Knowledge and Attitude of Health Care Workers towards COVID 19

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Abstract - **Corona virus pandemic is affecting the people around the globe and posing a great challenge to the health care systems. Health care employees are playing the most important role during this pandemic. Health Care Employees are working for longer hours even though there is an increased risk of infection and are facing mental and psychological issues. Most of the hospitals and health care centers especially in local areas face a shortage of face masks, gowns, respirators, etc. Hence, this study was mainly to identify the knowledge, attitude and perceptions of Health Care Employees towards covid 19. Data was collected from 83 respondents. The study reveals that health care employees has the knowledge about covid 19, they showed positive attitude towards covid 19 prevention and majority of the employees are showing good practices towards the prevention of COVID 19. Further the study found that the knowledge of respondents regarding the symptoms of covid 19 is not associated with their gender, age, occupation and place they work but associated with level of education.**

Key Words: Health Care, Employees, COVID 19, Knowledge, Attitude.

I.   INTRODUCTION

Corona Virus can be considered to be a large virus family which can affect both humans and animals. Corona Virus can be caused by way of common respiratory infections such as cold and more diseases that get severe like middle Respiratory Syndrome (MES) and Severe Acute Respiratory Syndrome (SARS). The disease caused by Corona Virus is called COVID-19. The first outbreak of this disease was in Wuhan, China in December 2019. COVID-19 is a pandemic and it is affecting many countries globally. Now people are practicing self-isolation or quarantine. Quarantine means separating people who are not ill to protect them from getting exposed to COVID-19. It will help in preventing the disease from spreading. Whereas isolation is the separation of people who are prone to sickness and are affected by the symptoms of COVID-19. Health care employees are resulting with psychological issues and mental illness as the pandemic is getting worse and worse day by day and are also dealing with psychological problems like anxiety, depression, stress, etc.

As the number of death cases is increasing as the day passes, the responsibility of the health care employees increases in terms of preventing the virus from affecting or spreading to the people. As the world is under lockdown to prevent the disease from spreading, health care employees sacrifice their personal lives to protect the world from this pandemic. They are exposed to the risks and hazards of this virus and they are at the risk of infection. To prevent from getting affected by COVID-19, health care employees wear hand gloves, keeps

them sanitized frequently, and take all the safety measures. Health Care Employees should take all precautionary measures and safeguard them from getting affected by the disease. This research studies the perception, attitude and knowledge of health care employees towards COVID 19.

II.   REVIEW OF LITERATURE

COVID-19 is a global threat that is continuing to emerge which is very critical to improve the knowledge and perceptions of health care employees. They added that people need educational intervention to reach health care employees worldwide and make people more aware of this virus. They stated that COVID-19 is a virus that can be transmitted from a human to another human which can be through droplets, exposure, interactions, direct contact and there is a 2-14 incubation period. They further said that the majority of health care employees agreed to the fact that keeping yourself hygiene, covering the mouth and nose with masks, and distancing people with diseases will prevent the transmission of the virus. Health Care Employees were also of the opinion that sick patients should share their travel history so that it would be easy to access information on what, where and with whom the patient had direct contact (Srikanth A, Aldhaleej W, Rahmani J, et al , 2020). Health Care Employees are involved in taking care of patients irrespective of the levels and groups they are in. They added that there is a high occupational health risk in terms of the health care professionals as it is a very easily transmitting virus, so high precautions must be taken. They have an

opinion that health care employees had a lack of knowledge about the pandemic as well as the virus which leads to delay in diagnosis of the virus and could not stop the disease from spreading. They came up with the information that health care workers should follow all the precautions such as face masks and goggles, hand gloves when dealing with patients infected with COVID-19. Health care employees are well aware of the practices that should be followed to prevent the disease from spreading (Saqlain.M, Munir M M, et al, 2020).

