



Comparison of COVID-19 cases of Pakistan with different South Asian countries and how Pakistan is handling this pandemic

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Keywords: COVID-19, Pandemic, South Asia, Government strategies, Economy

Publication date: August 20, 2021

Abstract

The aim of our study is mainly to describe the comparative cases of COVID-19 in different countries of South Asia and strategies of government of Pakistani to control this pandemic. This study is based on previous papers that are published, data available on social, print and electronic media, official website of Pakistan for corona outbreak and ministry of health regulations, website of WHO, CDC and NIH. Data from start of the pandemic till 7th October 2020 was taken. India have total of 6757131 cases with total death of 104591 patients and 5744693 recoveries. In Bangladesh the total reported cases are 371631 with total death of 5405 patients and 284833 patients recovered. Total cases of COVID-19 reported in Pakistan up till now are 316351 with total death of 6535 patients and 301288 patients recovered. In Nepal total cases, deaths and recoveries are 90814, 563 and 67542 respectively. In Maldives the total reported cases, deaths, recoveries are 10621, 34 and 9466 respectively. Total cases, deaths and recoveries in Sri Lanka are 4252, 13 and 3266 respectively. Amongst south Asian countries the lowest cases of COVID-19 were reported in Bhutan. Our study concluded that COVID-19 has affected all the south Asian countries. Pakistani government strategies to control this pandemic seems to be better as compared to other south Asian countries in spite of very bad economic situation as compared to other countries but it needs to be improved.

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Introduction

The first case of corona virus associated problem was reported in 2002-2003. They affect about 29 countries in Europe, Asia, North America and South America. The total reported cases were 8000 with 9.5% mortality rate (Badshah, Ullah *et al.*, 2020). Corona virus in both human and animals are shown in earlier studies by many researchers. Unfortunately there is available effective vaccine to control such outbreak.

So the ultimate result is to adopt preventive measures against such pandemic to control the disease. Regular monitoring and changing the practices of eating have effective results in controlling such pandemics (Graham, Donaldson *et al.*, 2013, Lai, Shih *et al.*, 2020). In the whole globe the major challenge to the public health is in the form of Corona virus disease-2019, simply termed as COVID-19 (Lippi and Plebani 2020).

The COVID-19 was first observed in Wuhan city of china in late December 2019. Firstly it was considered as pneumonia but the causative agent was unknown. Late the infection was observed in other region of the country having high ratio (Sahin, Erdogan *et al.*, 2020) . Novel Coronavirus Pneumonia name was given to the disease by the CDC of china as respiratory samples were studied by Chines CDC and they observed that this pneumonia is caused by a new strain of corona virus (Wang, Wang *et al.*, 2020).

The prime target of the corona virus is human respiratory system (Hoehl, Rabenau *et al.*, 2020). Scientist from china give name of 2019-nCoV to this novel strain of corona virus (Zhu, *et al.*, 2020). In later stage International Committee on Taxonomy of Virus give Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) name to this new strain of corona virus (Zu *et al.*, 2020). The disease from this novel strain of corona virus was named as Corona virus disease-19 (COVID-19) on 11th February 2020 by WHO (Rodriguez-Morales *et al.*, 2020).

The family of Coronaviridae is large. It causes various human diseases that ranges from common cold to severe diseases such as Middle East Respiratory Syndrome, Severe Acute Respiratory Syndrome etc. (Graham, Donaldson *et al.*, 2013). The current corona virus strain (Benjamin *et al.*, 2006), is new for researchers. It had not been previously describes (Lippi and Plebani 2020). In late December 2019 COVID-19 was first reported in Wuhan, China. Later it take over the whole globe by affecting more than 213 countries including Pakistan (Fielding *et al.*, 2020). On 30th January 2020, WHO acknowledged COVID 19 epidemic as 6th public health of emergency Services (Waris *et al.*, 2020). On 11th March 2020, WHO approved COVID-19 epidemic as pandemic (Kiran *et al.*, 2011). In the globe South Asia is considered as densely populated region. Most of the countries are less developed. The people of South Asia are highly disposed to outbreak of various infectious diseases due to limited resources, high population and no proper medical facilities (Mustafa *et al.*, 2020). Currently the major public health problem in south Asia is COVID-19. In all the countries of South Asia local transmission of the virus has been reported. On 13th January 2020, first positive case of COVID-19 was reported in Nepal. This was reported in a 32-year-old student from Nepal who studied at Wuhan University of Technology and returned to Nepal. This was asymptomatic case as the patient has no sign and symptoms (Bastola *et al.*, 2019).

