion Criteria

Medical Doctors practicing outside the state and non-consenting medical doctors.

2.6 Study Duration

The study was conducted within 8 weeks (10th May to July 2nd, 2021).

2.7 Data Analysis

Data was entered into Excel spreadsheet. Data was exported into Statistical Package for Social Sciences (SPSS) version 23(IBM Corp.) and subsequently analyzed. Data representations were in the form of tables. The level of significance was set at P<0.05

3. RESULTS

One hundred and eighty-seven medical doctors from various specialties in both private and public hospitals in Anambra State were interviewed. There were 123 (65.8%) males and 64 (34.2%) females, with a male to female ratio of 1.9:1. Their ages ranged from 24 to 80 years, with a mean age of 44.81 ± 12.73 years. Majority of the participants were above 40 years, 98(52.4%). The participants were from different specialties of medicine, with varying duration of professional practice. Their duration of professional practice as a medical doctor ranged from 1 to 60 years, with a mean of 18.16 ± 11.9 years. One hundred and thirty-one (70.1%) doctors had practiced for over 10 years and, with 62 (33.2%) for over 20 years. Majority, 124 (66.3%) worked in government-owned hospitals, while 63 (33.7%) worked in private hospitals. The sociodemographics characteristics, specialties and duration of practice are shown in Table 1.

Ninety-three (49.7%) participants had been diagnosed with different ocular diseases as shown in Table 2. Presence of ocular problems was significantly associated with age above 40 years (P=0.016), practice in the private health sector (P=0.003), and practice duration of above 20 years (P=0.011), but not associated with sex (P=0.705) and 10 years of practice (P=0.121).

Table 1. Sociodemographic characteristics of the participants

Variable	Number	Percentage (%)
Age (Years)		
21-30	16	8.56
31-40	72	38.50
41-50	46	24.60
51-60	30	16.04
61-70	19	10.16
> 70	4	2.14
Sex		
Male	123	65.78
Female	64	34.22
Ethnicity		
Igbo	183	97.86
Yoruba	3	1.60
Fon	1	0.54
Religion		
Christianity	184	98.40
Traditional Religion	2	1.07
Jewish	1	0.53
Specialty		
Surgery	46	24.60
Family Medicine	42	22.46
General Practitioners	38	20.32
Obstetrics & Gynaecology	18	9.62
Paediatrics	14	7.49
Ophthalmology	12	6.42
Internal Medicine	11	5.88
Public Health	4	2.14
Anaesthesia	2	1.07
Duration of Practice (Years)		
0-5	19	10.16
6-10	37	19.78
11-15	50	26.74
16-20	19	10.16
21-25	8	4.28
25-30	15	8.02
>30	39	20.86
Total	**187**	**100.0**

Table 2. Ocular problems in the participants

Eye Disease*	Number	Percentage (%)
Refractive error	62	33.2
Presbyopia	27	14.4
Cataract	15	8.0
Ocular Allergy	6	3.2
Glaucoma	5	2.7

*Responses from 93 participants (19 persons gave multiple positive responses)

Ninety-nine (52.9%) participants had a family history of ocular problems, which ranged from glaucoma 37(19.8%), cataract 35(18.7%), refractive error 32(17.1%), presbyopia 13(7.0%).

and ocular allergy 4(2.1%). There were 14 (7.5%) persons who gave multiple positive responses on the family history of eye diseases. Among the participants, 104 (55.6%) had used spectacles, of which 10(9.6%) were for aesthetic purposes. Of the 94 (90.4%) participants with prescription lenses, 70 (74.5%) were used to correct refractive errors, 21 (20.1%) for presbyopia correction, and 3 (3.2%) were used for photosensitivity. On the duration of use of prescription lenses, 82 (87.2%) doctors have worn spectacles for over a year; while 12 (12.8%) for less than a year. Also, 89 (94.7%) obtained their prescription glasses from eye clinics, 3 (3.2%) from the market and 2 (2.1%) from hawkers.

