Original Article

Assessment of Knowledge, Attitude, and Practices of Eye Care Practitioners towards COVID-19 Guidelines in Tertiary Care Hospitals in Twin Cities

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ABSTRACT

Purpose: To access knowledge, attitude, and practices of Eye care practitioners (ECPs) towards COVID-19 guidelines and to determine their knowledge about use of Personal Protective Equipment (PPE).

Methods: A cross-sectional study was conducted in Tertiary Eye Hospitals of Rawalpindi and Islamabad from October 2020 to March 2021. A total of 270 Eye care practitioners currently working in public and private hospitals were included in this study. Non-probability convenient sampling technique was used. Data was collected from individuals through an interview-based questionnaire after taking consent. Data was coded and analyzed by using SPSS version 26. The Chi-square test was used for further analysis.

Results: Mean age of participants was 29.85 ± 7.482 years, ranging from 18 to 65 years. Females (67%) were slightly out-numbered than males of the total sample. Moreover, 50% of the respondents had adequate knowledge about COVID-19 while only 39.3% had a positive attitude towards COVID-19. Hours of practice and years of experience had an association with knowledge. Good practices were observed by only 43.3% of the total sample. Practices had an association with the department of work of ECPs.

Conclusion: There is scarcity of knowledge among ECPs about COVID-19 and its preventive measures. Less than 50% ECPs with positive attitude and good practices towards COVID-19 indicate a dire need to train them for use of PPEs.

Key words: COVID-19, Personal Protective Equipment, Pakistan

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INTRODUCTION

On December 31, 2019, the World Health Organization (WHO) received a report of many cases of acute infection in Wuhan, China.[1] This illness was known as Corona Virus Disease-19 (COVID-19). The disease was deemed a global pandemic by WHO on March 11, 2020. COVID-19 had spread to 228 countries and territories as of the time of writing (October 2020), and it was responsible for 41,053,557 confirmed cases and 1,129,775 fatalities.[1,2] Pakistan's first case of COVID-19 was reported from Karachi on February 26, 2020.

Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-CoV-2) is a single-strand, positive-sense RNA virus that causes COVID-19, a new and emerging respiratory disease.[3]Best way to avoid disease is the use of preventive measures. These include using face masks, donning gloves, frequently washing hands, avoiding exposure to sensitive areas, maintaining physical distance and avoiding touching nose, mouth, or eye with contaminated hands or other contaminated materials. Healthcare workers are at high risk of contracting disease.[4,5]

To apprise awareness and preparedness of health

care workers (HCWs) for COVID-19 management and prevention, WHO has published several prevention guidelines for COVID-19. HCWs are at higher risk of infection due to exposure to infected patients in crowded hospitals, where there are not enough isolation rooms and proper management to avoid COVID-19. Due to lack of knowledge about WHO guidelines for patients and practitioners, the risk to HCWs is increased.[6] Eye health practitioners are also at risk of catching infection due to close examination procedures such as slit lamp examination, retinoscopy and eye surgery. To prevent contracting disease and to ensure that patients with severe eye disease receive timely treatment, the eye care practitioner must be aware of COVID-19 prevention criteria. This study aimed to assess the knowledge, attitude, and practices toward COVID-19 guidelines among eye care practitioners.