On 8th march 2020 first three confirmed cases of COVID-19 were reported in Bangladesh by institute of epidemiology, disease control, and research (Alam *et al.*, 2020). Initially in India the spread of the virus was slow as compared to other countries although India is border country with China. In India the first case of COVID-19 was reported from Kerala on 30th January 2020 in a patient having travel history from Wuhan (Kipgen and Unnithan *et al.*, 2020). On 7th March 2020, the first case of COVID-19 was reported in Maldives (Hussain *et al.*, 2020).

The first case of Coronavirus COVID-19 in Sri Lanka was reported on 27 January 2020 (Nanayakkara *et al.*, 2020). On 5th March 2020, the first case of corona virus was reported in Bhutan (LeVine *et al.*, 2020). Iran is the border country of Pakistan, badly affected by corona virus (Saqlain *et al.*, 2020). On 26th February 2020, Ministry of Health confirmed first case of corona virus in Karachi city of Pakistan however on same day Pakistani Ministry of Health confirmed the 2nd case of COVID-19 in Islamabad (Ali and Saqlain *et al.*, 2020). Up till now, numerous actions have been taken by the Pakistani government against the Pandemic of COVID-19. So in our study we focus on the comparison of COVID-19 cases of Pakistan with other south Asian countries and we also emphasize the various strategies adopted Pakistani government against CoVID-19 like designation of various hospitals, private and government testing and treatment centers, awareness of public and local community reaction to the COVID-19 pandemic.

Material and methods

Study design

Our study is basically a desk-top study to collect up-to-date facts and figs of COVID-19 pandemic in different South Asian countries and to know about strategies of government of Pakistan to control this pandemic.

Study duration

In this study, data of all the South Asian countries about COVID-19 was taken from start of the pandemic till 7th October 2020.

Collection of data

This study is based on previously papers that are published, data available to the general public on social media, print and electronic media. Data was also taken from official website of Pakistan for corona outbreak, WHO official website, website of CDC and NIH. Data was also taken from official website of ministry of health

regulation. Data from start of the pandemic till 7th October 2020 was taken.

Data analysis

SPSS version 21.0 was used for entry and analysis of data. Percentages were calculated for number of deaths and recoveries. All the data was presented in form of figs and tables.

Results

Among south Asian countries India has the highest number of COVID-19 cases till 7th October 2020. India have total of 6757131 cases with total death of 104591 while the number of recovered patient are 5744693.

In Bangladesh the total reported cases are 371631 with total death of 5405 while the recovered cases are 284833. Total cases of COVID-19 reported in Pakistan up till now are 316351 with total death of 6535 (2.1%) while the number of the recovered patients are 301288. In Nepal total cases are 90814, 563 death and recovered patient till date are 67542.

In Maldives the total reported cases up till 7th October 2020 are 10621 with total death of 34 while recovered patients are 9466. In Sri Lanka the total cases reported are 4252, reported death are 13 while the total recovered cases are 3266. Amongst south Asian countries the lowest cases of COVID-19 were reported in Bhutan in which total reported cases up till 7th October 2020 are 300 with no death while total recovered cases are 250. (Table 1)

Amongst south Asian countries Pakistan has the highest death percentage of 2.1% followed by India and Bangladesh having 1.8% death rate. While the death percentage in Nepal, Sri Lanka and Maldives are 0.8%, 0.4% and 0.003% respectively. Bhutan is the only south Asian country having no death case due to COVID-19 pandemic (Table 2).

Table 1. Comparison of cases of COVID-19 amongst different south Asian countries.

