

Original Research Article

The demographical analysis of COVID-19 in the South western province of Pakistan, an approach to analysing its low mortality rates

Muhammad Samsoor Zarak^{1*}, Zara Arshad², Sarmad Saeed Khan³, Abdul Sami Tareen³, Saliha Kakar², Hamaiyal Sana², Helmand Khan Tareen², Choosak Nithikathkul⁴

¹Department of Medicine, West Virginia University of Medicine, Morgantown, WV, USA

²Bolan University of Medical and Health Sciences, Quetta, Balochistan, Pakistan

³COVID-19 Operation cell, Department of Health, Quetta, Balochistan, Pakistan

⁴Department of Medicine, Tropical Medicine, University of Mahasarakahm, Mahasarakahm, Thailand

Received: 26 May 2020

Revised: 09 July 2020

Accepted: 10 July 2020

*Correspondence:

Dr. Muhammad Samsoor Zarak,

E-mail: samzarak@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: COVID-19 cases are exponentially surging around the globe. At the time of study, Pakistan had 7,993 cases and 159 deaths. Out of these positive cases, 432 cases were from Baluchistan. Baluchistan being the South western province of Pakistan; is the basin of the first contact of the virus in Pakistan.

Methods: A retrospective study was conducted where data was included from the very first tested case up till 19th April 2020. A total data of 432 patients were acquired and analyzed using SPSS version 20.

Results: The proportion of males was 308 (71.3%), belonging to the middle age group 21-30 years (23.4%, n=101). Contrary to popular belief, 60.6% (n=262) of these cases had been infected by local spread, while only 28.9% (n=125) were pilgrims (Zaireen) returning from Iran. Moreover, 146 (33.8%) cases have been reported in just the last five days of acquired data. Quetta and Loralai have displayed the highest COVID-19 attack rate of 14 among all the other districts. Furthermore, the mortality rate was 1.15% and all cases were of age above 40 years.

Conclusions: There has been a rapid surge in several cases in Baluchistan, as portrayed herein. While this study depicts a fair picture of the COVID-19 demographic trend, the study has clear indications for the provincial, local spread that have been realized by this data along with a spike in cases in the last few days, which is maybe due to non-compliance to physical distancing rules.

Keywords: Baluchistan, Coronavirus, COVID-19, Pakistan

INTRODUCTION

After the emergence of a cluster of pneumonia cases of unknown etiology in Wuhan, China, the '2019 novel coronavirus' was declared as the causative agent for this outbreak in December 2019 by the World Health Organization. This new member of the coronavirus family, now officially termed as COVID-19, is responsible for causing Severe Acute Respiratory Syndrome (SARS-CoV-2).¹⁻⁶ Subsequent reports of exponential hike in cases

in China and multiple other countries came forward in the following two months leading to COVID-19 being declared a pandemic on 11 March 2020.⁶⁻¹⁵

The earlier cases of COVID-19 traced back to viral exposure from a seafood Market in Wuhan. However, the subsequent cases verified a secondary source of infection, i.e., human-to-human transmission through close contact with an infected person (droplet infection).¹⁰ COVID-19 is reported to have a higher transmission rate compared to

other members of the coronavirus family. It presents with symptoms ranging from mild to severe and sometimes even asymptomatic. The presentation of fever, cough, myalgia, complicated dyspnea, and pneumonia are among the most commonly reported symptoms.^{1,10}

At the time of writing this manuscript (19 April 2020), the total number of confirmed cases of coronavirus globally is 2,241,778, with a death toll of 152,551 cases even after rigorous containment and quarantine efforts.¹⁴ Meanwhile, in Pakistan, the current statistics reported are 7,993 cases and 159 deaths from coronavirus.⁷

Amid the initial cases in Pakistan, the numbers had hugely surged in two of its neighboring countries; China and Iran 8, with which Pakistan shares busy borders. Baluchistan is the South western province of Pakistan and it borders with Iran, the religious travelers (Zaireen) entering from Iran have introduced the COVID-19 in Pakistan on a bigger scale.^{11,13} Therefore, Baluchistan has significant regional importance in the outbreak in Pakistan. The study aimed to assess the demographics of the spread of coronavirus in Baluchistan since its first case up till 19 April 2020.

