

ORIGINAL ARTICLE

Readiness of Medical Institutions; Academics and Practitioners for the COVID-19 Outbreak

Lubna Ansari Baig,¹ Mehjabeen Musharraf,¹ Mahwish Uzair,² Shiraz Shaikh¹

1. APPNA Institute of Public Health, Jinnah Sindh Medical University, Rafiqui HJ Saheed Road Karachi, Pakistan.

2. University of Lahore, Lahore, Pakistan.

Correspondence to: Mehjabeen Musharraf, Email: mehjabeen.musharraf@jsmu.edu.pk, ORCID: [0000-0002-5581-930X](https://orcid.org/0000-0002-5581-930X)

ABSTRACT

Objective: To assess the readiness of medical institutions of Pakistan to the Coronavirus-19 (COVID-19) outbreak.

Methods: This cross-sectional study was conducted in two medical institutes of Sindh and Punjab from Aug – Nov 2020. Faculty members of both institutes were asked to fill an online questionnaire. Readiness to deal with COVID-19 outbreak was evaluated by implementation of the standard operating procedure (SOP), lifestyle modifications, and stress levels. Impact of Event Scale (IES) - 15 items version was used to assess stress level. The total score interpreted as 0 to 8 subclinical range, 9 to 25 mild range, 26 to 43 moderate range, and 44 plus severe range.

Results: Out of 111 participants, private sector was more prepared to deal with COVID-19 in terms of availability of infection control materials and following of SOPs. However, public sector showed improved numbers 13 (59.1%) for “performing refresher training for healthcare providers on infection control guidelines” as compared to private sector 30 (33.7%) (p -value 0.029). Though, both public and private sector institute reported moderate level of stress, the total mean score on IES was insignificantly higher in public sector institute than private sector, i.e., 30 ± 14.2 vs. 26.74 ± 14.5 (p -value 0.252).

Conclusion: The academics and practitioners of public and private medical institutions were moderately stressed due to the fear of the possibility of contracting COVID-19 at the workplace and spreading it to the loved ones.

Keywords: COVID-19, Medical Schools, Medical Academics, Physicians.

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INTRODUCTION

COVID-19 has attacked 178,837,204 people and 3,880,450 died because of it globally so far, whereas in Pakistan, there are 949,838 cases and 22,034 deaths.^{1,2} The clinical spectrum of COVID-19 varies from asymptomatic forms to clinical conditions which may become fatal in susceptible individuals.³⁻⁵ Guidelines were issued by World health organization (WHO) and other bodies calling for social distancing, staying at home and taking hygiene measures.^{6,7}

COVID-19 infection weighs heavily on healthcare professionals, as they have greater chances of mental health problems. According to WHO, around 90,000 health workers have been tested positive for COVID-19 globally but it is still an underestimation because all countries have not provided data on it. National Institute of Health, Islamabad, Pakistan disseminated many guidelines for health care providers (HCPs) to contain the spread of virus at health care settings.⁹ But still HCPs are catching virus at an alarming rate in

Pakistan and so far 1,200 have been tested positive.^{9,10} The reason for this spread is that the hospitals are crowded with the compromised standard operating procedure (SOP) implementations and Personal protective Equipments (PPE) supply.⁹ Due to the insufficient provision of PPEs in Pakistan, the HCPs went on hunger strike and demanded the authorities to provide the PPEs if they want them to resume the work.¹¹ One of the top health facilities of Pakistan tested it's all HCPs and 30% of them were found infected with COVID-19 and most of them were asymptomatic. Therefore, it was important to understand the COVID-19 responses of medical professionals at various positions including academics and practitioners. This helped to identify gaps that need to be filled through policies, training, and continuing education. Such activities enable the health workforce to be better prepared to manage their practices and protect their patients during the difficult times of the outbreak. Identifying areas where support is needed helps in developing support systems to ensure best

performance at times when members of every community look to all health professionals for advice. The aim of the current study was to assess the readiness of medical institutions (academics and practitioners) to the COVID-19 in Pakistan. Readiness refers to the preparedness of medical institutes, practitioners and academicians to deal with the COVID-19 outbreak. It includes institutional preparedness (SOP implementation) for containing and dealing with the virus, COVID-19 related lifestyle modifications and stress.