Region/country	Total confirmed cases	Total death	Total recovered	Total active
India	6,757,131	104,591	15,744,693	907,847
Bangladesh	371,631	5,405	284,833	81,393
Pakistan	316,351	6,535	301,288	8,528
Nepal	90,814	563	67,542	22,709
Maldives	10,621	34	9,466	1,121
Sri Lanka	4,252	13	3,266	973
Bhutan	300	00	250	50

Table 2. COVID-19 death percentage amongst different south Asian countries.

Region/country	Total death	Percentage
India	104,591	1.8%
Bangladesh	5,405	1.8%
Pakistan	6,535	2.1%
Nepal	563	0.8%
Maldives	34	0.003%
Sri Lanka	13	0.4%
Bhutan	00	00

Table 3. Province wise cases of COVID-19 in Pakistan.

Region/Province	Total confirmed cases	Active cases	Recovered	Death
Islamabad	16936	599	16153	184
Sindh	138891	4529	131831	2531
Punjab	100148	1814	96089	2245
Khyber Pakhtunkhwa	38141	563	36315	1263
Baluchistan	15439	342	14951	146
Gilgit	3884	291	3504	89
Baltistan				
Azad Jammu and Kashmir	2912	390	2445	77
Total	316,351	8,528	301,288	6,535

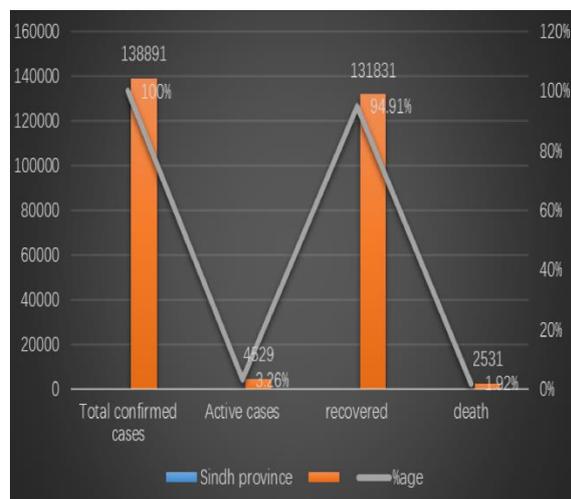


Fig. 1. COVID-19 cases in Sindh province of Pakistan.

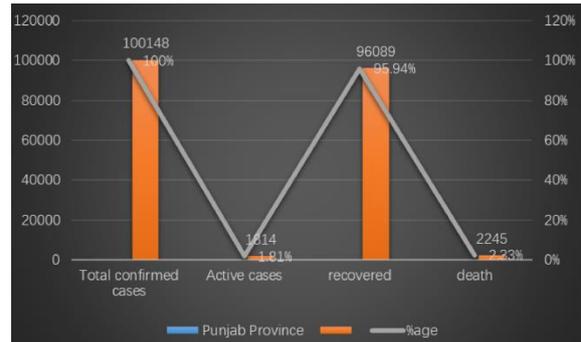


Fig. 2. COVID-19 cases in Punjab province of Pakistan.

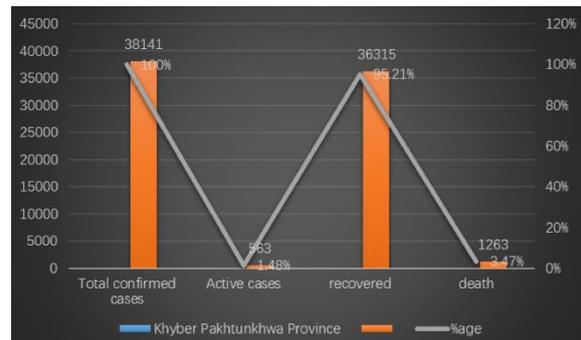


Fig. 3. COVID-19 cases in Khyber Pakhtunkhwa province of Pakistan.

