

# Coronavirus Disease 2019 Virus among Ophthalmologists in Nigeria: Knowledge, Attitude, and Perceptions

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## Abstract

**Background:** Globally, there is still much to learn about the evolving coronavirus disease 2019 (COVID-19) virus, its transmission, prevention, and treatment. Therefore, this study investigates the knowledge, perception, and screening practices of COVID-19 infection in the ophthalmology practice in Nigeria. **Materials and Methods:** This survey was a descriptive, cross-sectional survey conducted among practising ophthalmologists and ophthalmologists in training in Nigeria in an online survey. Data compiled were then analyzed using the IBM SPSS software version 22.0 with two-tailed  $P < 0.05$  considered to indicate statistical significance. **Results:** A total of 206 ophthalmologists/ophthalmologists in training were recruited for this study. Most of the respondents, 97 (47.1%), practiced in centres in South-West Nigeria and were board-certified ophthalmologists 96 (46.6%). In general, the majority of the respondents, 182 (88.3%), had good knowledge regarding the COVID-19 virus, its transmission, prevention as it regards the ophthalmic practice, 134 (74.8%) either agreed or strongly agreed that the ophthalmologist is at a higher risk of contracting the virus from infected patients even if the patient is asymptomatic. COVID-19 infection was perceived as very serious by the majority of the respondents, 135 (65.5%), although 128 (62.1%) felt that all routine cases should be seen only following a low-risk assessment. **Conclusion:** As the world races toward complete vaccination of the population against this fatal infection, continued training is required to ensure the best practices among ophthalmologists to bridge the present knowledge gaps, corrects myths, misconceptions, and ensure the safety of both the patient and the ophthalmologist.

**Keywords:** Attitude, coronavirus disease 2019 virus, knowledge, ophthalmologists, perception

## INTRODUCTION

The emergence of the novel severe acute respiratory syndrome coronavirus 2 in a live animal market in the Hubei Province of China heralded the beginning of the pandemic of the millennial generation.<sup>[1]</sup> The new coronavirus is a highly pathogenic, single-stranded enveloped RNA virus responsible for the disease designated coronavirus disease 2019 (COVID-19) by the WHO.<sup>[2]</sup> It presents as a respiratory illness ranging from mild-to-severe respiratory failure.<sup>[2]</sup> COVID-19 virus is highly infectious and has an incubation period of about 2–14 days.<sup>[3]</sup> Most patients will exhibit the symptoms on the 4<sup>th</sup> to 5<sup>th</sup> day following exposure.<sup>[3]</sup> Despite insufficient testing, over 55,000 cases were recorded in Nigeria in the first 6 months of the pandemic, resulting in over 1000 COVID-19 deaths.<sup>[4]</sup>

Although primarily a respiratory virus, several systemic symptoms have been reported in persons infected with the COVID-19 virus globally.<sup>[5]</sup> Patients with COVID-19 present with a wide array of symptoms, including but are not limited

to fever, dry cough, sore throat, difficulty in breathing, and sneezing. The virus has also been noted to have atypical presentation and involvement, affecting various organs, including the eye.<sup>[6]</sup>

The reports of COVID-19 presenting as acute conjunctivitis have also been reported in different parts of the world.<sup>[7-9]</sup> The virus has also been shown to have a high affinity for the angiotensin-converting enzyme 2 receptor suggesting the possibility of the conjunctiva and cornea transmission of the infection.<sup>[10]</sup> The common ocular manifestations of COVID-19 include conjunctivitis and conjunctival hyperemia. However,

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other presentations such as chemosis, epiphora have also been reported in more patients with severe disease.<sup>[11]</sup> These may resolve spontaneously or progress to involve coarse epithelial keratitis, pseudomembranous conjunctivitis and bilateral hemorrhagic, pseudomembranous conjunctivitis, or pseudo-dendritic keratitis.<sup>[12,13]</sup>