METHODS

This study was a cross-sectional, descriptive analysis in Baluchistan from 10 March (when first case was reported in Pakistan) till 19th April 2020. The study included those patients that tested positive with Real-Time Polymerase Chain Reaction (RT-PCR). Whereas, patients that were tested negative, were excluded from the study. A total of 432 cases have been analyzed in this study. The data was taken from the dashboard of COVID 19 cell supervised by Director General Health Baluchistan COVID-19. The COVID 19 operation cell manages the data for the COVID-19 and contains data for the demographics of the patient who were tested for COVID 19. The provincial COVID-19 operations cell supervised by the Government of Baluchistan with the collaboration of the World Health Organization (WHO), UNICEF, and the Field Epidemiology and Laboratory Training Program (FELTP) Pakistan. The data in the dashboard was de-identified, therefore, permission from ethical board was not needed. The data was analyzed on SPSS version 20. Demographic characteristics were summarized using descriptive statistics. Categorical variables were measured as frequencies and percentages. Data were grouped into age intervals, and cross-tabulations were made for desired characteristics.

RESULTS

A total of 5315 tests were conducted; among them, 432 were positive, and 4883 were negative, as shown in (Table 1) Among infected cases, 154 recovered, and five deaths occurred, while 273 are still active cases, as depicted in the pie chart (Figure 1). The demographic characteristics of patients infected with COVID-19 in Baluchistan are shown in Table 2. Maximum patients

reported were males 308 (71.3%), while 124 (28.7%) were female. The majority of patients 101 (23.4%) belonged to the age group 21-30. Considering the testing facility, the majority of tests 427(98.8%) were conducted in Fatima Jinnah Chest and General Hospital Quetta (FJCGH).

The route of the spread of the virus in Baluchistan (Table 3). It shows that the majority of people 262 (60.6%) were infected through the local spread, among which 165 (38.2%) were affected by contact with positive cases. Furthermore, 128 (29.6%) infected cases had a history of International travel, among which 125 (28.9%) were pilgrims returning from Iran at the Taftan quarantine center located at the Pak-Iran border. In comparison, only 8(1.9%) were infected by domestic travel. The prevalence of COVID-19 and its attack rate in each district of the province are described in (Table 4). Most of the cases 328 (75.9%) were from the Quetta district, while the attack rate of the virus in Quetta is observed at 14.

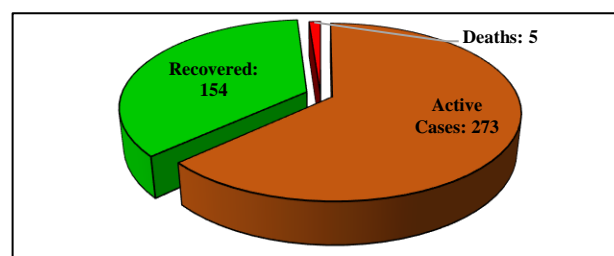


Figure 1: The status of the covid-19 positive cases till 19th April 2020.

Table 1: Frequency of the test results.

Total test conducted	Positive cases	Negative cases
5315	432	4883

Table 2: Demographic table.

Demographics	Frequency (N)	Percentage (%)
Gender		
Male	308	71.30
Female	124	28.70
Age group (in years)		
<1	1	0.20
1-10	16	3.70
11-20	53	12.30
21-30	101	23.40
31-40	95	22.00
41-50	81	18.80
51-60	44	10.20
61-70	25	5.80
71-80	4	0.90
81-90	1	0.20
Lab reporting site		
FJCGH	427	98.80
Taftan mobile lab	3	0.7

Table 3: C0VID-19 spread route.