METHODS

This cross-sectional study was conducted in two medical institutes (University of Lahore and Jinnah Sindh Medical University) of Sindh and Punjab. Duration of the study was 4 months from Aug – Nov 2020. Ethical approval from JSMU (JSMU/RB/2020/341) was received on July 02, 2020. Confidentiality was ensured.

All faculty members (Public Health, Neurology, Pathology, Biochemistry, Physiology, Family Medicine, Community Medicine, Pharmacology, Medical education, General Surgery, Pediatrics, Gynecology and Obstetrics, Ophthalmology, Anatomy, Forensic Medicine and Physiology) were asked to fill the questionnaire online (Google forms) after giving consent. Convenience sampling was done, with no fixed sample size and all the received questionnaires were analyzed. Medical field (academics) and the practicing physicians were included. Since the questionnaire was shared online, unwilling faculty members did not attempt to fill the questionnaire.

Questionnaire was designed with the help of different papers. Educational institution preparedness section assessed the institution's policies and the presence of equipments to deal with the outbreak. Second section assessed stresses using the Impact of Event Scale (IES)-15 items version, the sources of worries and the change in the respondent's habits. This 15 item IES scale is a shorter version and measures the main aspects of post-traumatic stress.³ It measures intrusion and avoidance. Items are rated on a 5-point scale ranging from 0 (not at all) to 5 (often). The scores range from 0 to 35 for intrusion, 0 to 40 for avoidance, and 0 to 75 for the total score. The total score can be interpreted as 0 to 8 subclinical range, 9 to 25 mild range, 26 to 43 moderate range, and 44 plus severe range. Lifestyle modification was reported by assessing variables like avoid crowding places, washing hands frequently, cancel travel plans, change life habits, and cancel social events. The mean scores for different lifestyle modifications on a scale of 10 in figure 1. The link to the questionnaire was sent to

the emails posted on institutional websites.

SPSS version 20 was used for data analysis. Descriptive statistics was calculated using numbers and percentages for categorical variables and means and SD for quantitative variables. The outcome variables were scores of institutional preparedness, lifestyle modifications, and stresses. Factors associated with stresses and institutional preparedness were identified by Chi square/Fisher-exact test whereas the ones related to stress were analyzed by Independent t-test. The level of statistical significance was $p\text{-value} \leq 0.05$.

RESULTS

Out of 111 participants, there were 64 (57.1%) females and 47 (42.9%) males. Most of the females were less than 35 years of age 33 (29.7%) while, males were mostly in the age bracket of 36-55, 24 (21.6%). Highest number of participants were FCPS with 26 (23.4%) in females and 23 (20.7%) in males. Most of the faculty members in both genders were from public sector and basic sciences.

Most of the faculty members belonged to private medical institutes 89 (80.1%) while only 22 (19.9%) faculty members from public sector responded to the survey. Table 1 shows the preparedness of both public and private medical institutes. Faculty of public medical institute reported significantly higher proportions for “perform refresher training for HCP on infection control guidelines” as compared to private sector medical institute, i.e., 13 (59.1) vs. 30 (33.7) ($p\text{-value} 0.029$). Whereas “dedicate personnel to treat only suspected or infected” was significantly highly reported by private medical institute faculty than that of public sector faculty members, i.e., 39 (43.8) vs. 3 (13.6) ($p\text{-value} 0.009$). Similarly, “dedicate instruments to treat only suspected or infected” was also significantly highly reported by private sector faculty than that of public sector faculty members, i.e., 31 (34.8) vs. 1 (4.5) ($p\text{-value} 0.005$).