METHODS

This study was conducted over six months i.e. from October 2020 to March 2020 at the outdoor patient (OPD) departments and emergency departments of Government and Private eye care hospitals in Rawalpindi and Islamabad. This cross-sectional study included eye care practitioners i.e. Ophthalmologists, Optometrists, and ophthalmic nurses working in wards and operation theatres. All other healthcare professionals, not in direct contact with patients and not willing to participate were excluded from this study. Using OPEN EPI software, sample size was 247 but data was collected from 270 respondents. An interview-based structured questionnaire was used for data collection which was based on similar studies published previously and it was finalized after a pilot study on twenty patients. The outcome variable of this study was the knowledge, attitude, and practices of eye care practitioners regarding COVID-19 guidelines. The first part of the questionnaire collected information regarding independent variables like the socio-demographics of the respondent while the second section included questions about knowledge regarding PPEs usage and other preventive measures. Third and fourth parts contained questions regarding attitude and practices respectively. The fifth part of the questionnaire was about the impact of COVID-19 on their practices. Face and content validity was checked by circulating it to experts in the field. A few questions were found redundant and unclear to interpret, which were then removed or modified. The questionnaire was written in the English language initially, but it was translated into the local language to ensure the comprehension of the participants. Permission was taken from both the Ethical review committee of Al-Shifa trust eye hospital and also from the administrations of the concerned hospitals. Verbal informed consent was taken from every individual before they were recruited in this study. Confidentiality of the patient's data was maintained and the ethical values of research were properly considered and followed at every step of the study. The responses recorded in the questionnaire were entered and analyzed using Statistical Package for social sciences (SPSS) version 21. The descriptive analysis was done on categorical and continuous variables. Frequency and percentages were reported for categorical variables and mean standard deviation for continuous variables and presented in the form of tables and charts. All the knowledge questions were computed and made a cut point taking a mean of the variable into inadequate knowledge and adequate knowledge. Similarly, the practice score was calculated and labeled positive and negative attitudes. The Chi-square test was applied to find the association between dependent and independent variables. The p-value of < 0.05 was considered statistically significant at a 95% confidence interval.

RESULTS

Out of 270 respondents, 150 (55.6%) belonged to private hospitals and 120 (44.4) were from government hospitals. Mean age of respondents was 29.85 ± 7.42 years ranging from 18 to 65 years and 113 (48.5%) of the participants were married. **Table 1** describes demographic characteristics of the respondents.

The knowledge score regarding COVID-19 guidelines and its preventive measures was associated with a positive attitude and good practices with a p-value of less than 0.05 **(Table 3)**.

The mean score of knowledge of the respondents was 89 ranging from 70 to 98. It was into inadequate with score of ≤ 88 and adequate knowledge if score was >88 revealing the fifty percent results of adequate and 50% inadequate. Similarly, attitude was divided into positive if score was > 15 and negative with score of ≤ 14. Majority of the respondents showed a positive attitude towards COVID-19 guidelines. The practices were labeled as good (score > 35) and bad (score

Table 1: *Demographic Characteristics of the respondents (N = 270).*

Sr. No.	Variable	Frequency N	Percentage (%)
	Gender		
1	Male	89	33
	Female	181	67
	Age		
2	18 – 30	186	68.9
	31 – 50	77	28.5
	>50	7	2.6
3	**Marital Status**		
	Married	131	48.5
	Unmarried	139	51.5
	Job Title		
	Ophthalmologist	110	40.7
4	Optometrist	130	48.1
	Ophthalmic Nurses	30	11.1
	Work Place		
5	Public Hospital	66	24.4
	Private Hospital	204	75.6
	Department of Work		
	OPD	218	89.2
6	Emergency Department	29	10.7
	Ward	23	8.5
	Experience in Years		
	0-10	231	85.6
7	11-20	31	11.5
	21-30	02	7.0
	31-40	06	2.2
8	**Hours of Practice**		
	<5	21	7.8
	5-10	241	89.3
	11-20	08	3.0

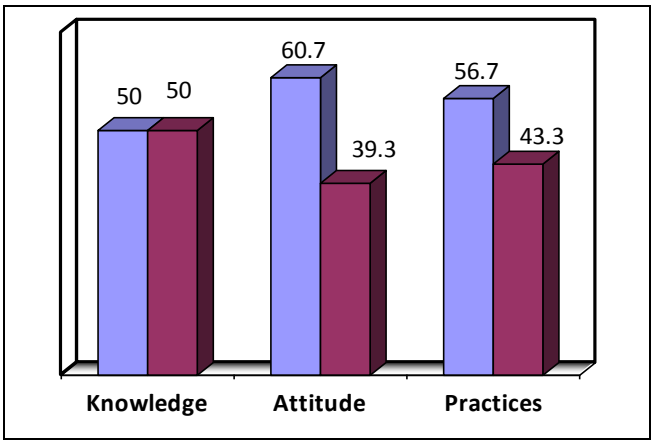

Figure 1: Total Score of Knowledge, Attitude, Practices.