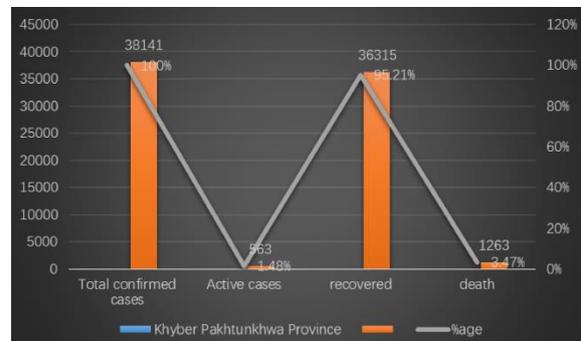


Fig. 4. COVID-19 cases in Baluchistan province of Pakistan.

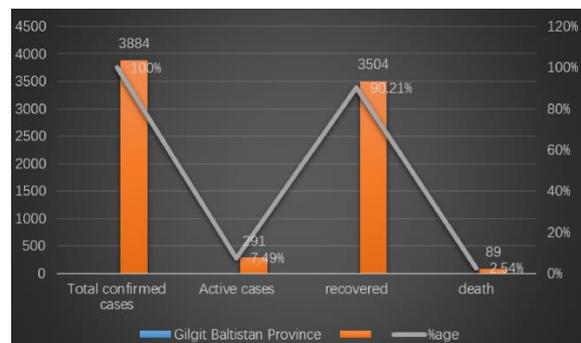


Fig. 5. COVID-19 cases in Gilgit-Baltistan province of Pakistan.

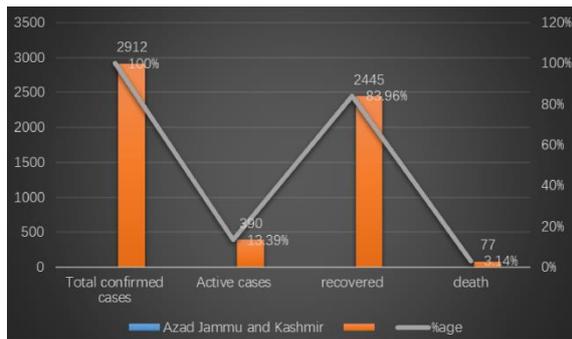


Fig. 6. COVID-19 cases in Azad Jammu and Kashmir, Pakistan.

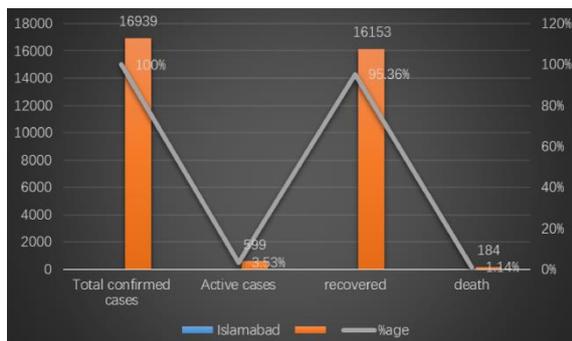


Fig. 7. COVID-19 cases in Islamabad, Pakistan.

Discussion

According to our study total cases of COVID-19 reported in Pakistan from February 26, 2020 to 7th October 2020 are 316,351 with total death of 6,535 (2.1%) while the numbers of the recovered patients are 301,288. (Table 3) Total death due to COVID-19 in Pakistan is 2.1% (n = 6535), total recoveries 95.23% (n = 301288) and active cases reported 2.69 % (n = 8528) up till know (Table 1). 3730221 tests have been conducted by health authorities in suspected patients till 7th October, 2020 (Khan *et al.*, 2020) (26).

According to the province wise comparative cases of COVID-19, our studies conclude that Sindh provinces have high number of cases (138891) as compared to other provinces. Punjab have 100148 cases, Khyber Pakhtunkhwa have 38141 cases, and Baluchistan have 15439 cases while Gilgit-Baltistan, Azad Jammu and Kashmir and Islamabad have 3884, 2912 and 16936 cases of COVID-19 respectively. In Sindh province out of total 138891 cases, 4529 are active cases, 2531

