

COVID-19 among Healthcare Workers of Teaching Hospitals Affiliated with Rawalpindi Medical University

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^{1,3,4} Conception of study

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² Analysis/Interpretation/Discussion

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Abstract

Objective: To overview the COVID-19 scenario among healthcare workers in teaching hospitals of Rawalpindi Medical University.

Material and Methods: A cross-sectional descriptive research was done among 482 coronavirus infected healthcare professionals from three teaching hospitals (Holy Family Hospital, Benazir Bhutto Hospital, and District Head Quarters) that were affiliated with Rawalpindi Medical University during January 2021. Healthcare workers with COVID confirmation via RT-PCR testing reports were included in the study through consecutive sampling. Their demographic profile, workplace attributes, clinical manifestations, oxygen saturation, source of infection, re-infection, hospitalization, the requirement for oxygen supply, and disease severity according to COVID-19 adult cases categorization were inquired. Data analysis was done utilizing SPSS version 25.0.

Results: Mean age of 482 healthcare workers was 29.6 ± 5.7 years. Mainstream (69.1%) of our study participants was constituted by female healthcare staff. A majority (34%) were postgraduate trainees followed by 29% nurses and 20% house officers. The mean duration of sickness was 13.6 ± 6.4 days. About 63.1% of study subjects were COVID infected during July–December 2020. About 4.8% of healthcare personnel were asymptomatic and 78% caught an infection from their workplace. Approximately 82% suffered from fever while 71.4% and 55.8% went through body aches and cough respectively. Out of 39 hospitalized workers, 23 required oxygen supply for their vitality. Severe COVID infection was determined only among 5.4% of healthcare professionals.

Conclusion: Healthcare workers are more susceptible to acquire COVID infection from their workplace. Because of this vulnerability, firm compliance to preventive measures against coronavirus infection by healthcare staff and the general public is deemed necessary for their viability.

Keywords: COVID-19, healthcare workers, teaching hospitals, oxygen supply, fever, hospitalization.

Introduction

Coronavirus infection has drastically influenced numerous regions of the world.¹ All health institutes are cautious since the announcement of the COVID pandemic as Public Health Emergency of International Concern (PHEIC) by WHO.² Being frontline warriors amidst this pandemic, our healthcare professionals are highly exposed to this brutal virus.³

Despite the provision of personal protective equipment and adequate training and awareness sessions of our healthcare providers pertinent to coronavirus infection, innumerable health personnel got infected and some of them even succumbed to death.⁴ The safety of our healthcare professionals is the only means to ensure the smooth functioning of the healthcare system during this havoc. World Health Organization has instructed the health ministries and managers of health organizations to vigilantly deal with healthcare issues of COVID treating personnel.⁵ Apart from giving physical protection by PPE, our healthcare workers being highly vulnerable to rapidly transmitting coronavirus infection are also biologically protected on a priority basis by vaccination.⁶

The unshakeable dedication and stringent efforts of our healthcare workers towards managing COVID-infected patients are appreciated worldwide. They are globally recognized as true heroes for putting their life at risk to save humanity.⁷ Non-adherence to SOPs of COVID-19 by the general public is a huge mistake that is not only bringing misery to our healthcare staff but the survival of their families is also at stake.⁸ Healthcare professionals at their workplace are more prone to infection due to exposure to infected patients and colleagues.⁹ Therefore implementation of ample infection prevention and control measures in healthcare settings along with health education of our healthcare professionals is imperative to lessen the frequency of coronavirus infection.¹⁰ Occupational safety and health guidelines issued by WHO for protection of our medical professionals amidst the COVID pandemic should also be given due consideration.¹¹

The current study is deliberated to gather data pertinent to our COVID-19 infected healthcare workers working in public sector tertiary care hospitals to safeguard them by adopting an appropriate course of action in this regard. This research would facilitate our stakeholders to chalk out an appropriate plan to reduce the frequency and severity of COVID infection among our frontline

fighters that are imperative to reduce the fatal outcome.

Materials and Methods

A cross-sectional descriptive study was carried out among 482 COVID infected healthcare workers employed in 3 tertiary care hospitals affiliated with Rawalpindi Medical University during January 2021. About 295, 83, and 104 COVID infected health personnel from Holy Family Hospital (HFH), Benazir Bhutto Hospital (BBH), and District Head Quarters (DHQ) Hospital respectively were enrolled in this research through consecutive sampling. COVID infectivity was verified with validated RT-PCR testing¹² that was done through a collection of nasopharyngeal and throat swabs by qualified laboratory professionals. Apart from demographics, data was collected from study participants pertinent to their department, designation, workplace, clinical symptoms (cough, fever, shortness of breath, flu, sore throat, body aches, and GIT symptoms), Radiological chest findings, respiratory symptoms based on oxygen saturation, source of infection, re-infection, the need of oxygen and severity of illness. Disease severity among our healthcare professionals was categorized by using COVID-19 adult cases classification¹³. Data were analyzed by using SPSS version 25.0. Percentages and frequency were computed for all the variables.