The findings of Impact of Event Scale reported that moderate stress level was observed for both public and private medical institute faculty members. The total mean score on impact of event scale was insignificantly higher in public sector institute than private sector, i.e., 30 ± 14.2 vs. 26.74 ± 14.5 ($p\text{-value} 0.252$). (Table 2)

The findings of lifestyle modifications showed highest mean score for avoidance of public places (8.38) and washing hands more frequently than before (8.35). (Figure 1) On a scale of 1 to 10, the highest score of worry was on the item of “loved one getting infected because of me” followed by “economic impact by outbreak closure” (Figure 2).

Table 1: Comparison of Institutional Preparedness for the COVID-19 Between Public and Private Medical Institutes (n= 111)

Response of institutions on following SOP	SOPs Followed: "Yes"		p- value
	Public (22)	Private (89)	
	n (%)	n (%)	
Install triage to screen HCPs and patients for COVID-19 symptoms as daily routine before entering the facility	13 (59.1)	46 (51.7)	0.530 [^]
Deny non-emergency procedures to infected and suspected	5 (22.7)	39 (43.8)	0.070 [^]
Enforce isolation of infected and suspected of COVID-19 in the waiting area	6 (27.3)	28 (31.5)	0.703 [^]
Ensure a spatial seating distance of at least 3 feet in the waiting area	7 (13.8)	39(43.8)	0.30 [^]
Post visual alerts/ signs of instructions for hand and respiratory hygiene, and cough etiquette	8 (36.4)	36 (40.4)	0.726 [^]
Incorporate questions about new onset of respiratory symptoms into the medical history examination	1 (4.5)	9 (10.1)	0.414 [~]
Change sick leave policies consistent with public health guidance for individuals infected with/ suspected of COVID-19	6 (27.3)	27 (30.3)	0.778 [^]
Perform refresher training for HCP on infection control guidelines	13 (59.1)	30 (33.7)	0.029 ^{^^}
Instruct patients to call before their appointment if they have respiratory symptoms so that staff can be prepared to care for them on arrival	1 (4.5)	7 (7.9)	0.590 [~]
Encourage home isolation of suspected/ infected staff or those who have been travelling abroad	7 (31.8)	28 (31.5)	0.974 [^]
Dedicate personnel to treat only suspected or infected	3 (13.6)	39 (43.8)	0.009 ^{~*}
Dedicate instruments to treat only suspected or infected	1 (4.5)	31 (34.8)	0.005 ^{~*}
Constitute outbreak preparedness and response committee	5 (22.7)	26 (29.2)	0.544 [^]
Temporarily postpone events, programs, and services	9 (40.9)	37 (42)	0.923 [^]
Develop an emergency communication plan to spread information about outbreak	9(40.9)	45 (50.6)	0.417 [^]
Availability of			
Antibacterial soap	10(45.5)	55 (61.8)	0.164 [^]
Alcohol-based hand disinfectants	15 (68.2)	83 (93.3)	0.001 ^{^^}
Surgical/ medical masks	16 (72.7)	76 (85.4)	0.158 [^]
Respirator N95	6 (27.3)	58 (65.2)	0.001 ^{^^}
Long-sleeved water-resistant gown	4 (18.2)	54 (60.7)	0.001 ^{^^}
Gloves	11 (50)	72 (80.9)	0.003 ^{^^}
Eye protection equipment	4 (18.2)	53 (59.6)	0.001 ^{^^}
Head cap	6 (27.3)	54 (60.7)	0.005 ^{^^}
Closed work shoes	2 (9.1)	37 (41)	0.004 ^{~*}

[^]Chi-square/[~]Fisher exact test applied, *p-value \leq 0.05 considered significant