Prescott K, Baster E, Hynch C, Jassal S, Bashir A, Gray J (2020) observed that the level of Health Care Employees in terms of their confidence and feelings about their preparation towards COVID-19 is unknown. Health Care Employees were taken to Health Service (NHS) Hospital trusts (England) to ascertain how prepared they are to face this pandemic. They added that the Health Care Employees have acted quite quickly in managing and making preparations for COVID-19 which lead to moderate success. Furthermore, researchers identified that there was confidence that lacked while collecting and handling the diagnostic samples of the patients. Kangqi N, Poon B H, Puar K, et al (2020) observed that there is a high chance of risk when treating the affected patients. If Health Care Providers are infected, then it will have a very drastic effect on the Health Care System and it will become difficult and uneasy to take care of the patients with fewer providers. They have observed a severe outbreak in respiratory viral illness in 2019 December in Hubei Province, China where this illness was then labeled as the Novel COVID-19. They have also found that even after treating patients who were in isolation for 14 days, the Health Care Employees were not infected which is a relieving instance.

Hamouche S (2020) observed psychological distress and depression as the main factors which are difficult to manage as it is the perception of an individual in how to cope up with events in life. Moreover, it will be helpful if the problems are understandable and solutions can be easily identified which will certainly help the Health Care Employees or Organizations to reduce the risk.

Sun N, Wei L, Shi S, You Y et al (2020)., opined that negative emotions like discomfort, fatigue, helplessness, overtime work, fear, etc were observed among the nurses. But increase in COVID-19 cases has lead to development in responsibility, gratefulness towards the profession. They observed changes from negative emotions to positive emotions.

Spoorthy MS, Pratapa, Mahant S(2020)., observed that COVID-19 can be a risk factor for stress in Health Care Employees. Not only Health Care Employees, but the front-line workers also had to treat patients through direct contact which is risky for them. They also explained how stressful it is for Health Care Employees resulting in psychological outcomes in them mainly due to workload, work hours, media news, etc.

Acharya S, Ghimire A, Dongol D, Maharjan K (2020), suggested that there should be separate COVID and NON-COVID emergencies which were expressed by the Health Care employees. They also observed that staff were not finding it comfortable wearing face masks and gloves all the time. Having separate COVID and NON-COVID emergencies would prevent Health Care Employees from getting affected. They also observed the need of separating patients infected with the first stage and second stage of COVID-19. Health Care Employees found it comfortable working in NON-COVID emergency departments.

Walton M, Murray E, Christian M D(2020)., have noticed that there will be widespread stressors that will become exacerbated. Staff will be affected negatively in terms of psychological problems. They further added that society should provide deserving support to the Health Care Employees. They have noticed the development concerning issues relating to symptoms and fear of bringing the illness back home and getting the family affected.

Rossi R, Socci V, Pacitti F, Lorenzo G D et al (2020)., observed different level of stress among health care employees including anxiety, insomnia, depression. They had to deal with other traumatic events which eventually make them very stressful. This was observed in Health Care Employees in Italy as they were eligible to work as front-line or second-line workers.

Hashmi F, Iqbal Q, Haider S, Ahmed F, Saleem F, Basheer M(2020)., noticed the difficulty faced by the Health Care Employees in providing the best service to the affected patients. They also suggested the policies to provide and make sure those adequate Human Resources are made available and we should be able to afford the supplies during a pandemic or an emergency. They opined that the awareness and readiness of the Health Care Employees will help in tackling the disease very easily.

Bhagavathula A, Rahmani J, Bandari D K, Mahabadi M(2020)., were of opinion in their study that if Health Care Employees are not much aware of the disease, then there will be a delay in treating the patients which may lead to the rapid spread of the infection. If the Health Care Employees have less understanding of the disease, then it is going to be difficult to control and stop the virus from spreading. Researchers observed that Health Care Employees had poor knowledge about virus transmission. Perception of COVID-19 was different among individuals. Few Health Care Employees were aware that vaccination will not be sufficient to prevent the virus. Health Care Employees knew that the COVID symptoms appear in 2-14 days and all the types of equipment used must be cleaned every day.