Results

Of the total 482 healthcare professionals enrolled in our research, 333 (69.1%) were females and 149 (30.9%) were males. The median age of healthcare workers in the current study was 29.6 ± 5.7 years. About 61.2% of our study participants were working in Holy Family Hospital Rawalpindi and 37.6% of them were employed in the department of Medicine as shown below in Table 1.

Table 1:

Departments	Hospitals			Total No. (%)
	HFH	BBH	DHQ	
Medicine	119	37	25	181
Surgery	45	15	35	95
Gynaecology/ Obstetrics	52	8	27	87
Paediatrics	30	13	4	47
ICU	17	2	4	23
ENT	10	3	4	17

Anaesthesia	6	2	1	9
Ophthalmology	6	1	0	7
Radiology	4	1	0	5
Pathology	3	1	0	4
Administration	3	0	4	7
Total	295	83	104	482

Postgraduate residents constituted the mainstream of our study subjects as depicted in Figure 1.

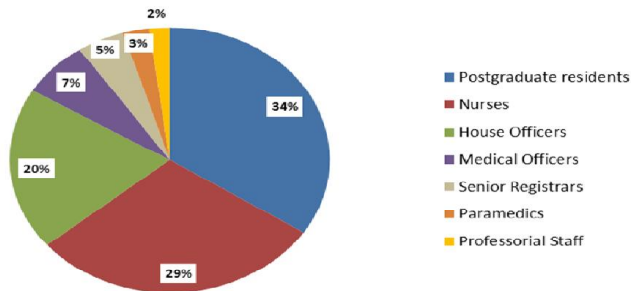


Figure 1: Designation of COVID- infected healthcare workers

About 36.9% of healthcare workers suffered from COVID-19 from March–June 2020 while the rest of the 63.1% health personnel got infected during July–December 2020. The designation of healthcare professionals getting COVID infection is illustrated below in Table 2.

Of the total 482 healthcare workers who were investigated to be COVID positive, approximately 23 (4.8%) study subjects were asymptomatic despite a positive PCR report. About 11, 4, 3, 3 and 2 health professionals from the ward, COVID unit, Accident & Emergency, OPD, and OT respectively remained asymptomatic.

About 3 health personnel working in the ward and 4 from Emergency units were re-infected with COVID. Most (78%) of our healthcare workers acquired COVID

Infection while working in the hospital as represented below in Figure 2

The mean duration of illness among our study participants was 13.6 ± 6.4 days. A majority (82%) of our COVID infected health professionals had complained of fever followed by body aches (71.4%) and cough (55.8%) as depicted below in Table 3.

Only 39 (8.1%) COVID infected health personnel was hospitalized and among them, 23 (59%) needed additional oxygen supply to sustain breathing. About 5.4% of study participants were suffering from severe COVID infection while 76% and 18.6% of healthcare workers had mild and moderate ailment respectively. None of our healthcare professionals was critically ill.

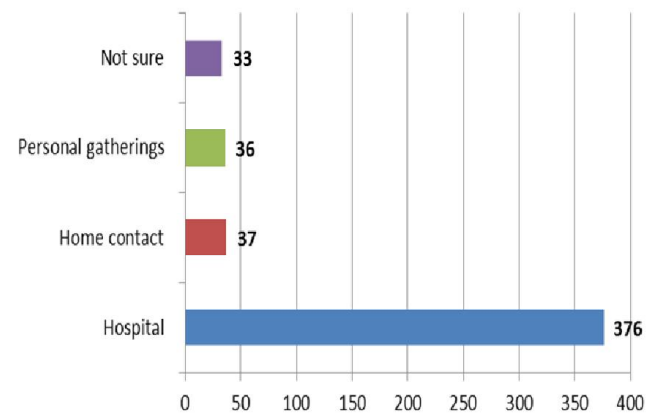


Figure 2: Source of COVID infection among HCWs of RMU affiliated teaching hospitals

Table 2: Designation of COVID infected HCWs in relation to their workplace

Workplace	Designation of Healthcare Professionals							Total
	PGTs	Nurses	House Officers	Medical Officers	Paramedics	Professorial staff	Senior Registrars	
COVID unit	27	44	4	9	6	3	1	94
Ward	46	55	48	7	1	5	13	175
A & E	68	31	3	37	0	0	3	142
OPD	14	4	13	6	0	1	1	39
Office	0	2	1	0	3	1	0	7
OT	10	7	0	0	3	0	5	25
Total	165	143	69	59	13	10	23	482

Table 3: COVID symptoms among healthcare workers in relation to their workplace

Workplace	Symptoms among COVID infected Healthcare workers						
	Cough	Fever	Shortness of Breath	Body aches	GIT symptoms	Flu	Sore throat
COVID unit	59	74	24	66	21	17	27
Ward	102	146	38	116	38	46	48
A & E	73	124	33	112	30	28	32
OPD	22	29	11	28	7	8	12
Office	4	5	2	4	1	0	0
OT	9	17	7	18	3	3	2
Total	269	395	115	344	100	102	121

Discussion

Our healthcare professionals being on the frontline for the defense of our population against COVID-19 have increased the likelihood of receiving infection. Being an active workforce for our nation during the COVID pandemic, they are also acquiring infection not only from health facilities but also from the community.¹⁴ This factor can exponentially enhance the difficulties in healthcare settings to manage an increased proportion of COVID- infected patients with limited staff.