DISCUSSION

Current study has shown a marked difference between public and private institutes in availability of the materials for infection control. Despite government claims of supplying PPEs all over the country and foreign aids, this shortage in public sector is evident.^{14,15} Thus there is a need to look into the factors like misuse and poor distribution mismanagement.⁶ Ahmed et al also reported lack of the personal protective

equipments (PPEs) in Pakistan in April and May 2020 with 34 – 37 % having access to masks/N95 respirator and gloves and 12 to 14% to face shields and full gowns.⁶ According to a national survey in April and May 2020, 59% of the HCPs were not satisfied with the availability of PPEs, however these studies do not provide public and private bifurcation. One more concern which the study raised was that in public sector the dedicated staff and instruments just for COVID 19 management are not sufficient which increases the risk of hospital

Table 2: Mean Scores of Intrusions, Avoidance and Total Subjective Stress Score on 15-Item Impact of Event Scale (IES) among Different Groups (n=111)

Groups	Intrusion		Avoidance		Total Subjective Stress score		Stress level
	Mean ± SD	p-value	Mean ± SD	p-value	Mean ± SD	p-value	
Gender							
Male	12.00 ± 7.99	0.460	13.04 ± 6.93	0.810	26.63 ± 13.49	0.580	Moderate
Female	13.23 ± 8.59		13.71 ± 8.01		28.22 ± 15.45		Moderate
Faculty							
Basic science faculty	13.10 ± 8.60	0.510	15.50 ± 8.26	0.288	28.65 ± 14.50	0.328	Moderate
Clinical science faculty	12.04 ± 7.70		13.80 ± 8.21		25.88 ± 14.60		Mild
Institute							
Public	13.86 ± 7.59	0.456	16.86 ± 8.30	0.204	30.72 ± 14.20	0.252	Moderate
Private	12.38 ± 8.47		14.35 ± 8.10		26.74 ± 14.50		Moderate

Independent sample t-test applied, p-value ≤ 0.05 considered significant

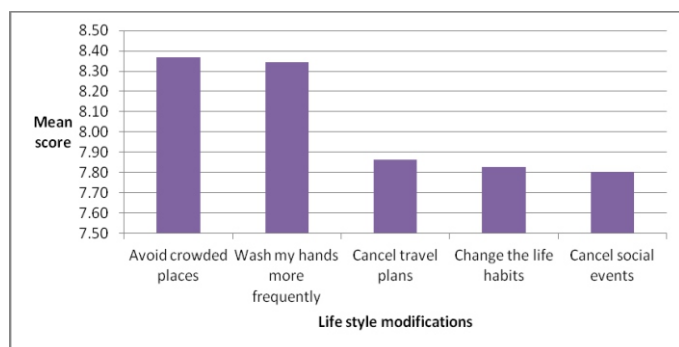


Figure 1: Mean scores of different lifestyle modifications after the COVID-19 on a scale from 1 (strongly disagree) to 10 (strongly agree)

acquired infections (HAIs). On Dec 18, 2020, NHS England reported that around 1 in 4 COVID-19 cases are probably due to the inpatients who were initially admitted for some other complaints.⁷ The main reasons behind COVID-19 HAIs are inappropriate isolation, the continuous movements of infected people and the shared healthcare equipments during the first wave of pandemic.⁷ Therefore, hospitals need to provide PPEs so that the providers feel safe in hospital premises and work on capacity building of medical practitioners in terms of knowledge of infection prevention. These trainings should be followed by proper supervision in