There is currently no evidence supporting retinal abnormalities in COVID-19 patients except very mild retinal microvascular abnormality involving the retina ganglion cell and inner plexiform layers.<sup>[14]</sup> Ophthalmologists are, therefore, fundamental to the diagnosis and management of patients with COVID-19 virus infection.<sup>[15]</sup>

Health-care workers are at a higher risk of acquiring COVID-19 infection due to exposure to infected patients. Health-care workers such as ophthalmologists and ophthalmology trainees, ENT surgeons, and dental practitioners are at an increased risk of acquiring the virus because of their proximity (<1 m) to patients during examination. In addition, exposure to mucous membranes of the eyes, nose, secretions, and tears are the potential microbial contamination and transmission sources.<sup>[16,17]</sup>

Although a previous study investigated knowledge and COVID-19 preventive practice among eye workers in Nigeria, no reports have investigated the knowledge, perception, and screening practices of COVID-19 solely among ophthalmologists in Nigeria.<sup>[18]</sup> Understanding the knowledge, perception, and screening practices of ophthalmologists can help predict planned behaviour and subsequent outcome and give insight into the kind of information the ophthalmologist will share with their patients on COVID-19. To address the current knowledge gap in this area, this study was designed to explore the knowledge, perception, and screening practices of COVID-19 among ophthalmologists practising in Nigeria. This information can help guide training programs and policies for ophthalmologists to bridge the knowledge gaps on COVID-19 related to ophthalmology practice.

## MATERIALS AND METHODS

This was a descriptive, cross-sectional survey conducted among practising ophthalmologists and ophthalmologists in training in Nigeria. Currently, about 300 ophthalmologists are practising in Nigeria, with a majority residing in the urban areas.<sup>[19]</sup> A minimum sample size of 113 was calculated from a previous study conducted in Nigeria.<sup>[18]</sup> Ophthalmologists and ophthalmologists in training from all six geopolitical were recruited using the convenience sampling methodology until the sample size was reached. Ophthalmologists from both privately-owned institutions and those practising in the public sector were included in the study.

The survey questionnaire was developed after reviewing relevant literature and guidelines for an ophthalmology practice during the COVID-19 pandemic. The instrument was designed in English using Google forms and contained 35 close-ended

questions divided into four sections. The first section assessed sociodemographic details and profession-related details (age, gender, highest educational qualification, number of years postgraduation, sector of practice, institution of practice, and geopolitical zone). The second section evaluated ophthalmologist's knowledge of COVID-19 and the eye (beliefs, method of spread, methods of prevention, the portal of entry for COVID-19, fatality, source of information, eye as a portal of entry, acute conjunctivitis and blindness as possible presentations of COVID-19, the incidence of conjunctivitis in COVID-19, the receptor of entry for COVID-19 in the eye, and treatment of COVID conjunctivitis). Finally, the third section assessed ophthalmologist's perception of COVID-19 (perception of the seriousness of the disease, risk perception, adequacy of PPEs, and opinion on ophthalmology practice during the COVID-19 pandemic). The presence of "high risk" for COVID-19 infection in this study was defined by a history of travel to high-risk COVID-19 areas, positive history of contact with a known or suspected COVID-19 cases, and the presence of fever with respiratory symptoms. When these were absent, the patient was considered low risk.

Each correct answer got a score of 1, wrong answers were scored 0, in total, the maximum knowledge score was 24, a score of 18 and below was considered poor knowledge, a score above 18 was deemed to be good knowledge. Response to each item on the perception section was recorded on a 5-point Likert scale as follows: Strongly agree (5-points), agree (4-points), undecided (3-points), disagree (2-points), and strongly disagree (1 point). The fourth section documented screening practices at eye care centres (screening for travel history, high-grade fever, respiratory illness, contact with suspected or confirmed COVID-19 case, and acute conjunctivitis). Survey questionnaires were then shared with ophthalmologists through E-mail and WhatsApp messenger application; the instrument was published online in August 2020 and was available for 72 h.