≤ 34) **(Figure 1).**

A Chi-square test of independence was run to check the association between demographic variables and knowledge, attitude, and practices regarding COVID-19 Guidelines. A preliminary analysis was performed to check that there is no violation of assumptions. A statistically significant association was found between age and attitude of the respondents and also between Job title and knowledge of the respondents **(Table 2)**.

Table 2: *Association between dependent and independent variables.*

Variables	Knowledge				Attitude				Practices			
	Adequate %	In-adequate %	*df*	P-value	Positive	Negative	*df*	P-value	Good	Bad	*df*	P-value
Age												
18 – 30	72.6	65.2	1.37	**0.42**	71.6	62.2	1.90	**0.04***	74.4	64.7	3.04	**0.21**
31 – 50	25.2	31.9			26.2	33.9			23.1	32.7		
> 50	2.2	3			2.2	3			2.6	2.6		
Gender												
Male	38.5	27.4	3.77	**0.52**	36.8	30.5	1.15	**0.28**	38.5	28.8	2.82	**0.09**
Female	61.5	78.6			63.2	69.5			61.5	71.2		
Hospital												
Govt.	25.2	23.7	0.08	**0.77**	26.4	23.2	0.37	**0.54**	26.5	22.9	0.47	**0.49**
Private	74.8	76.3			73.6	76.8			42.2	77.1		
Job Title												
Ophthalmologist	36.3	45.2	2.21	**0.03***	45.3	37.8	1.70	**0.42**	43.8	38.3	8.40	**0.01***
Optometrist	51.9	44.4			43.2	51.2			51.2	45.6		
Nurses	11.9	10.4			11.3	11.0			5.0	16.1		
Department												
OPD	71.9	70.4	4.21	**0.23**	69.8	72.0	1.23	**0.74**	66.9	74.5	14.0	**0.01***
ER	13.3	8.1			13.2	9.1			16.5	6.0		
Ward	8.1	8.9			7.5	9.1			4.1	12.1		
Subspecialty	6.7	12.6			9.4	9.8			12.4	7.4		

Experience (Years)												
0 – 10	91.1	79.3	8.66	**0.01***	84.9	86.0	0.80	**0.08**	89.3	82.6	2.43	**0.12**
> 10	8.1	20.7			15.1	14.0			10.7	17.6		
Practice Hours												
≤ 6	15.6	5.9	6.52	**0.01***	6.6	13.4	3.11	**0.04***	14.5	7.8	3.09	**0.04***
> 6	84.4	94.1			93.4	86.6			85.5	92.2		

Table 3: *Association between Knowledge, Attitude, and Practices.*

Knowledge Score	**Attitude**			**Practices**		
	Positive	**Negative**	**p-value**	**Good**	**Poor**	**p-value**
Inadequate	42 (39.6)	93 (56.7)	**0.006***	50 (41.3)	85 (57.0)	**0.01***
Adequate	64 (60.4)	71 (43.3)		71 (58.7)	64 (43.0)	

*Statistically Significant p-value < 0.05

DISCUSSION

The objectives of this study were to determine the Knowledge, Attitude and Practices toward COVID-19 guidelines among Eye Care Practitioners and to assess the Knowledge about the use of Personal Protective Equipment (PPEs) among ECPs.

In this particular study, majority of the respondents were females, which might be because of the fact that more females are preferring ophthalmology as their profession. There was a significant relation of knowledge with attitudes and practices, indicating the importance of knowledge in keeping positive attitudes and practices during this pandemic. Knowledge had a significant association with the job title as well. In a study of Nigeria, ophthalmologists had better knowledge regarding COVID-19 guidelines than optometrists.[7] The present study suggests that (50%) of the respondents had adequate Knowledge about COVID-19 and its preventive measures. While a study conducted in the UK found a lack of knowledge and understanding of guidelines among ECPs.[8] This difference might be because of the different time periods of the study and this time lag has allowed the respondents of the present study to learn more about COVID-19. The UK study was conducted much earlier than the present study.