Gan W H, Lin J W, Koh D (2020)., observed that the number of COVID 19 patients are increasing day by day which becomes challenging for Health Care Employees to trace the contact, analyze the risk stratification, etc. They suggested

that the Health Care Employees have occupational exposure which is of real concern and it should be addressed decisively. Researchers observed that COVID-19 is transmitted through respiratory droplets and more than 3000 medical staff are affected by the disease in China by February 2020.

Asaad A, Sokkary R, Alzamanan M, and Shafi M (2020)., found that more than 80% of Health Care Employees are aware of the factors that diagnose COVID which includes signs and symptoms, mode of transmission, etc. They observed a positive attitude and a high level of knowledge about COVID in the Najran region. The knowledge level of COVID between professions was different. They suggest that we should spread awareness among people by way of educational interventions or professional campaigns. They observed that Health Care Employees depend on media to get more information about MERS. But not all the Health Care Employees were aware of diarrhea being one of the symptoms, the availability of the vaccine, and the period of incubation.

Tsamakis K, Rizos E, JManolis A et al (2020)., explained that not only the general population are at risk of psychological distress due to COVID but the Health Care Employees who are at the front line to overcome this outbreak is also significantly at risk. Countries like Greece witnessed various challenges during this pandemic that they have never faced before. Health Care Employees had to make rapid decisions in suspecting the infected to isolating patients. Diagnose and isolate successfully puts a lot of pressure on Health Care Employees when the scrutiny of media and the public is more which is quite stressful. They observe the same level of pressure, stress, and psychological and psychiatric issues among Health Care Employees which was the same during SARS & H1N1 epidemic. They say that nurses are observed as more stressed than doctors.

III. OBJECTIVES OF THE STUDY

1. To explore the knowledge, attitude and perceptions of health care workers towards COVID 19.
2. To investigate the relationship between socio demographic variables and knowledge, attitude and practices of health care employees.

IV. RESEARCH METHODOLOGY

Primary data was collected from 83 respondents. Convenience sampling technique was used to collect the data from the health care employees. In total data was collected from 83 respondents working in Kerala, Karnataka and Middle East.

V. DATA ANALYSIS AND INTERPRETATION

A. Socio demographic Characteristics of the Participants

Overall, 83 participants responded to the study. The vast majority of the participants were female (n=64, 77.1%) and 23% are males (n=19, 23%). Majority of the participants (45.8 percent) are from Kerala, 33.7% of the participants are from Karnataka and 20.5 percent of the total participants are from Middle East. Fig 1 summarizes the characteristics of participants.

The study found that among 83 respondents, 32.5% percent of the respondents are doctors, and 67.5% of the respondents are allied health workers (here in this study we categorized allied health workers as intern, nurse, pharmacist and technical staff).

Fig 2 reveals that 62.7% of the respondents completed their bachelors, 1.2% of the respondents completed certificate courses, 9.6% of the respondents completed their diploma, 20.5% of the respondents completed their masters, 2.4% completed their doctor of philosophy and 3.6% of the respondents completed other courses.

Fig 3 reveals that 63% of the respondents belong to the age group of 21 to 25 years, 20 percent of the respondents belong to the age group of 26 to 30 years, 6% of the respondents belong to the age group of 31 to 35 years, 5% of the respondents belong to the age group of 36 to 40 years, 2% of the respondents belong to the age group of 41 to 45 years and 4% of the respondents belong to the age group of 45 to 50 years.

B. Knowledge of the health care employees on the clinical symptoms of COVID-19

Majority of the respondents identified fever, sore throat and cough as the main clinical symptoms of COVID-19 (98%, 90% and 82%), 53% of the respondents identified headache, 46% identified runny nose, 43% identified sneezing, 36% were aware of smell disturbance as clinical symptom, 30% identified diarrhea as main clinical symptom of COVID 19 and only 27% respondents knew that Myalgia as the clinical symptom of COVID 19.

