



COVID-19 in Pakistan: Current status, challenges and recommendations

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Abstract

COVID-19 pandemic outbreak which originated in China arrived in Pakistan on February 2020. The COVID-19 has claimed 264K lives with 3.77M confirmed cases across 213 countries and territories as of the date. Various preventive, controlling and mitigating measures towards COVID-19 has been taken across all countries around the world. Pakistan, a middle-income developing country with far less resources, has taken few mitigating measures in the face of COVID-19 pandemic outbreak outcomes. This paper evaluates impact on public health, examined challenges, analyzed role of Pakistan's actions and recommended future strategies to combat COVID-19 pandemic outbreak.

Key words: coronavirus, COVID-19, Pakistan, pandemic, health, challenges

COVID-19 ПӘКІСТАНДА: АҒЫМДАҒЫ ЖАҒДАЙ, ПРОБЛЕМАЛАРЫ ЖӘНЕ ҰСЫНЫСТАРЫ

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ТҰЖЫРЫМДАМА

Қытайда туындаған COVID-19 пандемиясы Пәкістанға 2020 жылдың ақпан айында жетті. Бүгінгі күні 213 елде COVID-19 264 мың адамның өмірін жалмады, ал жұқтырғандардың саны 3,77 млн. Дүние жүзінде COVID-19 үшін алдын алу, бақылау және жұмсартудың түрлі шаралары қабылданды. Пәкістан, ресурстары аз және дамушы ел COVID-19 пандемиясының басталуына байланысты бірнеше жеңілдететін шаралар қабылдады. Бұл зерттеуде халықтың денсаулығына тигізетін әсері бағаланады, проблемалары зерттеледі, Пәкістан іс-қимылдарының рөлін талдайды және COVID-19 пандемиясымен күресудің болашақ стратегиясына ұсыныстар береді.

Негізгі сөздер: коронавируc, COVID-19, Пәкістан, пандемия, денсаулық, проблемалар

COVID-19 В ПАКИСТАНЕ: ТЕКУЩЕЕ СОСТОЯНИЕ, ПРОБЛЕМЫ И РЕКОМЕНДАЦИИ

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РЕЗЮМЕ

Вспышка пандемии COVID-19, возникшая в Китае, дошла до Пакистана в феврале 2020 года. На сегодняшний день в 213 странах COVID-19 унес 264 тыс. жизней, тем временем подтвержденных случаев 3,77 млн. Различные превентивные, контролирующие и смягчающие меры в отношении COVID-19 были приняты во всех странах мира. Пакистан, развивающаяся страна со средним уровнем дохода и имеющая гораздо меньше ресурсов, приняла несколько смягчающих мер в связи с последствиями вспышки пандемии COVID-19. В настоящей работе оценивается влияние на общественное здравоохранение, рассматриваются проблемы, анализируется роль действий Пакистана и приводятся рекомендации по будущей стратегии борьбы с пандемией COVID-19.

Ключевые слова: коронавируc, COVID-19, Пакистан, пандемия, здоровье, проблемы

Introduction

COVID-19 (Coronavirus Disease 2019) pandemic outbreak was first reported as a case of pneumonia with unknown etiology appeared in Wuhan city of Hubei province in China at the end of December 2019 with link to Huanan Seafood Wholesale Market which spread across the world with high mortality rate. The COVID-19 has claimed 264K lives with 3.77M confirmed cases across 213 countries and territories as of the date. On February 2020, the World Health Organization (WHO) named the pneumonia as Coronavirus Disease 2019 (COVID-19) [1]. World Health Organization (WHO) declared the COVID-19 outbreak as pandemic and the sixth public health emergency of

international concern (PHEIC) on January 30, 2020 [2]. Since 2009 there have been six PHEIC declarations: the 2009 H1N1 (swine flu) pandemic, the 2014 polio declaration, the 2014 Ebola outbreak in Western Africa, the 2015-16 Zika virus epidemic, the 2018-20 Kivu Ebola epidemic, and the ongoing pandemic outbreak of coronavirus (COVID-19) which has been declared a PHEIC [3]. The previous coronavirus outbreaks included Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) outbreak and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) outbreak [4]. To date, the number of tested positive cases and mortality rate is higher in USA followed by Italy and Spain as shown in Figure 1 and 2 [5].