death and 131831 patients have been recovered. In Punjab province the total cases are 100148, out of which 1814 cases are active, 2245 are dead while 96089 patients are recovered. In Khyber Pakhtunkhwa out of total 38141 cases, 563 cases are active, 1263 are dead and 36315 cases are recovered. In Baluchistan province out of total 15439 cases, 342 are active case 146 death and 14951 patient have been recovered. In Gilgit Baltistan province the total cases are 3884, out of which 291 cases are active, 89 are dead while 3504 patients are recovered. In Azad Jammu and Kashmir out of total 2912 cases, 390 cases are active, 77 are dead and 2445 cases are recovered. In Islamabad out of total 16936 cases, 599 are active cases, 184 death and 16153 patient have been recovered (Table 3). Highest death rate (3.47%) due to COVID-19 was recorded in Khyber Pakhtunkhwa while lowest death rate (0.98%) was recorded in Baluchistan. Highest recovered patients (96.84%) due to COVID-19 were observed in Baluchistan while lowest recovery rate (83.96%) was recorded in AJK. The death rate observed in other provinces were observed as; Punjab (2.33%), Sindh (1.92%), Gilgit Baltistan (2.54%), Islamabad (1.14%) and Azad Jammu and Kashmir (3.14%) while the recovery rate in other provinces were observed as; Khyber Pakhtunkhwa (95.21%), Sindh (94.91) Punjab (95.94%), Gilgit-Baltistan (90.21), Islamabad (95.36%),(Fig. 1 to Fig. 7).

How government of Pakistan is handling COVID-19 pandemic

Currently in Pakistan the resources are limited and economy is not good as compared to other south Asian countries but in spite of all the problems Pakistani government play a good role to control the COVID-19 outbreak in Pakistan. Governments of Pakistan release all the relevant information on time to the general public so that they understand all the government policies, strategies and measures to prevent the spread of the disease. Pakistani government introduced the concept of smart lockdown in areas having cases

of COVID-19 to prevent the spread of the disease. They also stop trading with the border countries having COVID-19 cases and stop domestic and international flight (Akram, 2020). Government of Pakistan also increases the number of laboratories for corona virus testing. During the outbreak of COVID-19 they established 107 laboratories for COVID-19 testing both in private and public sector. These laboratories have capacity of about 46730 test (Epidemiology, 2020). They have also specified 139 centers for quarantine to COVID-19 patients in all over the country having capacity of 23557 beds.

Sindh (2), Gilgit Baltistan (63) Khyber Pakhtunkhwa (52), Islamabad (2), Punjab (6), Baluchistan (10), Azad Jammu, and Kashmir have 4 quarantine centers specified by the government (Epidemiology, 2020). The government also play a good role to provide free and easy access of the suspected patient to the corona testing. They also play a tremendous job by maintaining corona virus testing cost in laboratories of private sectors (Daily pakistan, 2020). Temporary hospital of 250 beds was constructed for the first time by government of Pakistan in 40 days (Epidemiology, 2020). Government of Pakistan also allotted the existing hospital for the patients of corona virus. Presently there are about 215 hospitals in Pakistan dealing with the corona virus patient. They are distributed as Sindh (4), Gilgit Baltistan (21) Khyber Pakhtunkhwa (110), Islamabad (1), Punjab (50), Baluchistan (14) and Azad Jammu and Kashmir have 15 hospitals specified for corona virus having 2942 beds capacity for the patient of COVID-19 (Epidemiology, 2020).

The governments also reduce the spread of the disease by tracing and trailing contacts in the country. The government established many emergency centers, which helped a lot in controlling the outbreak. These centers helped in tracking down the areas where the cases are spreading (Daily pakistan, 2020).

Doctors were available online during this pandemic for other patients, which also help in the prevention of the disease (Daily pakistan, 2020). To prevent the spread of the disease the government of Pakistan starts online education system for the student not to waste their time. Currently the government has opened the schools, colleges and universities according to standard operating procedures. The government is also their role by maintain preventive measures as there is a chance of new surge of COVID-19 due to opening of educational institutes. During the pandemic the government of Pakistan launched helpline 1166 (Sehat Tahaffuz) on 6th February 2020.