Table 1: Knowledge of Health Care Employees on COVID 19

Statements	True		False	
	N	%	N	%
There is currently no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection.	82	98.8	1	1.2
Not all persons with COVID-19 will develop severe cases. Only those who are elderly, have chronic illnesses, and are obese are more likely to be severe cases.	67	80.7	16	19.3
Contacting animals would result in the infection by the COVID-19 virus	16	19.3	67	80.7
Consuming Non Veg would result in the infection by the COVID 19 virus	4	4.8	79	95.2

Contacting birds would result in the infection by the COVID-19 virus.	8	9.6	75	90.4
Persons with COVID-2019 cannot transmit the virus to others when a fever is not present	4	4.8	79	95.2
The COVID-19 virus spreads via respiratory droplets of infected individuals.	79	95.2	4	4.8
Wearing general medical masks can prevent one from acquiring infection by the COVID-19 virus.	61	73.5	22	26.5
It is not necessary for children and young adults to take measures to prevent the infection by the COVID-19 virus.	3	3.6	80	96.4
To prevent the infection by COVID-19, individuals should avoid going to crowded places such as bus parks and avoid taking public transportation's.	82	98.8	1	1.2
Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	82	98.8	1	1.2
People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the observation period is 14 days.	83	100	-	-

Source: Primary data collected.

Table 1 reveals that Vast majority of the respondents (98.8%) both doctors and health care workers are of opinion that early symptomatic and supportive treatment can help most patients recover from the infection. 80.7 percent of the respondents opined that Only those who are elderly, have chronic illnesses, and are obese are more likely to develop severe cases and contacting animals would not result in the infection by the COVID 19 virus. 95.2% of the respondents opined that consuming Non Veg would not result in the infection by the COVID 19 virus and Persons with COVID-2019 can transmit the virus to others when a fever is not present and COVID-19 virus spreads via respiratory droplets of infected individuals. 90.4 % of the respondents opined that Contacting birds would not result in the infection by the COVID-19 virus. Only 73.2 percent of the respondents are of opinion that Wearing general medical masks can prevent one from acquiring infection by the COVID-19 virus. 96.4 percent of the respondents were of opinion it is necessary for children and young adults to take measures to prevent the infection by the COVID-19 virus. 98.8% of the respondents opined that individuals should avoid going to crowded places such as bus parks and avoid taking public transportation's and Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus. All respondents were agreeing that People who have contact with someone infected with the COVID-19 virus should be immediately isolated and observed for 14 days in a proper place.

Table 2: Attitudes of Health Care Employees on COVID 19

Statements	Strongly Agree		Agree		Not Sure	
	N	%	N	%	N	%
Wearing a well-fitting face mask is effective in preventing COVID-19.	20	24	52	63	11	13
Using a hand wash can prevent you from getting COVID-19	26	31	51	62	06	7
When a patient has signs and symptoms of COVID-19, I can confidently participate in the management of the patient	23	28	43	51	17	21
Working in Hospitals leads to higher risk of being affected by COVID 19	27	33	50	60	6	7
Treating the patients by wearing Personal Protective Apparel (PPA) kit will prevent from being affected by COVID 19	31	37	43	52	9	11
Staying at home prevents from COVID 19	36	43	38	46	9	11

Source: Primary data collected.

Table 2 reveals that 63% of the respondents agreed and 24% strongly agreed that wearing a well-fitting face mask is effective in preventing COVID-19. 62% of the respondents agreed and 31% of the respondents strongly agreed that using a hand wash can prevent them from getting COVID 19. 51% of the respondents agreed and 28% of the respondents strongly agreed that they can confidently participate in the management of the patient when a patient has signs and symptoms of COVID 19, but 21% of the respondents did not show positive attitude but they responded as they are unsure. 60% of the respondents agreed and 33% of the respondents strongly agreed that Working in Hospitals leads to higher risk of being affected by COVID 19. 52% of the respondents agreed and 37% of the respondents strongly agreed that Treating the patients by wearing Personal Protective Apparel (PPA) kit will prevent from being affected by COVID 19. 46% of the respondents agreed and 43% of the respondents strongly agreed that Staying at home prevents from COVID 19.