The study was conducted according to the principles of the Helsinki Declaration as revised in 2013 and using the approved Checklist for Reporting Results of Internet E-Surveys guidelines.<sup>[20]</sup> Ethical clearance for this survey was obtained from the Health Ethics and Research Committee of the Lagos University Teaching Hospital.

Data compiled were analyzed using IBM SPSS 22.0 (Armonk, NY, USA: IBM Corp) with two-tailed  $P < 0.05$  considered to indicate statistical significance. Descriptive statistics were used to describe the items included in the survey. The Chi-square test and Fisher's exact test were used to investigate the level of association among the variables.

## RESULTS

A total of 206 ophthalmologists and ophthalmologists in training were recruited for this study. Almost half of all respondents, 98 (47.6%), were aged between 31 and 40 years. The mean age of respondents was  $41.5 \pm 9.4$  years. The majority of

respondents were females, 131 (63.6%), married 176 (85.4%), and Christians 160 (77.7%). Most of the respondents, 97 (47.1%), practised in centers in South-West Nigeria and were board-certified ophthalmologists 96 (46.6%) or pre-Part I residents 94 (45.6%). The mean years of clinical ophthalmic experience of respondents was  $15.8 \pm 9.7$  years [Table 1].

### Knowledge of the coronavirus disease 2019 infection

A significant number of respondents, 175 (85.0%), confirmed COVID-19 to be a viral infection with zoonotic origins. However, a few ophthalmologists 25 (12.1%) reported common myths and misconceptions on COVID-19 virus such as “COVID-19 being a biological weapon designed by China,” “a viral infection originating in a laboratory accident,” or a virus developed by the pharmaceutical companies to sell drugs and an exaggeration by news media to cause fear and panic. Uniformly, all respondents noted that the virus was

transmitted through contact droplets. Only a few respondents, 5 (2.4%) agreed to the virus been spread using test kits and 5G phones/mast. Almost all respondents in the survey 205 (99.5%) recognized frequent hand washing as a way of preventing COVID-19. Other preventive methods recognized by ophthalmologists include routine cleaning 203 (98.5%), wearing of personal protective equipment 197 (95.6%), and social distancing 199 (96.6%). All respondents uniformly recognised that COVID-19 infection could lead to death in some cases.

As it concerns the knowledge of COVID-19 infection regarding the ophthalmology practice, almost all respondents, 203 (98.5%), were aware that conjunctivitis could present as an early sign of COVID-19 infection. However, 105 (51.0%) of respondents did not know the receptor of entry into the cells of the eyes. The majority of respondents, 167 (81.1%), knew that non-contact tonometry could spread the COVID-19 virus and believed that it is generally safer than contact tonometry (176, 85.4%). Although most participants were also aware that COVID conjunctivitis is usually self-limiting and can be managed using lubricants and cold compress if the cornea is not involved, only about half 107 (51.9%) agreed no other treatment is often needed [Table 2]. In general, most of the respondents, 182 (88.3%), had good knowledge of the COVID-19 virus, transmission, prevention, and concerns regarding ophthalmic practice.

**Table 1: Sociodemographic characteristics of participants**

Variables	n (%)
Age group (years)	
21-30	13 (6.3)
31-40	98 (47.6)
41-50	60 (29.1)
51-60	27 (13.1)
>60	8 (3.9)
Gender	
Female	131 (63.6)
Male	75 (36.4)
Marital status	
Single	24 (11.7)
Married	176 (85.4)
Widowed	5 (2.4)
Divorced/separated	1 (0.5)
Religion	
Christianity	160 (77.7)
Islam	41 (19.9)
Other	5 (2.4)
Level of education	
Fellow	96 (46.6)
Residency pre-Part I	94 (45.6)
Residency pre-Part II	16 (7.8)
Geopolitical zone	
North Central	35 (17.0)
North East	5 (2.4)
North West	21 (10.2)
South East	17 (8.3)
South South	31 (15.1)
South West	97 (47.1)
Sector	
Academic/university	18 (8.7)
Private health centers	25 (12.1)
Secondary health centers	9 (3.9)
Tertiary hospitals	150 (72.8)
Ministry of health	4 (1.9)
Mean years of experience	$15.8 \pm 9.7$