Fifty-one (27.3%) participants have medical conditions which include hypertension 43 (84.3%), diabetes mellitus 16 (31.4%) and hypercholesterolemia 5 (9.8%); with 7 (13.7%) having both hypertension and diabetes mellitus. Also, 3(5.9%) had hypertension, diabetes mellitus and hypercholesterolemia.

On eye checks, 75 (40.1%) participants were certain they had never had an eye examination. Of the 112 (59.9%) who visited an eye care provider for eye examination, 54 (38.7%) had visited only once in their lifetime and was estimated to be over 5 years ago; 45(39.6%) had

an annual, 10(9.0%) semi-annual, and 3(2.7%) had their eyes examined 3 or more times annually. The prevalence of eye check is 59.9% (95%CI: 52.9– 66.9%). The frequency of eye check is shown in Fig. 1.

The reasons given for having an eye check were routine eye examination 63(56.3%), medical appointment 35(31.3%), due to family history of some eye diseases 6(5.4%), previous eye surgery 4(3.6%), and eye injury 4(3.6%). Having an eye examination was not significantly associated with medical practice of above or below 10years of practice (0.616), but significantly associated with medical practice of over 20 years (P=0.030), working in a private practice (P=0.001), having eye problem (P<0.001), especially with specific diseases such as cataract (P=0.006), refractive error (P<0.001), presbyopia (P<0.001), and use of prescription spectacles (P<0.001). Eye check was significantly higher amongst ophthalmologists than non-ophthalmologists (P=0.003). Eye check was not statistically significant with age above or below 40years (P=0.491), sex (P=0.675), having glaucoma (P=0.064), family history of any eye disease (P=0.268) nor the presence of medical conditions (P=0.156). Reasons given by those who never had an eye examination are depicted in Fig. 2.

There were 175(93.6%) participants who think periodic eye check is necessary and this can be promoted through various ways as listed in Table 3.

Table 3. Ways to promote Eye Check

Variable*	Number	Percentage (%)
Use of radio/Television	125	66.8
Use of social media	122	65.2
Conducting free eye care services	121	64.7
Through physician's week seminars	103	55.1
Use of print media	86	46.0