Table 3: Prevention Practices towards COVID 19 among Health Care Employees

Statements	Always		Occasional		Never	
	N	%	N	%	N	%
In recent days, I have gone to any crowded place	1	1	37	45	45	54
In recent days, I have worn a mask when in contact with patients	76	92	5	6	2	2
In the recent days, I have refrained from shaking hands.	69	83	9	11	5	6
In the recent days, I have washed my hands before and after handling each patient	81	98	2	2	-	-
In the recent days, I have avoided patients with signs and symptoms suggestive of COVID-19.	31	37	17	21	35	42
I try to spend less time with patients	22	26	42	51	19	23

Source: Primary data collected.

Table 3 reveals that 45% of the respondents occasionally visit the crowded place and 54% respondents never visits any crowed place. 92% always worn a mask when in contact with patients and 83% of the respondents have always refrained from shaking hands. 98% of the respondents have always washed their hands before and after handling each patient. 42% of the respondents never avoided patients with signs and symptoms suggestive of COVID-19, 21% occasionally avoid patients with signs and symptoms suggestive of COVID-19 and 37% of the respondents always avoided patients with signs and symptoms suggestive of COVID-19. 51% of the respondents occasionally try to spend less time with patients, 26% of the respondents always try to spend less time with patients and 23% of the respondents never tried to spend less time with patients.

Table 4: Chi square test, Mean and S.D of Knowledge, Attitude and Prevention Practices.

	Knowledge of symptoms			Knowledge			Attitude			Prevention Practices		
	Mean	S.D	Chi Square	Mean	S.D	Chi Square	Mean	S.D	Chi Square	Mean	S.D	Chi Square
Overall	18.02	11.06	NA	17	1.07	NA	25.72	2.2	NA	14.08	1.26	NA
Place of work			0.232			0.022			0.004			0.71
Karnataka	19.29	12.21		17.14	.97		24.71	2.50		14.07	1.88	
Kerala	18.74	11.88		17.31	1.06		24.55	2.18		14.15	1.40	
Middle East	20.88	8.32		16.64	1.22		27.76	2.13		14.00	1.17	
Working Hours			0.048			0.002			0.059			0.853
3	19.00	15.52		16.33	1.15		25.33	3.78		14.00	1.73	
5	25.50	19.09		16.50	3.53		25.50	2.12		14.50	.70	
6	13.88	12.98		17.75	1.48		24.87	3.48		14.37	1.59	
7	18.92	10.05		17.00	.60		26.75	1.81		14.00	1.34	
8	21.06	10.59		17.12	1.01		25.20	2.60		14.20	1.61	
9	25.25	8.80		17.00	1.41		24.00	2.44		13.00	1.41	
10	8.00	6.08		17.33	.57		23.00	1.73		14.00	1.73	
12	2.00	.00		17.00	.00		25.00	.00		13.00	.00	
Gender			0.242			0.352			0.749			0.107
Male	23.05	10.86		17.10	1.24		25.94	2.34		14.52	1.64	
Female	18.27	11.24		17.12	1.04		25.06	2.65		13.96	1.47	
Age			0.372			0.032			0.001			0.717
21-25	18.25	11.38		17.34	1.01		24.28	2.27		14.01	1.66	
26-30	24.06	11.25		16.76	1.34		25.88	1.99		14.47	1.46	
31-35	26.80	3.03		16.20	1.09		29.20	1.30		14.40	.89	
36-40	14.25	11.29		17.00	.00		27.75	1.89		14.50	.57	
41-45	7.50	3.53		16.50	.70		25.50	2.12		13.50	.70	
46-50	14.33	9.50		17.33	.57		28.66	2.30		12.66	.57	
Occupation			0.204			0.004			0.006			0.318
Dentist	12.80	15.77		17.40	1.67		26.20	2.94		15.60	.54	
HCW	21.40	11.72		17.14	1.03		24.28	2.16		13.94	1.67	
Intern	19.31	10.63		17.76	.83		24.38	2.29		14.46	1.39	
Medical Doctor	17.78	11.16		16.77	1.20		25.00	2.29		14.00	2.12	
Nurse	17.47	9.12		16.86	.74		27.66	2.05		13.73	1.03	
Pharmacist	21.75	12.58		16.50	1.91		25.25	3.30		13.75	.95	
Technical Staff	17.00	16.97		16.50	.71		29.00	.00		14.50	.70	
Highest Level of Education			0.000			0.214			0.196			0.032
UG	21.02	9.91		17.23	.96		24.88	2.60		14.03	1.49	
Ph D	20.50	20.50		17.50	.70		24.00	1.41		15.00	1.41	
Diploma	15.75	12.37		16.41	.99		26.25	3.01		13.25	1.28	
PG	16.71	13.41		17.23	1.39		25.88	2.20		14.76	1.56	