**Table 2: Coronavirus disease-2019 virus infection and the ophthalmology**

Variables	n (%)
About the COVID-19 infection in the eye	True
COVID-19 virus may affect the eye	204 (99.0)
The eye may be a portal of entry for the COVID-19 virus	201 (97.6)
Conjunctivitis may be the first presenting sign for COVID-19 infection	203 (98.5)
COVID-19 infection can cause blindness	43 (20.9)
How common is conjunctivitis in patients with COVID-19?	
<5% risk	121 (58.7)
>50% risk	3 (1.5)
5%-50% risk	77 (37.4)
None	5 (2.4)
The virus is said to enter the cells through which receptors in the eye?	
ACE receptor cells 1 (ACE-1)	105 (51.0)
ACE receptor cells 2 (ACE-2)	10 (49.0)
Concerning tonometry	
Noncontact tonometry can never spread COVID-19	39 (18.9)
Contact tonometry is safer than noncontact tonometry	176 (85.4)
Concerning the treatment of COVID-19 conjunctivitis	
No treatment is often needed	107 (51.9)
It is usually self-limiting	175 (85.0)
It can be managed with lubricants and cornea compress unless the cornea is involved	156 (75.7)
Topical antibiotics can prevent secondary bacterial infection	191 (92.7)

COVID-19: Coronavirus disease-2019, ACE: Angiotensin-converting enzyme

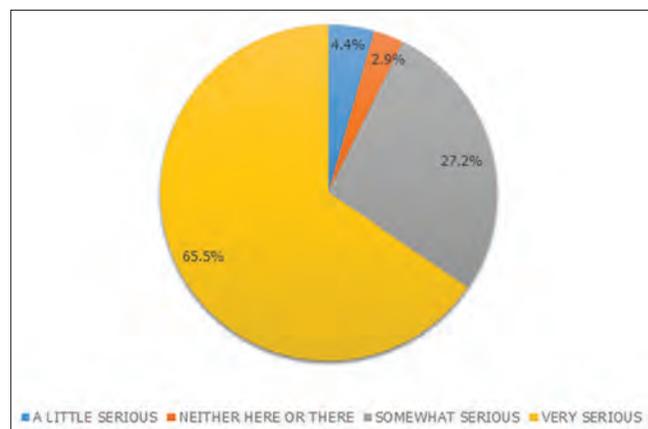
The gender of the respondents was significantly associated with the level of knowledge, with 15.3% female respondents having poor knowledge compared to 5.3% of their male counterparts ( $X^2 = 4.572, P = 0.032$ ). There was no significant association between age group, academic qualification or location of centres, and the level of knowledge [Table 3].

Participants' sources of information on the COVID-19 were from mass media 187 (90.8%), government agencies or officials' 109 (52.9%), and scientific journals 170 (82.5%). However, only one respondent noted to have gotten information on COVID-19 from webinars and seminars. More than half of all participants noted their information on COVID-19 infection from the internet searches 174 (84.5%) or social media 136 (66.0%). Other sources of information about the COVID-19 virus infection include mass media (187, 90.8%), other health workers (177, 85.9%), peer-review journals (170, 82.5%), governmental organizations (109, 52.9%), and in one respondent (0.5%) who noted the source of information to be from lectures or seminars.

### The attitude of ophthalmologists toward the coronavirus disease 2019 infection

COVID-19 infection was perceived as very serious by the majority of the respondents 135 (65.5%) [Figure 1]. In contrast, a little more than a quarter of ophthalmologists in this study, 66 (32.0%), agreed that they should only see urgent cases as specified by the guidelines for ophthalmic practice. The majority of the respondents, 128 (62.1%), felt that all routine cases should be seen only following a low-risk assessment; 11 (5.3%) felt that all routine cases should be seen regardless of risk.