Routes of spread	N	%	Point of Entry	N	Percentage (%)
International travel	128	29.60	Taftan (Pilgrims returning from Iran)	125	28.90
			Travel from Saudi	2	0.50
			Travel from UK	1	0.20
Domestic travel	8	1.90	Travel from KPK	2	0.50
			Raiwand Tablighi	2	0.50
			Travel from Punjab	3	0.70
			Travel from Karachi	1	0.20
Local spread	262	60.60	Contact with +ive case	165	38.20
			Self-Referral	88	20.40
			Refer from BINUQ	7	1.60
			SKBZ	2	0.50

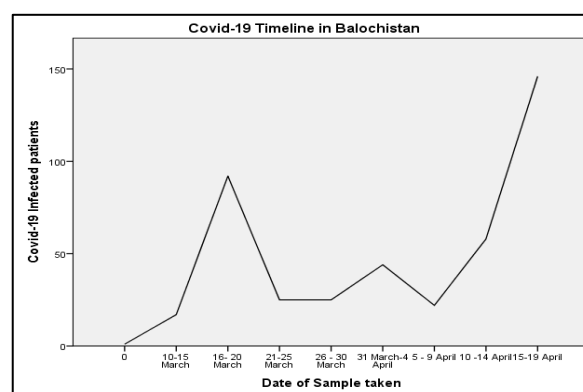
Table 4: Attack rate of COVID-19 in districts of Baluchistan.

Districts	Frequency (N)	Percentage (%)	Population	Attack rate
Quetta	328	75.9	2275699	14
Jafferabad	18	4.2	513813	3.5
Mastung	13	3.0	266461	4.8
Loralai	8	1.9	54758	14
Pishin	7	1.6	306177	2.2
Chaman	4	0.9	433768	9.2
Nushki	4	0.9	178796	2.2
Killa Abdullah	3	0.7	146915	2.04
Chaghi	3	0.7	58386	5.1
Kharan	2	0.5	73981	2.7
Harnai	1	0.2	75329	1.3
Kechhi	1	0.2	909116	1
Khuzdar	1	0.2	802207	1.2
Musakhaail	1	0.2	98265	1
Sibi	1	0.2	125320	7.9
Sohbatpur	1	0.2	200538	4.9
Taftan	1	0.2	18510	5.4
Zhob	1	0.2	253632	3.9

Table 5: Timeline of the positive cases.

Dates	Frequency (N)	Percentage (%)
10-15 March 2020	17	3.90
16-20 March 2020	92	21.30
21-25 March 2020	25	5.80
26-30 March 2020	25	5.80
31 March-4 April 2020	44	10.20
5-9 April 2020	22	5.10
10-14 April 2020	58	13.40
15-19 April 2020	146	33.80

There was a rise observed in the COVID-19 cases with each day in Baluchistan from the first reported case (Table 5). In the initial five days (10th to 15th March), the cases were 17 (3.9%), while in the latest five days' duration (15th to 19th April), the cases were 146 (33.8%) (Figure 2).

**Figure 2: Timeline of positive cases in Baluchistan.**

The route of viral spread with each day are shown in the (Table 6). Initially, the majority of the reported cases had a history of international travel, but as days passed, local

spread took the lead in further spread of the virus among the population.

Table 6: Virus spread timeline with its route of entry.

Dates	Route of virus spread		
	International travel	Domestic travel	Local spread
10-15 March 2020	11	0	1
16-20 March 2020	89	0	0
21-25 March 2020	11	0	3
26-30 March 2020	6	2	11
31 March-4 April 2020	8	3	33
5-9 April 2020	1	1	20
10-14 April 2020	0	1	57
15-19 April 2020	1	1	137
Total	127	8	262

Table 7: Characteristics of mortality.

Demographics	Deaths/mortality
Sex	
Male	3
Female	2
Age group (in years)	
41-50	2
51-60	1
61-70	2
District	
Quetta	5
Route of virus spread	
International travel	2
Domestic travel	0
Local spread	3

The characteristics of mortality are shown in the (Table 7). 3 out of 5 (0.6%) deceased were males. Among them, 2 (0.4%) were in the age group of 41-50 years, and another 2 (0.4%) were among the age group 61-70 years. All the deceased cases belonged to the Quetta district. While 3 (0.6%) of the deaths reported had a history of infection through the local spread.