Source: Primary data collected.

Knowledge regarding clinical symptoms

Table 4 reveals Overall mean knowledge regarding clinical symptoms score is 18.02 (S.D is 11.06). Overall mean knowledge score is 17 with standard deviation 1.07 and overall mean attitude score is 25.72 with standard deviation 2.2. Overall mean prevention practices score is 14.08 with standard deviation 1.26.

Associations between independent variables and dependent variables were assessed using chi-square test.

A $P<.05$ is considered statistically significant.

Chi square test has been used in order to test the hypothesis (refer Table 4)

The study reveals that the knowledge regarding clinical symptoms of respondents are not associated with the place they work as the chi square value is 0.232. Most of the respondents from different places have knowledge about clinical symptoms. The study reveals that the knowledge of the respondents regarding clinical symptoms is associated with the working hours as the chi square value is 0.048.

It is also found that the knowledge of respondents regarding the symptoms of covid 19 is not associated with their gender (0.242), age (0.372), occupation (0.204) but associated with level of education as the chi square value obtained is 0.000.

This study reveals that there is an association between knowledge about Covid 19 and place where the respondents are working (0.022), working hours (0.002), age (0.032), and occupation (0.004) but not associated with gender (0.052) and level of education (0.214).

It is found in the study that majority of the respondents showed positive attitude towards Covid 19 prevention. Attitude of respondents are associated with the place of work (0.004), age (0.001), occupation (0.006) but not associated with working hours (0.059), gender (0.749), and education (0.196).

The study explores that prevention practices of the respondents are not associated with place of work (0.71), working hours (0.853), gender (0.107), age (0.717), occupation (0.318) but the practices of respondents to prevent from COVID 19 are associated with education as the chi square value obtained is 0.032.

VI. CONCLUSION

Overall, 83 participants responded to the study. 77.1% of the respondents were female (n=64) and 23% of the respondents were males (n=19). 45.8%, majority of the participants are from Kerala, 33.7% of the participants are from Karnataka and 20.5 percent of the total participants are from Middle East.

The study found that among 83 respondents, 32.5% percent of the respondents are doctors, and 67.5% of the respondents are allied health workers.

The study reveals that 62.7% of the respondents completed their bachelors, 1.2% of the respondents completed certificate courses, 9.6% of the respondents completed their diploma, 20.5% of the respondents completed their masters, 2.4% completed their doctor of philosophy and 3.6% of the respondents completed other courses.

The study also reveals that 63% of the respondents belong to the age group of 21 to 25 years, 20 percent of the respondents belong to the age group of 26 to 30 years, 6% of the respondents belong to the age group of 31 to 35 years, 5% of the respondents belong to the age group of 36 to 40 years, 2% of the respondents belong to the age group of 41 to 45 years and 4% of the respondents belong to the age group of 45 to 50 years. . It is found that most of the employees are of opinion that they will continue to treat the patients without compromising with the time fearing COVID 19.

In conclusion the study reveals that the health care employees working in Kerala, Karnataka and Middle East are having knowledge, has positive attitude and are following good practices in prevention of COVID 19.