Most ophthalmologists, 134 (74.8%), either agreed or strongly agreed that the ophthalmologist is at a higher risk of contracting the virus from infected patients compared to other health workers. More than three-quarters 159 (77.2%) recognized the possibility of transmission from asymptomatic patients. Over half, 136 (66.0%) of respondents in this study responded that their facilities had an inadequate supply of personal protective



**Figure 1:** Perception of the seriousness of coronavirus disease 2019 infection among ophthalmologists

equipment (PPE) for their protection. Several participants agreed 151 (73.3%) that all patients should undergo risk assessment on presentation. Only a few ophthalmologists, 11 (5.4%), agreed that procedures should still be carried out on patients even if they are high risk [Table 4].

Regarding practice, irrespective of location, most ophthalmologists in this study responded that in their facilities, patients were screened for high fever (188, 91.3%), respiratory illness (197, 95.6%), acute conjunctivitis (166, 80.6%), travel history (188, 91.3%), and positive COVID-19 contact history (197, 94.2%) before consultations were allowed.

## DISCUSSION

Ophthalmologists are the primary eye caregivers for patients at the clinics and can be exposed to a vast number of possibly infected COVID-19 patients, becoming a weak link at the hospital and a nidus of infection transmission if adequate precautions are not taken. With more awareness, ophthalmologists are essential for early recognition of cases, and with good knowledge, they can offer optimal care to their patients while ensuring personal safety.<sup>[21,22]</sup> Sufficient knowledge is essential for promoting positive behavior. The perception of the seriousness of infection can significantly influence the level of precautions taken and outcomes of infection control guidelines put in place.<sup>[23]</sup>

In this study, irrespective of geopolitical zones, most ophthalmologists reviewed had good knowledge regarding COVID-19 infection and management. This contrasts with finding a similar survey conducted among health-care workers in South-South Nigeria, with good knowledge in only less than three-fifths of respondents.<sup>[24]</sup> However, the study by Ogodolom *et al.* was conducted in May of 2020, while the current survey was conducted in August 2020; as such, the time difference and evolving knowledge about the novel virus could account for the improved knowledge about COVID-19 infection among participants in the current study.

Also worthy of note was the significant association between the gender of participants and the level of knowledge regarding the COVID-19 virus infection and management, with male participants having significantly more knowledge than female health-care workers. Although similar findings were reported by Mbachu *et al.*<sup>[25]</sup> among health-care workers in South-Eastern Nigeria, the underlying reason for this outcome is yet unclear. We suspect that information exposure differences between genders in health-care practice in Nigeria may be a key factor.

It was still surprising to note that few (12.4%) of the ophthalmologists surveyed still harboured significant misconceptions about the COVID-19 virus and its origin. Health-care providers are tasked with the health education of their patients and the general populace. The propagation of such myths and misconceptions could spur distrust in government and reduce precautionary behaviours to mitigate infection spread