*Responses from 178 participants (128 persons gave multiple positive responses)
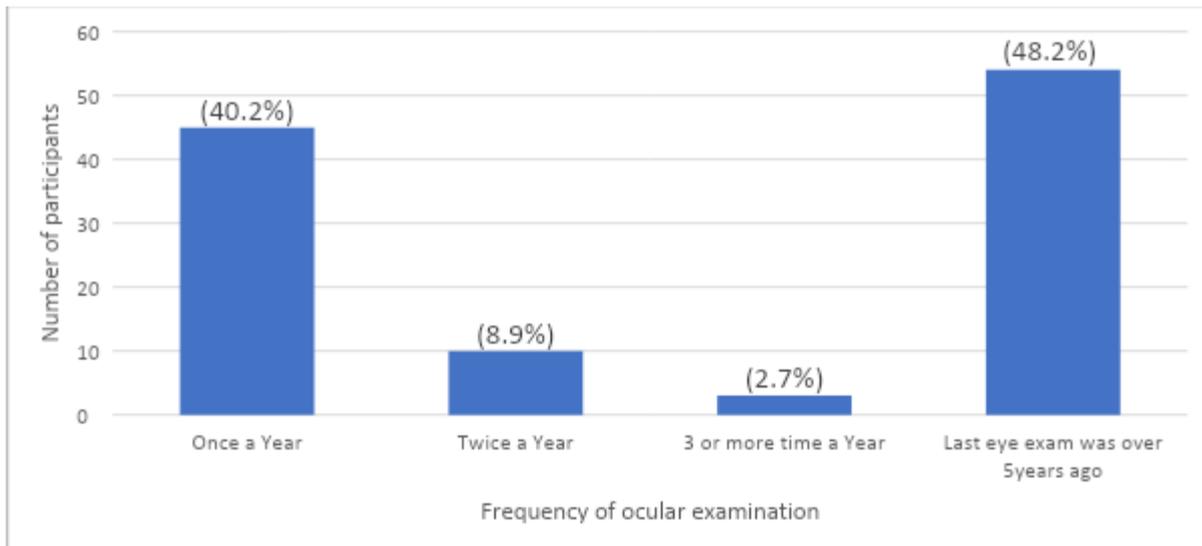
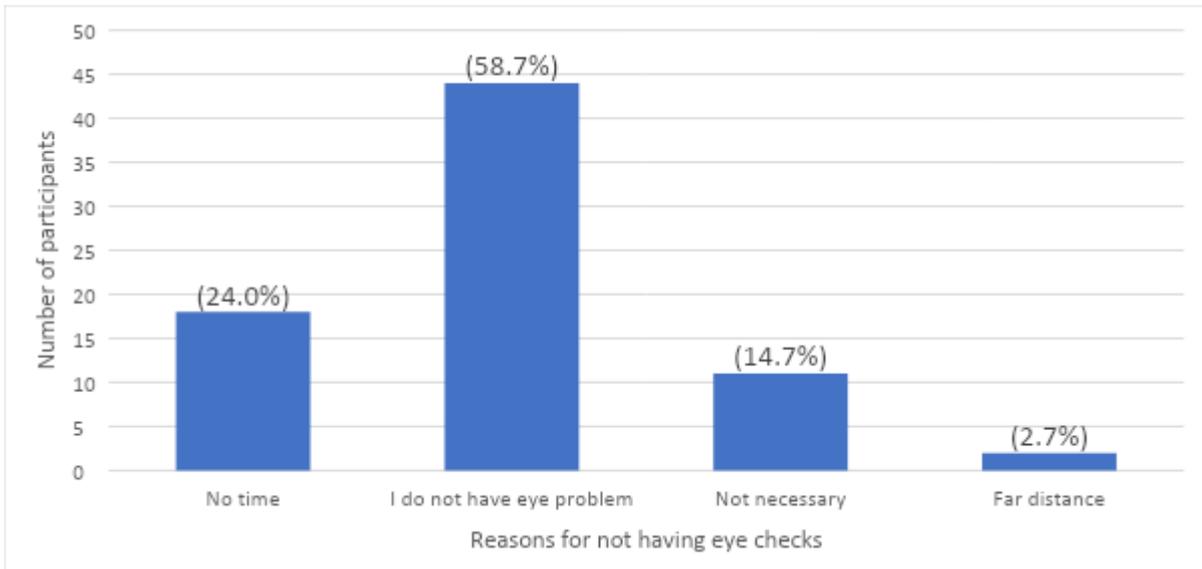**Fig. 1. Frequency of ocular examination amongst participants**

Fig. 2. Reason for not having eye checks

4. DISCUSSION

Routine eye examinations and tests are an important part of preventive and curative medicine. Medical doctors constitute a large proportion of the health workforce, and so their general well-being and ocular health is of paramount importance for daily living and proper discharge of medical duties. Outright comparison of the index study with other surveys is difficult, as most studies on this topic were population-based, with a few conducted in hospitals among health professionals.

Despite the observation that the majority (93.6%) of the participants in the index study were of the opinion that having regular eye check was necessary, only 59.9% had eye examination in their lifetime, while 31.0% had eye examination more than once. Seventy-five (40.1%) had never undergone eye examinations. The prevalence of having an eye examination in the index study is 59.9% (95%CI: 52.9– 66.9%). This prevalence is similar to findings by Omotoye et al[15] in Ekiti, south western Nigeria, where the reported prevalence of having an eye exam in non-ophthalmic doctors was 59.2%. The major reasons they gave for having eye examination were ocular complaints (55.4%), routine eye check (35.4%), and positive family history of eye diseases (5.4%). These reasons were similar to that of the index study, although routine eye

examination (55.8%) and medical appointments (31.5%) ranked higher in our study. Among Dental surgeons working in university teaching hospitals across Nigeria, 55.4% of the respondents had undergone professional eye examinations, of which 50% underwent eye examinations within the past 12 months, and 61% within the past 24 months preceding the study. This finding is similar to our study where 51.8% of the participants who had previously had an eye examination, did it within the past 12 months. Akinsola et al. [14] in Lagos Nigeria reported that 86% of physicians had previously had an eye examination, although the majority (84.6%) did not make their visit to the eye clinic for an eye check.