REFERENCES

[1] Acharya S, Maharjan K , Dongol D , Ghimire A. 2020. Awareness of COVID-19 and perception of work satisfaction among healthcare workers at Patan Hospital, Nepal. DOI: https://doi.org/10.3126/jpahs. v7i1.28860

[2] Asaad A, Sokkary R, Alzamanan M & Shafei M. 2020. Knowledge and attitudes towards Middle East respiratory syndrome- coronavirus (MERS-CoV) among health care workers in south-western Saudi Arabia.

[3] Gan W, Lim J, & Koh D. 2020. Preventing Intra-hospital Infection and Transmission of Coronavirus Disease 2019 in Health-care Workers. Saf Health Work. Doi: 10.1016/j.shaw.2020.03.001

[4] Furqan K. Iqbal H Q, Haider S, Ahmed F, Saleem F, Bashaar M. 2020. DOI:https://dx.doi.org/10.21203/rs.3.rs-26270/v1

[5] Hamouche S. 2020. COVID-19 and employees' mental health: stressors, moderators and agenda for organizational actions. DOI:https://emeraldopenresearch.com/articles/2-15

[6] Kangqi Ng, Poon B H, Puar T H K, Quah J L, Loh W J, Wong Y J, Tan T Y, Raghuram J.2020. COVID-19 and the risk to Health Workers.

[7] Olum R, Kajjimu J, Kanyike A, Chekwech G, Wekha G, Nassozi D, Kemigisa J, Mulyamboga P; Muhoozi O, Nsenga L; Lyavala M, Asiimwe A, Bongomin F. 2020. Perspective of Medical Students on the COVID-19 Pandemic: A Survey of 9 Medical Schools in Uganda. JMIR Public Health and Surveillance.

[8] Prescott K, Baster E, Lynch C, Jassal S, Bashir A, Gray J. 2020. COVID-19: How prepared are frontline healthcare workers in England. 2020. DOI:https://www.journalofhospitalinfection.com/article/S0195-6701(20)30206-1/fulltext

[9] Rossi R, Socci V, Pacitti F, Lorenzo G D, Marco A D, Siracusano A, Rossi A. 2020. Care workers during the Corona Virus Pandemic in Italy.JAMA Netw Open. doi:10.1001/jamanetworkopen.2020.10185

[10] Saqlain M, Munir M M, Saif-ur-Rahman, Ahmed Z, Tahir A H, Mashhood M. 2020. Knowledge, attitude and perceived barriers among health care workers regarding COVID-19: a cross-sectional survey from Pakistan.

[11] Spoorthy MS, Pratapa, Mahant S. 2020. Mental health problems faced by healthcare workers due to the COVID-19

pandemic-A review. DOI: 10.1016/j.ajp.2020.102119 PMID: 32339895 PMCID: PMC7175897

[12] Srikanth A, Aldhaleej W, Rahmani J, Javad M, Mahatadi A and Bandari D K .2020. Knowledge and Perceptions of COVID-19 among Health Care Workers, JMIR Public Health Surveill, Apr-Jun; 6(2).

[13] Sun N, Wei L, Shi S, You Y, Liu S, Wang H, Wang C, Wang Z. 2020. A qualitative study on the psychological experience of caregivers of COVID-19 patients. doi: 10.1016/j.ajic.2020.03.018 PMCID: PMC7141468 PMID: 32334904

[14] Tsamakis K, Rizos E, Manolis A, Chaidou S, Kympouropoulos S, Spartalis E, Demetrios Spandidos A, Tsiptsios D, Triantafyllis A. 2020. COVID-19 pandemic and its impact on mental health of healthcare professionals.

[15] Walton M, Murray E, Christian M D. 2020. Mental Health Care for Health Care Staffs and Affiliated Health Care workers during the Covid-19 Pandemic. European Heart Journal: Acute Cardiovascular Care, vol. 9(3): pp. 241-247.

[16] WHO: Perceptions of Healthcare Workers regarding local infection prevention and control procedures for COVID-19