Figure 1. Confirmed cases of COVID-19 in selected countries source Johns Hopkins CSSE

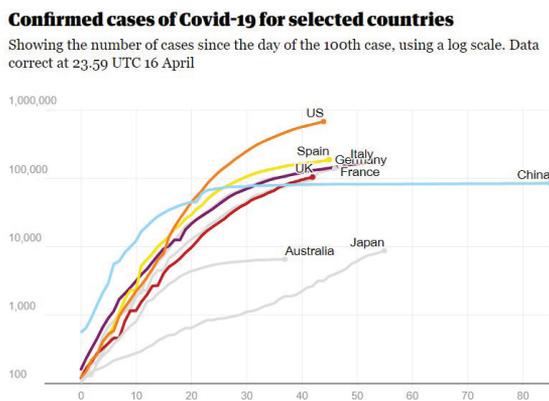
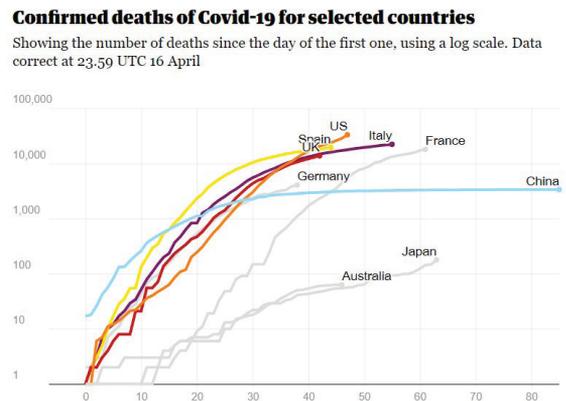


Figure 2. Confirmed deaths of COVID-19 in selected countries source Johns Hopkins CSSE



In February 2020 COVID-19 arrived in Pakistan and has spiked 24,073 cases. Pakistan has first case of COVID-19 in February 2020 in Karachi of Sindh province in Pakistan. And on the same day another case was confirmed by Pakistan Federal Ministry of Health in Islamabad, Pakistan [5,6]. Within few weeks the total number of confirmed cases reached to 6,919 with highest number of cases from Punjab, Pakistan. Pakistan's geographical location requisite an immediate authorize action plan and management plan "National Action Plan for Preparedness & Response to Corona Virus Disease (Covid19) Pakistan" proposed by National Institute of Health (NIH) [7]. The collaborative strategies with joint efforts of local, regional, national and international emergency preparedness platforms are required to curb the impact of health, and society and to timely and effectively control and prevent the transmission of coronavirus and to strengthen communities and societies in the wake of COVID-19.

Possible mitigating measures for Government of Pakistan against COVID-19

The Government of Pakistan has to take mitigating, controlling and preventive measures against COVID-19 to provide and ensure timely, effective and efficient healthcare system for the lives of about 220 million people. Pakistan's partial and fragmentary precautionary actions are calculated and changed according to day-to-day scenarios in Pakistan anticipating un-exacerbating situation. From the day one when the first positive case of coronavirus in Karachi city of Sindh

province in Pakistan appeared, administrative authority have taken necessary measures to safeguard the lives which controlled the pandemic situation for time-being only to be worsened later with the relaxation of lockdown in the country. Since COVID-19 imported to Pakistan with the cases of travel history from China, Iran and other countries, Pakistan imposed restrictions on traveling, closed airspace and close monitoring of zaireen and students arrived from other countries to Pakistan. Standardized measures such as early screening, contact tracing, transmission mode, epidemiology, clinical features, laboratory screening and diagnosis, and preventive and controlling measures including social distancing, quarantine and self-isolation to mitigate the spread of COVID-19 are still needed to be implemented and managed [8]. Pakistan, poverty stricken country with 24% of the population lives below the national poverty line, and 38.8% of the population is poor based on the multinational poverty index – has been affected on multiple fronts including health, social, cultural and economic system. Government of Pakistan in consideration has established COVID-19 Relief Fund to receive donations from the public and then to disseminate the donations for the welfare of public. According to private sources, people are more affected of poverty than COVID-19 in Pakistan where one-quarter of people earn 300 rupees (roughly 2\$) per day, people are struggling to survive around the coronavirus recession is looming and swinging prices are exacerbating the balance of living for poor segment of the society. Additionally, closure of business and places of worships could result in upheaval in religious conservatives and economically fragile

country. To deal with multiple issues, social network helplines are established by the Government in 7 local languages [9].