Hand hygiene, gloves, fluid resistant face masks and eye protection are recommended PPE in preventing COVID-19.[9,10] A similar study showed that 73% of the ECPs had knowledge of wearing a face mask as PPE and 62% told their patients to wear a mask, 90% of the ECPs considered washing hands and disinfection as a recommended PPE while 80% told their patients to do so.[11] Less than one third considered safety spectacles, face shields or gloves as essential PPE. Majority of ECPs did not receive any training in PPE which can be alarming and can cause infection in ECPs. Similar results were found in a study in India.[12,13] Another study showed using a face mask and eye protection was the main PPE while examining patients.[14]

In a local study it was revealed that Pakistani masses were not well aware of COVID-19 and strategies for the prevention and control of infection. The study concluded that individuals belonging to the front-line workers and high literacy groups were not prepared for the alarming situation in the country.[15] The situation is not different in many countries of the world which showed that community health workers were grossly under prepared for provision of health education on COVID-19, due to their poor level of knowledge.[16]

Current status of use of PPE and SOP is also depicted from a study which showed that only 50% of the ophthalmologists received PPE by their administration and only 69.5% doctors were satisfied with precautionary measures.[17]

In the Nigerian study, more than 70% of the respondents lacked confidence in attending patients during the lockdown. After the lockdown was lifted 26.3% reported a lack of confidence in attending patients.[7] Lack of PPE and risk of acquiring infection increases the stress level of the ECP and HCW.[18] The stress is further increased due to the economic crisis associated with the COVID-19 lockdowns.[19]

Practice hours in a day and experience of ECPs in years had an association with Knowledge. Job title influenced knowledge but did not show statistical significance.

Optometrists, Ophthalmologists and Ophthalmic nurses can play an important role in containing the disease by following the precautionary measures as they have more close interaction with patients.[20] However, it depends on the knowledge they have about the disease.

The strength of this study is that it will help to reduce risk of infection by improving knowledge, attitude and by good practices. The study will provide clarity on the current status of ECPs services and will help in policy-making in future outbreaks.

CONCLUSION

Adequate knowledge has a strong influence on good practices among ECPs. Improving knowledge of the ECP specially and public at large can be an effective way to bring about positive change in the attitude and practices of individuals.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval

The study was approved by the Institutional review board/Ethical review board (**ERC-65/AST-20).**