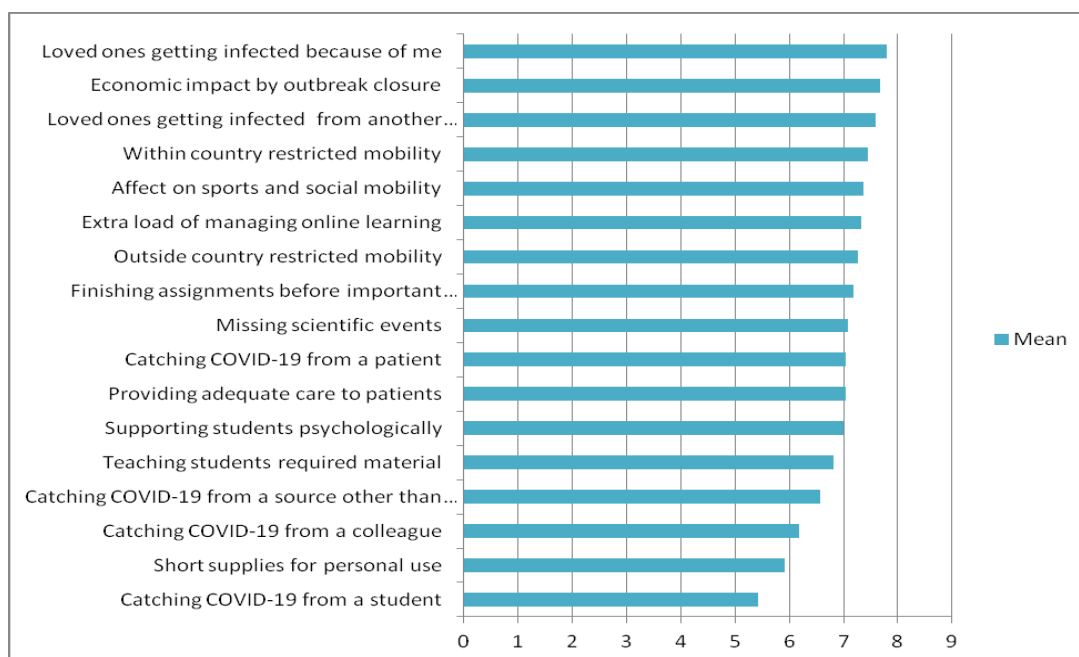


Figure 2: Mean scores of levels of worry after the COVID-19 outbreak on a scale from 1 (not worried at all) to 10 (extremely worried)

order to ensure the adequate implementation of safety standards.

The pandemic has severely affected the mental health of populations especially the HCPs. One of the major contributing factor is the fear of taking the virus home and infecting the loved ones especially to the ones who are elderly and immune compromised.⁸ Our results are in conformity with these studies and scored the worry of infecting the loved ones as the highest level of worry. One possible reason could be that they are not satisfied with the SOPs being followed at their workplace and consider themselves a potential source of infection for their families. The total mean score of IES in this study ranges from 26 to 30 with moderate stress which is higher in comparison to the study conducted in Philippines which reported 19.5 mean subjective score.¹⁹ The possible reason of the lesser score could be due to the fact that the later was conducted in general population. On a 10-point scale of lifestyle modifications, all factors showed mean score of above 7.5 which means that this learned population is inclined towards adopting new normal.

Study provided the detailed description of the SOP implementation in the medical institutes and the opportunity to strengthen the institutional preparedness. The data could have given provincial comparisons if conducted countrywide with a bigger sample size. Data were not collected from Baluchistan province and KPK province of Pakistan and the sample size is so small to generalize the findings to Sindh and Punjab provinces only. Nation-wide studies need to be done which will give opportunity to provinces to learn from each other.

CONCLUSION

The academics and practitioners of public and private medical institutions are moderately stressed due to the fear of the possibility of contracting COVID-19 at the workplace and spreading it to the loved ones. Public sector institutes need to equip themselves with the necessary resources both physical and human to deal with COVID-19.

ETHICAL APPROVAL: This study was conducted after obtaining approval from the Institutional Review Board, Jinnah Sindh Medical University Karachi (JSMU/RB/2020/341).

AUTHORS' CONTRIBUTIONS: LAB: Conception or design of the work, data analysis and final approval of the version to be published. MM: Drafting the work and revising it critically for important intellectual content.

MU: Data collection. SS: Critical revision of the manuscript.

CONFLICT OF INTEREST: All authors do not have any conflict of interest.

FUNDING: None.

Received: May 05, 2021

Accepted: Dec 02, 2021

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