**Table 3: Factors associated with good or poor knowledge of coronavirus disease-2019 virus among ophthalmologists**

Variable	Good knowledge, n (%)	Poor knowledge, n (%)	Chi-square test, P
Age group (years)			
21-30	8 (61.5)	5 (38.5)	Fisher's exact=8.497 P=0.052
31-40	87 (88.8)	11 (11.2)	
41-50	56 (93.3)	4 (6.7)	
51-60	24 (88.9)	3 (11.1)	
>60	7 (87.5)	1 (12.5)	
Gender			
Female	111 (84.7)	20 (15.3)	$\chi^2=4.572$ P=0.032
Male	71 (94.7)	4 (5.3)	
Level of education			
Fellow	89 (92.7)	7 (7.3)	Fisher's exact=3.581 P=0.148
Residency pre-Part I	79 (84.0)	15 (16.0)	
Residency pre-Part II	14 (87.5)	2 (12.5)	
Geopolitical zone			
North Central	30 (85.7)	5 (14.3)	Fisher's exact=5.679 P=0.293
North East	5 (100.0)	0	
North West	16 (76.2)	5 (23.8)	
South East	16 (94.1)	1 (5.9)	
South South	30 (96.8)	1 (3.2)	
South West	85 (87.6)	12 (12.4)	
Sector			
Academic/university	17 (94.4)	1 (5.6)	Fisher's exact=2.370 P=0.618
Private health centers	22 (88.0)	3 (12.0)	
Secondary health centers	9 (100.0)	0	
Tertiary hospitals	131 (87.3)	19 (12.7)	
Ministry of health	3 (75.0)	1 (25.0)	

**Table 4: Attitude of ophthalmologists to patient care during the coronavirus disease-2019 pandemic**

Attitude of ophthalmologists to care during the COVID-19 Pandemic, n (%)	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Symptoms often resolve with time so business should continue as usual	2 (1.0)	19 (9.2)	27 (13.1)	96 (46.6)	62 (30.1)
The ophthalmologist is at higher risk of contracting the virus from infected patients	111 (53.9)	43 (20.9)	22 (10.7)	7 (3.4)	23 (11.2)
Number of companions with patients should be reduced	145 (70.4)	14 (6.8)	18 (8.7)	8 (3.9)	21 (10.2)
All patients should undergo a risk assessment	108 (52.4)	43 (20.9)	22 (10.7)	8 (3.9)	25 (12.1)
Procedures should still be carried out on patients even if they are at high risk	3 (1.5)	8 (3.9)	24 (11.7)	68 (33.0)	103 (50.0)
Patients with respiratory illness should still be treated after taken precautions	20 (9.7)	53 (25.7)	37 (18.0)	51 (24.8)	45 (21.8)
There is an adequate supply of PPEs in my facility	8 (3.9)	31 (15.1)	31 (15.1)	62 (30.1)	74 (35.9)
Asymptomatic patients can transmit the virus to ophthalmologists	111 (53.9)	48 (23.3)	17 (8.3)	5 (2.4)	25 (12.1)

COVID-19: Coronavirus disease-2019, PPEs: Personal protective gears

among patients. This could, in turn, impact their willingness for vaccine uptake for COVID-19 infection; as such proper education must be the cornerstone of care, especially among patients with preexisting ophthalmic or systemic conditions.<sup>[26]</sup>

At the beginning of the pandemic, several guidelines were put in place by public officials in different countries to mitigate the virus's spread and flatten the curve. The American Academy of Ophthalmology (AAO) guidelines for interim guidance for triage of ophthalmology patients was promulgated.<sup>[27]</sup> The AAO guidelines' changes include rescheduling routine ophthalmic issues, standard precautions for urgent ophthalmology appointments with low risks, and referrals for confirmed COVID-19 cases and high-risk

patients.<sup>[27]</sup> Similarly, in Nigeria, specific guidelines were adapted to prevent the spread of the COVID-19 virus. These guidelines included physical distancing (as much as possible), ocular triage, suspension of routine eye examinations, restriction of clinic consultations to patients with urgent and emergent conditions only.<sup>[28]</sup> Other guidelines include switching to non-contact tonometry for intraocular pressure assessment, cancellations of elective surgeries, and workforce rotation in several ophthalmology centres.<sup>[28]</sup>