This program was basically launched to provide health related information and services to patients of COVID-19 (Akram, 2020). During the pandemic, the government of Pakistan structured COVID-19 relief fund and corona relief tiger force to help the needy people (Khan, 2020). Corona relief tiger force helped in awareness of the public about corona virus and they helped in supplying of food to the needy people (Akram, 2020). The government of Pakistan also started the Ehsaas program for the needy people during COVID-19 pandemic (Akram, 2020).

Conclusions and recommendations

Our study concluded that COVID-19 has affected all the south Asian countries. Pakistani government strategies to control this pandemic seems to be better as compared to other south Asian countries in spite of very bad economic situation as compared to other countries but it need to be improved. Pakistani government has controlled this problem to some extent. This was possible only due to on time government policies and actions. The major challenges to Pakistani government are economic problems, limited resources, religious nature and current political problems. Pakistani government should maintain all the precautionary measurement till the availability of effective vaccine to cope this pandemic.

Main Points

- In the whole world, currently corona virus disease-2019, (COVID-19) is the major challenge to public health.
- International Committee on Taxonomy named to this novel strain Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2).
- Novel corona virus affected all the south Asian countries including Pakistan, India, Bangladesh, Sri Lanka, Maldives, Nepal, and Bhutan.
- In short among these countries Pakistani government strategies to control this pandemic seems to be better as compared to other south Asian countries in spite of very bad economic situation but it need to be improved.

Conflict of Interest: No conflict of interest was exist to declare by authors.

Funding Source: None

References

- Akram MA.** 2020. COVID-19 Pandemic and Government Policies to Control its Situation in Pakistan. *Acta Scientific Microbiology* **3**, 164-170.
- Akram MA.** 2020. COVID-19 Pandemic and Government Policies to Control its Situation in Pakistan. *Acta Scientific Microbiology* **3**, 164-170.
- Alam MS, Alam MZ, Nazir KN, Bhuiyan MA.** 2020. The emergence of novel coronavirus disease (COVID-19) in Bangladesh: Present status, challenges, and future management. *Journal of Advanced Veterinary and Animal Research* **7**, 198-208.
- Ali I, Shah SA, Siddiqui N.** 2020. Pakistan confirms first two cases of coronavirus, govt says no need to panic. *DAWN.COM*, 26.
- Badshah SL, Ullah A, Badshah SH, Ahmad I.** 2020. Spread of Novel coronavirus by returning pilgrims from Iran to Pakistan. *Journal of Travel Medicine* **27**, 044.
- Bastola A, Sah R, Rodriguez-Morales AJ, Lal BK, Jha R, Ojha HC, Shrestha B, Chu DK, Poon LL, Costello A, Morita K.** 2020. The first 2019 novel coronavirus case in Nepal. *The Lancet Infectious Diseases* **20**, 279-80.
- Benjamin GC, Stratton K, Sivitz LB.** 2006. Quarantine stations at ports of entry: protecting the public's health: National Academies Press, 2006
- Dailypakistan.com.pk/09-Jul-2020/pakistan-opens-islamabad-infectious-diseases-hospital-built-in-just-
- Epidemiology F. Disease Surveillance Division (FEDSD).** 2020. National Institute of Health (NIH) I. Ministry of National Health Services, Regulations and Coordination Ministry of National Health Services, Regulations and Coordination [Internet] 2020.
- Fielding CL, Higgins JK, Higgins JC, McIntosh S, Scott E, Giannitti F, Mete A, Pusterla N.** 2015. Disease associated with equine coronavirus infection and high case fatality rate. *Journal of veterinary internal medicine* **29**, 307-10.
- Graham RL, Donaldson EF, Baric RS.** 2013. A decade after SARS: strategies for controlling emerging coronaviruses. *Nature Reviews Microbiology* **11**, 836-848.
- Hoehl S, Rabenau H, Berger A, Kortenbusch M, Cinatl J, Bojkova D, Behrens P, Böddinghaus B, Götsch U, Naujoks F, Neumann P, Schork J, Tiarks-Jungk P, Walczok A, Eickmann M, Vehreschild MJGT, Kann G, Wolf T, Gottschalk R, Ciesek S.** 2020. Evidence of SARS-CoV-2 Infection in Returning Travelers from Wuhan, China. *New England Journal of Medicine* **382**, 1278-1280.
- Hussain M, Ali M, Ismail M, Soliman M, Muhsin M, Nazeer A, Solih M, Arifa A, Latheef A, Ziyar A, Shaheed A.** 2020. Management of the first severe case of COVID-19 in the small islands of Maldives. *Respiratory Medicine Case Reports* **1**, 101118.