Quarantine management and testing facilities in Pakistan

The quarantine facilities are used to contain activities or isolation of suspected and infected individuals of COVID-19 where they can be monitored and treated. Quarantine places are distributed in multiple cities of all provinces in Pakistan. As per the date number of quarantine facilities ranges about 23,557 in 139 districts of Pakistan to mitigate the possible outcomes of COVID-19.

Figure 3. List of province wise COVID-19 testing labs.

LIST OF PROVINCE-WISE COVID-19 TESTING FACILITIES

Sr	Provinces	Facilities
1.	Islamabad	National Institute of Health (NIH)
2.	Balochistan	Public Health Lab, Fatima Jinnah General & Chest / TB Hospital Quetta
3.	Khyber Pakhtunkhwa	Public Health Lab, Khyber Medical University Peshawar
4.	Punjab (4)	Public Health Lab, Punjab Aids Control Program Lahore
5.		Shaukat Khanum Hospital Lahore
6.		Nishtar Hospital Multan
7.		Armed Forces Institute of Pathology (AFIP) Rawalpindi
8.	Sindh (5)	Agha Khan University Hospital Karachi
9.		Dow Hospital, Ojha Campus Karachi
10.		Civil Hospital Karachi
11.		Indus Hospital Karachi
12.		South City Hospital Karachi
13.	Azad Jammu & Kashmir	Abbas Institute of Medical Sciences (AIMS) Muzaffarabad
14.	Gilgit Baltistan	District Headquarters Hospital Gilgit
15.	NIH Mobile Testing Lab	Deployed at Taftan – Iran International Border Crossing

In different cities across the country 15 laboratories (ICT-01, Balochistan-01, KP-01, Punjab-04, Sindh-05, AJK-01, GB-01 and NIH mobile testing lab) are established with free testing facilities for COVID-19 test as shown in Figure 3 [10]. National Disaster Management Authority (NDMA) and National Institute of Health (NIH) has promised 50 more new testing laboratories and they are also launching training programs for paramedics and laboratory staff and technicians [11].

Infodemics and misinfodemics

Mass media and social media has provided and disseminated information regarding epidemiology, data, transmission, control and prevention. Whereas many sources have provided reliable, authenticate and valid information about the COVID-19, some of the sources had propagated rumors, myths, false information, conspiracy theories, and (mis) infodemics regarding source of origin, data index and availability of vaccine which subsequently caused panic and other negative emotions in general public and further deteriorate mental health, psychological and social health, emotional behavioral disorders and psychological distress [12-15]. The WHO, CDC and NIH alongside community organizations urge media issue correct information related to COVID-19. This could be achieved by forming media’s national ad-hock task force who active monitor and identify and dispel false information from mass media and social media. National Ministry of Health has been trying to convey the scientifically reliable message by collaborating with the scientists and medical healthcare professionals in order to mitigate the impact of misinfodemics from social media on people.

Risk for healthcare workers

Pakistan’s lockdown and immediate infection control measures were implemented and contact tracing was conducted to search for exposed index, however, due to shortage and lack of personal protective equipment, and dearth of screening and treatment kit posed medical healthcare professionals in threat and thus healthcare workers are at particular risk of infection during this pandemic. The potential risk of nosocomial transmission of COVID-19 in medical healthcare workers has become real prevalent threat in Pakistan with greater risk of mental health issues related to distress, anxiety and apprehension as well [13]. Reports from China have revealed that 2.09-39% among healthcare workers was infected from COVID-19 from contact transmission [16,17]. While suction of respiratory tract before or after intubation, bronchoscopy, cardiopulmonary resuscitation, nebulizer treatment, and oxygen mask manipulation were not significantly related and yet these activities were avoided during the COVID-19 pandemic [16].