Despite these best efforts, instituting these measures may be more challenging in ophthalmic settings than in other specialities. This is because the ophthalmology practice typically involves proximity (<1 m) to patients during ocular

examinations, slit-lamp examination, or ophthalmoscopy.<sup>[29]</sup> Instruments used in the eye clinic also have a higher propensity to get contaminated as they come in contact with tears and conjunctival secretions, which may harbour the virus.<sup>[29]</sup> In addition, performing specific ophthalmic tests such as non-contact tonometry has also been linked to disruption of the tear film and subsequent generation of micro-aerosol formation.<sup>[29]</sup> This, coupled with the high-volume clinics, demographics of ophthalmic patients, predominantly elderly patients with comorbidities, prolonged exposure of ophthalmologists to patients during ocular examinations, places ophthalmologists and ophthalmic patients at a significantly higher risk of contracting the virus.<sup>[30]</sup> Despite these risks, in this study, more than half of the respondents in the survey noted that they were willing to attend to all routine cases if a low-risk assessment was conducted before consultations. This position is despite the finding that only 18.93% of the surveyed perceived that their facilities had a sufficient supply of protective equipment.

Contrary to our findings, Jammal *et al.* reported that in Jordan, nearly half of the surveyed ophthalmologists would only accept urgent cases.<sup>[30]</sup> It is worthy of note that more than half of all ophthalmologists in this study perceived the COVID-19 virus as a very serious threat to the ophthalmic practice. Three-quarters of all ophthalmologists in this study recognized that they are at higher risk of contracting the virus from infected patients. A similar fraction recognized the possibility of transmission even from asymptomatic patients. This corresponds to the findings from a study carried out by Minocha *et al.* where 80% of surveyed ophthalmologists felt at high risk of COVID-19 transmission at work.<sup>[31]</sup>

Several participants agreed (73.30%) that all patients should undergo risk assessment on presentation, and only a few ophthalmologists ( $n = 11$ , 5.34%) agreed that procedures should still be carried out on patients even if they are high risk. In a review by Michael Brown on the importance of ocular triage, he noted that practising sound principles of ophthalmic triage can help minimize the risk of infection transmission in the ophthalmic clinic and reduce the morbidity and mortality attached to COVID-19.<sup>[32]</sup> It is clear from this study that eye clinics in Nigeria have also inculcated ocular triage into their guidelines for practice in the COVID-19 era, and protocols have been developed for patient triage. On enquiry, four-fifth of participants admitted to screening for travel history, contact with suspected or confirmed COVID-19 cases, respiratory illness, high-grade fever, respectively, before consultation at their centres. Several participants (80.6%) also attested to screening for acute conjunctivitis before the consultation.

One limitation of this study, is the study only recruited ophthalmologists and ophthalmologists in training who were online and could fill the forms during the study period, and this could have resulted in selection bias recruiting ophthalmologists who were tech-savvy and possibly had

increased access to information about the virus online and as such were likely to have a higher level of knowledge.

## CONCLUSION

In conclusion, although the ophthalmologists in this study showed sufficient knowledge of COVID-19 infection as it relates to ophthalmic care, generally had good perceptions and good screening practices for the virus, continued awareness, and training are required to ensure the best practices among these health-care professionals to bridge the still present knowledge gaps and correct myths, misconceptions, and misinformation and ensure the safety of both the patient and the ophthalmologist.

### What is already known on this topic

Consequent to the continuous research works and studies globally, there is now information regarding the COVID-19 virus, currently on the subject;

- Information regarding the means of transmission of the COVID-19 virus is known
- Preventive practices which could potentially reduce the spread and transmission of the virus among health-care workers are currently known
- We know that ophthalmologists, unlike other specialities, are at higher risk of contracting and spreading the COVID-19 virus if proper precautions are not taken in clinical practice.

### What this study adds

Despite all that is known regarding the virus, its transmission and preventive practice, there is much to learn regarding the COVID-19 virus and how it affects health-care professionals and health-care delivery globally; this study, therefore, adds;

- Insight as to the level of knowledge of ophthalmologists currently practising in Nigeria during the COVID-19 pandemic
- This study offers the perception of varying ophthalmologists currently working in different geopolitical zones across Nigeria
- The study provides insights into the attitudes of practising Ophthalmologists in Nigeria and how this attitude may impact practice regarding the COVID-19 transmission and preventive methods.

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### Conflicts of interest

There are no conflicts of interest.

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