DISCUSSION

Ever since the first patient infected with COVID-19 was admitted to the hospital on 12 December 2019, the world has seen a dramatic and catastrophic increase in the spread of this virus across every continent and almost every country of the world.¹² The rapid control and containment strategies adopted by China showed a reduction in new

cases, but countries like Italy, Spain, UK, Iran and most of Europe and the USA are still struggling to contain the spread and alleviate the burden over their health system.^{3,9}

The total number of confirmed cases in Italy as of 19th April 2020 have revealed the concerning number of over 175 thousand with Spain surpassing it with 191726 total cases being reported with a collective mortality rate of over 43 thousand. The current epicenter of the virus, USA is showing a very grim picture of the reach of this virus with over 30 thousand deaths being reported, it has become apparent that the world is facing this pandemic on relatively novel measures with an unprepared air.^{4,5,14}

In light of this rapid, we offer a first description of the confirmed cases in the province of Baluchistan, which is realized as the basin of the first contact of the virus in Pakistan. A total of 432 confirmed cases of COVID-19 have been reported from Baluchistan till 19th April. Among these cases, the majority belong to the age groups of 21-40 years old.

Comparatively, the number of confirmed cases in the province of Punjab is the highest reported of a total of 3,721, followed closely by Sindh with 2,537, and KPK with 1,237 cases reported by 19th April 2020. However, Gilgit Baltistan and Azad Jammu Kashmir and Islamabad show a relatively low number of 263, 51, and 181 confirmed cases. The highest mortality rate recorded was from the province of KPK, with 67 patients deceased, followed closely by Sindh with 56 deaths.⁴

The mortality rate of Baluchistan is recorded at 1.15% as of the day of this article being reported, i.e., 19th April, representing five deaths in the region. Most of the deaths were recorded in patients over 40 years of age. All of the deaths were reported from the district Quetta, and the majority of the deceased had contracted the virus through the local spread, with only two patients succumbing to the disease who had a travel history in the last few months.

The spread route of the virus was divided over the three main sources, with the primary source recognized as international travel. The religious pilgrimage of multiple communities in the months before Iran showed an alarming number of cases confirmed in Pakistan, on their return. The positive cases increased nine times in the space of a mere 40 days, highlighting another crucial point of the course of the entry of virus in the patients. The route of entry through the local spread of the virus was seen to increase by a drastic number of 137 by 19th April from a single case reported in March 2020. The attack rate was measured with respect to the disease burden of each district, showing district Quetta and Loralai in a most precarious position with an attack rate of almost.¹⁴ This concern of high attack rate is also observed in the district of Mastung and Jaffarabad with a relatively high percentage of 4.8 and 3.5 respectively.

A significant contribution of this study is that it provides the first account of the COVID-19 epidemic curves of Pakistan. We observed that the mortality rate is comparatively low at this time; a few probable reasons might be that the age group of patients positive with COVID-19. It may be due to the age factor that has led to a significantly low mortality rate. The geographical and socioeconomic barriers that are making access to timely diagnosis and treatment a big problem, which may also be leading to under-reported cases in Baluchistan. However, this is the first report from Baluchistan, and it may be difficult to predict the course of this virus and its impact in the coming future.

The data displayed herein is acquired first hand from COVID-19 Cell supervised by the Health Department of Government of Baluchistan and its collaborators that has maintained the validity of the data. All of the cases in this study were confirmed by RT-PCR, which is the only reliable screening test recommended by WHO to assure a COVID-19 patient. However, among the limitations of this study lie the fact that Baluchistan is the least population-dense province of Pakistan and lacks health-care centers. Therefore, limited testing facilities meant a limited number of people could be screened for the virus. Moreover, the data presented in this study does not include the comorbidities of any patients listed.