Over 480 medical professionals across the country have tested positive for the coronavirus in a short span of time by contracting virus from patients or other infected medical personnel. On April 12, 2020 as reported, dozens of new COVID-19 suspected patients admitted to Nishtar Medical Hospital, Multan and few hours later 12 doctors and 6 nurses of the same facility test positive for COVID-19 after contracting virus from same ward. At least 55 patients were admitted and quarantined to the hospital marking the daily increase in patients. The new surge of COVID-19 patients included 18 women, the largest number of women reported in Southern Punjab so far as shown in Figure 2 [18].

Over 50 healthcare providers tested positive for COVID-19 in Karachi after most of the healthcare providers came into contact with affected but asymptomatic patients without wearing proper Personal Protective Equipment (PPE). An eminent physician and dermatologist had died after contacting coronavirus in Karachi by treating a COVID-19 infected patient. The latest outbreak of coronavirus has been reported from Shaheed Mohtarma Benazir Bhutto Trauma Centre with 10 healthcare providers infected with coronavirus including 2 vascular surgeons, 3 anesthesiologists, nurses, technicians and IT personnel after performing surgery on a COVID-19 patient. From Civil Hospital Karachi (CHK) 3 medical staff members and a hospital attendant and driver are infected and an assistant professor from medicine department of Dow University of Health Sciences (DUHS) has been tested positive with coronavirus. However, many medical staff members alleging that the number of staff tested positive is higher than the number revealed publically. At National Institute of Child Health (NICH), Karachi four healthcare providers (2 doctors and 2 paramedics) had test positive for the coronavirus after treating a positive coronavirus patient. At Dow University’s Ojha campus, 1 paramedic staff had tested positive. At Abbasi Shaheed Hospital Karachi, Liaquatabad and Korangi, several doctors and paramedics become infected with coronavirus. Two healthcare providers of the Indus Hospital, Karachi tested positive. Several (over 15) doctors, paramedics and staff members of private hospitals tested positive. On April 14, 2020, in KPK, 9 doctors, 7 nurses and more than a dozen health professionals are infected with coronavirus. Punjab has become a new epicenter of coronavirus with 27 doctors and paramedics have been tested positive after treating patients with positive coronavirus [18].

In Pakistan, the number of medical personnel is insufficient and for the existing medical personnel personal protective

equipment is insufficient. Pakistan has 35 COVID-19 designated hospitals (6 in Punjab, 4 in Sindh, 10 in Baluchistan, 7 in KP, 4 in GB, 3 in AJK and 1 in Islamabad) according to National Institute of Health Pakistan as of April 29, 2020. Rate of medical care personnel's disease contraction rate has been increasing exponentially in Pakistan whose medical healthcare personnel have barely equipped healthcare system in terms of personal protective equipment, surveillance, group screening and testing, beds, intensive care units, ordinary care unit, laboratories and radiology and auxiliary departments. Medical personnel (medical healthcare professionals, healthcare workers, doctors, nurses, administrative staff, allied health professionals, hospital support staff [paramedics, hospital attendants, technician, clerical, food service staff, IT and environmental service staff, janitors, cleaning, guards and drivers], volunteers, social service personnel) in this scenario remained active and on frontline caring for patients and families. Healthcare system has taken a blow due to the virulent human to human transmission of coronavirus and this rapid spread and severity of symptoms can acutely taxed the limits of this system. Potential shortage of personal protective equipment, intensive care unit, ventilators, additional supplies and beds, and inadequate workforce (physicians, practicing clinicians, pharmacists, respiratory therapists, nurses and other staff) are few of the issues medical healthcare workers have been considering in this crisis. Over 480 medical professionals across the country have tested positive for the coronavirus in a short span of time. Maintaining adequate healthcare force requires maximized ability of each medical staff member to care for the surge of patients over extended period of time. Additional emotional stressors and societal shift requires coping and adherence with greater risk of exposure, workload, moral dilemmas, and stressed environment [14,15,19]. Medical personnel are under physiological and psychological pressure. A study indicated that many healthcare workers avoided drinking water while wearing protective clothing and some of them fainted due to hypoxia and hypoglycemia. Previous studies have suggested that stress could increase the risk of infection and induce ventricular arrhythmia and cause sudden death [13-15]. As a result, mental personnel working in the frontline are susceptible of high-risk of infection and sudden death.