REFERENCES

1. **Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al.** Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020; **395 (10223):** 497-506. Doi: 10.1016/S0140-6736(20)30183-5. Epub 2020 Jan 24. Erratum in: Lancet. 2020 Jan 30;
2. **Sohrabi C, Alsafi Z, O'Neill N, Khan M, Kerwan A, Al-Jabir A, et al.** World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). Int J Surg. 2020; **76:** 71-76. Doi: 10.1016/j.ijsu.2020.02.034. Epub 2020 Feb 26. Erratum in: Int J Surg. 2020 May; **77:** 217.
3. **Gupta M, Abdelmaksoud A, Jafferany M, Lotti T, Sadoughifar R, Goldust M.** COVID-19 and economy. Dermatol Ther. 2020; **33 (4):** e13329. Doi: 10.1111/dth.13329.
4. **Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK.** Knowledge and Perceptions of COVID-19 Among Health Care Workers: Cross-Sectional Study. JMIR Public Health Surveill. 2020; **6 (2):** e19160. Doi: 10.2196/19160.
5. **Nguyen LH, Drew DA, Joshi AD, Guo CG, Ma W, Mehta RS, et al.** Risk of COVID-19 among frontline healthcare workers and the general community: a prospective cohort study. medRxiv [Preprint], 2020 May 25: 2020.04.29.20084111. Doi: 10.1101/2020.04.29.20084111.
6. **Cucinotta D, Vanelli M.** WHO Declares COVID-19 a Pandemic. Acta Biomed. 2020; **91 (1):** 157-160. Doi: 10.23750/abm.v91i1.9397.
7. **Ekpenyong B, Obinwanne CJ, Ovenseri-Ogbomo G, Ahaiwe K, Lewis OO, Echendu DC, et al.** Assessment of Knowledge, Practice and Guidelines towards the Novel COVID-19 among Eye Care Practitioners in Nigeria-A Survey-Based Study. Int J Environ Res Public Health, 2020; **17 (14):** 5141. Doi: 10.3390/ijerph17145141.
8. **Minocha A, Sim SY, Than J, Vakros G.** Survey of ophthalmology practitioners in A&E on current COVID-19 guidance at three Major UK Eye Hospitals. Eye (Lond). 2020; **34 (7):** 1243-1245. Doi: 10.1038/s41433-020-0857-5.
9. **Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, et al.** Clinical course and risk factors for mortality of adult in patients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020; **395 (10229):** 1054-1062. Doi: 10.1016/S0140-6736(20)30566-3.
10. **Watts E, Leck A, Hu V.** Personal protective equipment for COVID-19 in eye care. Community Eye Health. 2020; **33 (109):** 28-33. Epub 2020 Sep 1.
11. **Pult H.** COVID-19 Pandemic: Survey of future use of personal protective equipment in optometric practice. Cont Lens Anterior Eye, 2020; **43 (3):** 208-210. Doi: 10.1016/j.clae.2020.04.006.
12. **Sengupta S, Honavar SG, Sachdev MS, Sharma N, Kumar A, Ram J, et al.** Writing Committee on behalf of the All India Ophthalmological Society statement on preferred practices during the COVID-19 pandemic. Indian J Ophthalmol. 2020; **68 (5):** 711-724. Doi: 10.4103/ijo.IJO_871_20.
13. **Gupta PC, Kumar MP, Ram J.** COVID-19 pandemic from an ophthalmology point of view. Indian J Med Res. 2020; **151 (5):** 411-418. Doi: 10.4103/ijmr.IJMR_1369_20.
14. **De Lott LB, Newman-Casey PA, Lee PP, Ballouz D, Azzouz L, Cho J, et al.** Change in Ophthalmic Clinicians' Attitudes Toward Telemedicine During the Coronavirus 2019 Pandemic. Telemed J E Health, 2021 Feb; **27 (2):** 231-235. Doi: 10.1089/tmj.2020.0222. Epub 2020 Jul 17. PMID: 32706642; PMCID: PMC7888290.
15. **Khan S, Khan M, Maqsood K, Hussain T, Noor-Ul-Huda, Zeeshan M.** Is Pakistan prepared for the COVID-19 epidemic? A questionnaire-based survey. J Med Virol. 2020; **92 (7):** 824-832. Doi: 10.1002/jmv.25814.

16. **Omoronyia O, Ekpenyong N, Ukweh I, Mpama E.** Knowledge and practice of COVID-19 prevention among community health workers in rural Cross River State, Nigeria: implications for disease control in Africa. Pan Afr Med J. 2020; **37:** 50. Doi: 10.11604/pamj.2020.37.50.24307.
17. **Taqi U, Shahid E, Fasih U.** Implementation of Standard Operating Procedure in Ophthalmic Practice during Covid 19 Era across Pakistan: Pak J Ophthalmol. **38 (1):** 36-42. Doi: 10.36351/pjo.v38i1.1307.
18. **Dong L, Bouey J.** Public mental health crisis during COVID-19 pandemic, China. Emerging infectious diseases, 2020; **26 (7):** 1616. Doi: 103201/eid2607200407.
19. **Iqbal MS, Latif K.** Psychological, Social and Financial Impacts of COVID-19 on Clinical Practices and Academic Activities of Pakistani Ophthalmologists: Pak J Ophthalmol. 2020; **37 (1):** 1121. Doi: 10.36351/pjo.v37i1.1121.
20. **Hadavand MB, Heidary F, Heidary R, Gharebaghi R.** Role of ophthalmic nurses in prevention of ophthalmic diseases. Med Hypothesis Discov Innov Ophthalmol. 2013; **2 (4):** 92-95.

Authors' Designation and Contribution

Hadia Shakeel; Optometrist: *Concepts, Literature search, Data acquisition, Data analysis, Statistical analysis, Manuscript preparation, Manuscript editing.*

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Sultana Kausar; Optometrist: *Concepts, Data acquisition, Data analysis, Manuscript editing.*

Nimra Gull; Optometrist: *Literature search, Data acquisition, Manuscript preparation, Manuscript review.*

Bilal Khalid; Public health Practitioner: *Design, Data acquisition, Manuscript review.*