Khan S, Muhammad M, Muhammad NU, Shakir U, Atia R, Nisar AJ, Waheed AB, Asaf K, Muhammad I, Asif I. 2020. Strategies adopted by Government of Pakistan to cope with the pandemic and comparative cases of COVID-19 in all provinces of Pakistan.

Khan S, Mujaddad M, Uddin MN, Ullah S, Rasheed A, Jatoi NA, Bhatti WA, Khan A, Islam M, Iqbal A. 2020. Strategies adopted by Government of Pakistan to cope with the pandemic and comparative cases of COVID-19 in all provinces of Pakistan.

Kipgen N. 2020. COVID-19 pandemic and racism in the United States and India. *Econ Political Wkly* **55**, 21-26.

Kiran H, Jean-Yves G, Brigitte H. 2011. Understanding mountain poverty in the hindu kush-himalayas: Regional report for Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. International centre for integrated mountain development (ICIMOD).

Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. 2020. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and corona virus disease-2019 (COVID-19): the epidemic and the challenges. *International journal of antimicrobial agents*: 105924.

LeVine S, Dhakal GP, Penjor T, Chuki P, Namgyal K, Watts M. 2020. Case Report: The First Case of COVID-19 in Bhutan. *The American Journal of Tropical Medicine and Hygiene* **102**, 1205-1207.

Lippi G, Plebani M. 2020. The novel coronavirus (2019-nCoV) outbreak: think the unthinkable and be prepared to face the challenge. *Diagnosis* **7**, 79-81.

Mustafa F, Sherwani RAK, Saqlain SS, Meraj MA, Ayyaz R. 2020. COVID-19 in South Asia: Real-time monitoring of reproduction and case fatality rate. *arXiv preprint arXiv:2008.04347*.

Nanayakkara S, Nakandala P, Nakandala U, Nanayakkara I. 2020. A Review on COVID-19: A Global and Sri Lanka Perspective. *American Journal of Multidisciplinary Research & Development (AJMRD)* **2**, 63-70.

Rodriguez-Morales AJ, Bonilla-Aldana DK, Tiwari R, Sah R, Rabaan AA, Dhama K. 2020. COVID-19, an emerging coronavirus infection: current scenario and recent developments-an overview. *J Pure Appl Microbiol* **1**, 14:6150.

Sahin AR, Erdogan A, Agaoglu PM, Dineri Y, Cakirci AY, Senel ME, Okyay RA, Tasdogan AM. 2020. 2019 novel coronavirus (COVID-19) outbreak: a review of the current literature. *EJMO* **4**, 1-7.

Saqlain M, Munir MM, Ahmed A, Tahir AH, Kamran S. 2020. Is Pakistan prepared to tackle the coronavirus epidemic?. *Drugs & Therapy Perspectives* 1-2.

Unnithan PSG. 2020. Kerala reports first confirmed coronavirus case in India. *India Today* 2020.

Wang L, Wang Y, Ye D, Liu Q. 2020. Review of the 2019 novel coronavirus (SARS-CoV-2) based on current evidence. *International Journal of Antimicrobial Agents* **55**,105948.

Waris A, Khan AU, Ali M, Ali A, Baset A. 2020. COVID-19 outbreak: current scenario of Pakistan. *New Microbes and New Infections*, 100681.

Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, Zhao X, Huang B, Shi W, Lu R, Niu P. 2020. A novel coronavirus from patients with pneumonia in China, 2019. *New England Journal of Medicine*.

Zu ZY, Jiang MD, Xu PP, Chen W, Ni QQ, Lu GM, Zhang LJ. 2020. Coronavirus disease 2019 (COVID-19): a perspective from China. *Radiology* **21**, 200490.