Risk for pharmacists

People immediately approached pharmacies to panic-buying medications and seeking pharmacists' advice relying on clinical judgment of the pharmacist after the newsbreak of COVID-19. Community pharmacists work as contractors of healthcare companies and are the first point of contact for most of the population. Space in pharmacy stores is usually very limited and the proximity is relatively high which puts the pharmacist at risk potential targets of coronavirus (people could be asymptomatic of coronavirus symptoms) without proper PPE. Pharmacists working in Pakistan's slum areas, the situation is even worst. Even at the city's largest wholesale chemist market-located in the southern district which comprises over 1,500 pharmacies, pharmacists are not provided with PPE and people do not adhere to social-distancing and urges pharmacists to follow the same. Pharmacists need new regulatory standards specifically designed to handle these situations which contain a framework for decision-making effective in unpredictable situations and established procedures for patients and their families affected with COVID-19. These resources should also include information on critical care services during the pandemic outbreak in special populations such as children, pregnant women, patients with cancer, respiratory conditions, diabetes

and rheumatological conditions and HIV. Pharmacists are frontline service providers and in countries like Pakistan where pharmacists' advice is equivalent to doctor's prescriptions; with GP surgeries are shut so people are more inclined to approaching pharmacists [14,20-22]. Many unprotected frontline pharmacists are wondering if it is worth the risk without PPE.

In most communities, people put their trust on pharmacists more than the standard healthcare system (doctors, hospitals) and prefer getting health advice, dispense medication and asked to check doctor's prescriptions for errors. Researches have shown that community pharmacists can improve adherence through medication education and side-effect monitoring. Community pharmacists could become accessible, knowledgeable and capable of providing mental healthcare promotion by offering medication management support and addressing mental health stigma in communities. Pharmacists could help people panic-buying in COVID-19 pandemic outbreak first by reducing anxiety and fear and then pacify individuals about the current situation. Pharmacists could educate people about the basic information about COVID-19, clinical characteristics, preventive measures, importance of social-distancing, adverse side-effects of self-medication and impact of hoarding. Community pharmacists could listen to individuals' concerns, addressing their questions and set clear physical distance to ensure social-distancing adherence. Insufficient Personal Protective Equipment (PPE) to all medics, paramedics, doctors, nurses, technicians, and support staff even drivers working in isolation wards of public and private hospitals warranted surge in number of medical staff infected with COVID-19 [20-22].

Conclusion

COVID-19 has widely spread across 213 countries and territories across the world including the worst-hit countries like U.S., UK, Italy, and Spain. Pakistan, population of estimate 220 million, fifth most populous country in the world, required rigorous facilitation of health, educational, social and economic systems with far less facilities than countries like China, USA, UK, Russia, Italy and Spain to combat against COVID-19 pandemic outbreak. Currently, quarantine and testing facilities in Pakistan are undersized than the possible requirement. This experience showed that COVID-19 infection control has to be considered for any patient with a possibility of infection, maintenance of PPE and preventive and control measures are inevitable in the case of coronavirus contracted cases in medical healthcare staff. Pakistan has not yet achieved the initial control of the spread of COVID-19 and second wave of infection is already beginning throughout the world. Many experts are predicting that COVID-19 may extend its stay and countries need to continue exercise stringent quarantine, lockdown, social-distancing and self-isolation with heightened vigilance and continue controlling and preventive strategies towards curbing COVID-19 especially within hospitals and amongst healthcare staff who are at forefront and frontline defense against COVID-19 pandemic outbreak. Pakistan will need stringent actions like lockdown, curfew, quarantine, self-isolation, social-distancing, health measures, behavior modification, better adherence towards quarantine, responsible mass and social media, and implement mitigating measures to combat COVID-19.

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