Of the total 482 COVID-19 infected healthcare professionals enrolled in the current study, a majority (69.1%) was comprised of females. The median age of our study subjects was 29.6 ± 5.7 years. Likewise, the mean age of healthcare workers reported with COVID infection in healthcare settings of Iran was 35 years with overwhelming infection (53.5%) among females.¹⁵ A similar research was done by Buonafine CP et al among healthcare workers employed in tertiary care hospitals of Brazil revealed almost the same proportion (69.5%) of female workers getting COVID infection. However median age of their infected healthcare staff was determined to be 34.2 ± 9.9 years.¹⁶ The reason for young healthcare workers acquiring coronavirus infection more than those of Brazilian healthcare setting might be the inclusion of postgraduate residents also in current research who despite their training in our RMU affiliated teaching hospitals serving the suffering humanity amidst the COVID pandemic as frontline warriors. COVID infected postgraduate trainees constituted 34% of our afflicted study subjects and their sacrifices for humanity during this adversity are worth mentioning. Numerous researches have also been carried out worldwide to assess the psychological impact of COVID-19 on junior doctors predominantly our postgraduate trainees as they have not stepped back in

this challenging period.¹⁷ However, multiple ways to protect healthcare providers managing COVID patients by adherence to precautions have been updated by concerned health authorities across the globe with an intention to secure them.¹⁸

The present study revealed that 39 (8.1%) of our coronavirus infected health personnel were hospitalized and 23 (59%) were given respiratory support. However, none of our study subjects got seriously ill and so did not require intensive care. All our healthcare workers recovered from COVID-19 smoothly just by the provision of supportive care. According to current researches, recovery of severely infected COVID-19 patients is also attributed to optimal symptomatic treatment.¹⁹ A study conducted by Alajmi J et al among COVID infected healthcare workers employed in Hospitals of Qatar discovered that the hospitalization rate among their infected staff was 11.6%. About 1.3% and 0.6% among them called for supplemental oxygen and critical care respectively.²⁰ Being citizens of resource-constrained regions, our healthcare workers were more at risk of getting infected.²¹ Despite the scarcity of PPE and testing kits, our frontline warriors did their possible best to manage the cases within available resources. Their safe recovery and survival from this deadly infection are most probably attributed to their devotion and loyalty toward their nation during this calamity.

In our study, higher infectivity among postgraduate residents (34%) was followed by raised infection among nurses (29%), house officers (20%), and medical officers (7%). The maximum proportion of 175 (36.3%) of infected health personnel was doing duty inwards. This was superseded by 142 (29.5%) of the staff performing duties in the Accident and Emergency department of respective hospitals. Similarly, research by Sabetian G et al explored that the highest propensity of nurses (51.3%) got COVID infected and peak infectivity was reported among emergency room

staff (30.6%).¹⁵ The fewer COVID unit healthcare workers indulgently in COVID infection might be their strict adherence to Standard Operating Procedures (SOPs) than those working in other units of the hospitals. The patients visiting the healthcare settings are a persistent source of infection to health personnel. Therefore staff carrying out duties in departments other than COVID units should also religiously observe precautionary measures. Moreover, ample rest time, avoidance of strain, and consumption of nutritious diet is necessitated for adequate immunity and less probability of infection.²²

A majority (395) of our healthcare providers presented with fever followed by body aches (344) and cough (269) with COVID-19 infectivity. On the other hand, the maximum propensity (46%) of COVID positive healthcare workers of Iranian hospitals presented with myalgia, and 45.5% complained of cough. About 4.8% of healthcare professionals despite COVID-19 positivity on RT-PCR test in our study remained asymptomatic. Similarly, 35.5% of coronavirus infected healthcare personnel of Iran were determined to be without any COVID-associated symptoms.¹⁵ Approximately 50% of COVID infected healthcare staff in one of the healthcare facilities of Chile was found to be asymptomatic; even they did not develop any symptoms within 3 weeks of indicating a positive report.²³ Despite the asymptomatic attribute, the infected individuals are liable to disseminate infection to the healthy people in their surroundings so they should be isolated till they turn out to be infection-free.²⁴ As numerous carriers are around us so rigorous adoption of protective measures by the general public in addition to healthcare workers can be very supportive to limit the spread of infection.

Conclusion

Healthcare professionals being frontline fighters are more vulnerable to the detrimental COVID-19 infection. Their health is of prime importance for the healthcare of the community. They should ensure strict adherence to Personal Protective Equipment (PPE) at their workplace. The observation of COVID SOPs by the general public is also necessitated to curb this disease.

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