In Israel, 67.1% of the family physicians interviewed had eye examination within the past 5 years preceding the study, and only 27.5% underwent general screening tests by themselves [16].

This poor attitude to eye screening was also seen in the general public. In population-based studies in India, [10] Ethiopia, [12] South Africa, [11] and Ghana, [13] the proportion of persons who had never had any form of eye examinations were 72.2%, 58.4%, 73.4% and 67.8% respectively. In population-based studies in south-western and south eastern Nigeria, 81% and 57.6% respectively had never utilized any form of eye care services [22,23].

Factors such as practicing in the private health sector, medical practice for over 20 years, and use of prescription glasses, having eye problems like cataract, presbyopia and refractive error encouraged the utilization of eye care services amongst doctors in Anambra State. Surprisingly, factors such as being diagnosed with glaucoma, having family history of eye diseases and medical conditions such as diabetes mellitus and hypertension were not significantly associated with having eye checks. This is despite the fact that south east Nigeria has the highest burden of glaucoma in Nigeria [2]. It would be assumed that factors like lack of awareness should not be a constraining factor to assessing eye care services amongst medical doctors. Could it be that doctors with glaucoma and systemic co-morbidity have poor knowledge of the sight threatening nature of these problems? or that they practice hallway medicine as described by Peleg et al. [16] as 'an informal and inappropriate self-referral to specialists without medical record keeping and follow-up [16]. The habit of doctors diagnosing and treating themselves is on the increase. This probably could have been that they had no time to visit the specialists. 'No time' is the second most common reason given in the index study and other studies for not having a proper eye check [15,16]. Other reasons given in the index study for not having regular eye checks were belief that they do not have eye problems even when an eye exam has not been done, having an eye examination was not deemed necessary and distance also played a role.

The Nigerian federal ministry of health does not have a stipulated guideline on the practice of eye checks [14]. However, the American Academy of Ophthalmologists documents that asymptomatic persons without the risk factors or family history of eye diseases who is less than 40 years should have an eye exam once in 5 years, while those above 40 years, should have an eye exam once in 2 years [5]. Persons with family history of glaucoma and systemic co-morbidity such as diabetes mellitus should have a yearly ocular exam, irrespective of age.5

Doctors are good at counseling patients to undergo screening tests, but themselves do not practice what they preach [16]. This findings of this study reveal that the majority 99(52.9%) of the study participants have family history of eye diseases and 51(27.3%) have medical conditions which should warrant regular eye check, The authors strongly agree with Peleg [16] that commitment to screening tests by employees can be promoted when the employer allocates time and place for these tests to be done.16 This will greatly enhance the output of every organization.

5. CONCLUSION

Doctors in a bid to run effective practices in the care of their patients tend to neglect their own health. Every medical doctor should have an eye check by a specialist at least once in 3 years even when they are asymptomatic. Glaucoma, the silent thief of sight and other age dependent ocular pathology could go unnoticed especially when they are not looked out for. Therefore, doctors should imbibe the culture of regular eye checks so as to practice what they preach to their patients [24,25].

CONSENT

Written consent was obtained from the participants. The study was conducted according to the tenets of the Helsinki Declaration.

ETHICAL APPROVAL

Ethical approval was obtained from the Medical and Health Research Ethics Committee of the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH) with reference no COOUTH/CMAC/ETH.C/VOL.1/FN:04/0091 with approval date of 29th April 2021. Written informed consent was taken from each participant. Access to data was limited to those directly involved in the study. All aspects of the study were conducted according to Good Clinical Practice and Good Laboratory Practice guidelines. Confidentiality of the study participants' information was securely stored and identified by study number. This study was conducted according to the tenets of the Declaration of Helsinki. Ethical clearance to conduct this study was obtained from the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Ethics Committee.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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