CONCLUSION

In light of this study, a clear picture of the current scenario of the spread of COVID-19 in Baluchistan is portrayed, with it being the first account of demographics being reported into the literature from the region. The study points out 60.6% of COVID-19 patients contracting the virus via the local spread with the highest attack rate coming forward from district Quetta and Loralai. Since Baluchistan has a scattered population with an underdeveloped healthcare system in rural areas, only limited testing has been performed so far, which must not be considered a score point for fewer cases in the region. As suggested by the study, the recovery rate is quite significant in the region, but proper follow up of the recovered cases is still highly recommended to ensure timely notifications to the authorities in case of any reinfections.

The sample of the study was taken from the dashboard of the COVID-19 operation cells. The data was de-identified, therefore, ethical approval was not required.

ACKNOWLEDGEMENTS

The authors acknowledge the assistance of Bolanians' Research Forum in providing analytical assistance.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Adhikari SP, Meng S, Wu YJ, Mao YP, Xue RY, et al. Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (covid-19) during the early outbreak period: a scoping review. *Infect Dis Poverty*. 2020;9:1-12.
2. Paul MD. Auwaerter coronavirus covid-19 (sars-cov-2). Available at https://www.hopkinsguides.com/hopkins/view/Johns_Hopkins_ABX_Guide/540747/all/Coronavirus_COVID_19__SARS_CoV_2. Accessed on 12 May 2020.
3. Bedford J, Enria D, Giesecke J, Heymann DL, Ihekweazu C, Kobinger G, et al. Covid-19: towards controlling of a pandemic. *The Lancet*. 2020;395:1015-18.
4. Fauci AS, Lane HC, Redfield RR. Covid-19 navigating the uncharted. *New Eng J Med*. 2020;382:1268-9.
5. Gates B. Responding to Covid-19 a once-in-a-century pandemic? *New Eng J Med*. 2020;382:1677-9.
6. Lee A, Morling J. Covid19: the need for public health in a time of emergency. *Public Health*. 2020;182:188-9.
7. Pakistan National Institute of Health. Daily Statistics of Covid-19 Pakistan. 2020. Available at: <http://covid.gov.pk/stats/pakistan>. Accessed on 3 May 2020.
8. Pakistan reports its fifth coronavirus patient arrived from Iran on February 28. Available at <https://gulfnews.com/world/asia/pakistan/pakistan-reports-its-fifth-coronavirus-patient-arrived-from-iran-on-february-28-1.70117687>. Accessed on 20 May 2020.
9. Remuzzi A, Remuzzi G. Covid-19 and Italy: What Next?'. *The Lancet*. 2020.
10. Riou J, Althaus CL. Pattern of early human-to-human transmission of Wuhan 2019 novel coronavirus (2019-nCoV), December 2019 to January 2020. *Euro Surveill*. 2020;25(7):20200220c.
11. Saqlain M, Munir MM, Ahmed A, Tahir AK, Kamran S. Is Pakistan prepared to tackle the coronavirus epidemic? *Drugs Therapy Persp*. 2020;36:213-4.
12. Epidemiology Working Group for NCIP Epidemic Response, Chinese Center for Disease Control and Prevention. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (Covid-19) China, 2020. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020;41(2):145-151.
13. The Express Tribune 1000 Pilgrims dispatched back home provinces. Available at <https://tribune.com.pk/>. Accessed on 12 May 2020.
14. WHO, 'Coronavirus Disease 2019 (Covid-19)-Situation Report – 90. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>. Accessed on 12 May 2020.

15. Who Director-General's Opening Remarks at the Media Briefing on Covid-19-11 March 2020. Available at <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020>. Accessed on 12 May 2020.

Cite this article as: Zarak MS, Arshad Z, Khan SS, Tareen AS, Kakar S, Sana H, Tareen HK, Nithikathkul C. The demographical analysis of COVID-19 in the South western province of Pakistan, an approach to analysing its low mortality rates. *Int J Community Med Public Health* 2020;7:2961-6.