

# Factors Leading to an Unexpected Early Control of Covid-19 in Pakistan

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## Abstract

**Introduction:** Different types of planning and strategies have been formulated following the rise of Covid-19 in an attempt to limit the spread and minimize both crises but the situation is still getting worse even in the developed states. Unexpectedly the rate of rising Covid-19 declined after June 2020 in Pakistan and the slope decreased to 8,884 active cases out of 313,984 confirmed cases till September 2020. In addition to this unexpected decline, a number of covid-19 related deaths. The fall in the covid-19 was unforeseen in this area and it led to curiosity regarding the factors that were responsible for this scenario. This study aimed to identify the factor (s) that may be responsible for the early control of covid-19 in Pakistan.

**Materials and Methods:** A country-based research project was carried out at the Northwest School of Medicine for a period of 6 months. A sample group of 877 individuals of both genders, age range from 15 to 80 years, belonging to various occupations, educational and socioeconomic backgrounds were included. A questionnaire on probably responsible factors for early control and shared with the participants. The factors included the strategies in knowledge, attitudes & practices, which were assessed to identify the preventive factor that was specific to this population.

**Results:** Although the population was well prepared for the pandemic and followed most of the preventive measures like the rest of the world, however, the most prominent factor identified was the lack of stress and optimistic attitude that may have been responsible for early control.

**Conclusion:** The optimistic attitude and low-stress levels not only decreased the disease spread but also reduced its morbidity level.

**Keywords:** Covid-19, unexpected control, morbidity, factors.

## Introduction

Corona-virus was an inciting panic for a number of reasons including, its new origin and hence no previously developed immunity or any available vaccine.<sup>1</sup> Therefore the virus behavior was uncertain. The origin dates back to December 2019.<sup>2</sup> The coronavirus disease was labeled as a pandemic by January 30<sup>th</sup>, 2020 by WHO.<sup>3</sup> The disease started spreading unchecked and till May 2021, globally there were 154,676,421 confirmed cases, including 3,233,394 deaths, reported to W.H.O.<sup>4</sup> W.H.O published a number of guidelines that were strictly applied.<sup>5</sup> However, the disease frequency kept rising exponentially, in some regions more than others.<sup>6</sup> Meticulous research was initiated for the development of a treatment and vaccines.<sup>7,8</sup>

The virus reached Pakistan by March 2020.<sup>9</sup> SOPs were strictly applied at the earliest and precautions were made mandatory but that did not stop the disease spread and the number of cases started increasing very rapidly, reaching a peak by June 2020 with a total of 108,273 active cases out of 213,470 confirmed cases.

However, unexpectedly the rate of rising declined afterward in Pakistan and the slope decreased to 8,884 active cases out of 313,984 confirmed cases till September 2020. In addition to this unexpected decline, the number of COVID-19 related deaths has been comparatively a lot less, adding up to a total of 6,507 deaths by September 2020 while 298,593 infected people recovered. This fall in COVID-19 was unforeseen in this area and it led to curiosity regarding the factors that were responsible for this scenario.

This study was directed at identifying the knowledge, practices, and attitude of the Pakistani population towards COVID-19 and also other general factors which could be responsible for effective control of the pandemic.

## Materials and Methods

Country-based research was carried out in the Northwest School of Medicine for a period of 6 months from 1<sup>st</sup> March to 1<sup>st</sup> September 2020. The survey involved volunteers from all provinces who interviewed people in their vicinity before and after the start of the Covid-19 outbreak. The study population was also searched and contacted via social media i.e. WhatsApp groups, Facebook, Instagram, and Twitter. The sample size was calculated to be 664 by OpenEpi keeping,

<i>Population size (for finite population correction factor or fpc)(N):</i>	22000000 0
Hypothesized % frequency of outcome factor in the population (p):	50%+/-5
Confidence limits as % of 100(absolute +/- %)(d):	1%
Design effect (for cluster surveys-DEFF):	

However, the number of consenting participants above the sample size was also included in the study making a total of 877 individuals of both genders, with ages ranging from 15 to 80 years and belonging to various occupations, educational and socioeconomic backgrounds. All the consenting participants were included in the study. Participants who could not be followed up later because of any issue were excluded. The questionnaire was developed from an extensive literature review and probably responsible factors for early control.<sup>10,11</sup> There were 12 questions for knowledge, 3 each for attitude and practices that explored the factors under these three headings. Except for the practice question, every question had 3 multiple choices (True, False, I don't know). Each correct question was given one point, and then all points were added to calculate the final score. Based on the final score, the most prominent factors were narrowed down and identified.

SPSS version 23 was used for data entry and analysis. Frequencies and percentages of the prevalence of various factors were measured. An Independent t-test was utilized to calculate and compare mean scores.

## Results

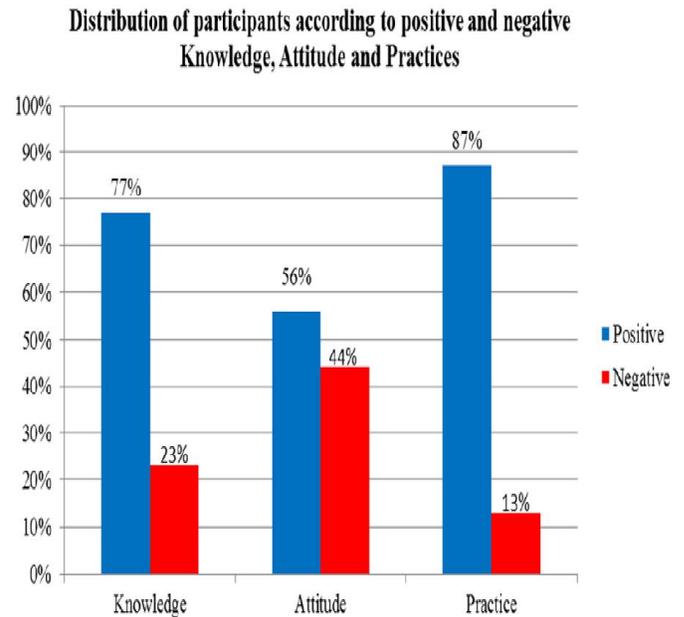
Among 877 participants, 455 (51.9%) were male and 422 (48.1%) were female. The minimum reported age was 15 while the maximum age was 80 years. The majority of the participants were in the age group of 21-30 years (64.2%). Almost half of the respondents 422(48%) had a bachelor's degree. (Table 1)

**Table 1: Demographical data of the study population (n=877)**

<i>Baseline Characteristic</i>	<i>Number of participants (N=877)</i>	<i>Percentage (%)</i>
<b>Gender</b>		
Male	455	51.9
Female	422	48.1
<b>Age Group</b>		
Less than 20 years	80	9.1
21 to 30 years	563	64.2

31 to 40 years	146	16.6
41 to 50 years	55	6.3
More than 50 years	33	3.8
<b>Marital Status</b>		
Married	313	35.7
Unmarried	564	64.3
<b>Educational Status</b>		
Middle School and below	9	1
Matric/O-level	13	1.5
FA/FSc/A-level	116	13.2
Bachelor's degree	422	48.1
Master's degree and above	317	36.1
<b>Occupation</b>		
Healthcare providers	215	24.5
Non-healthcare providers	662	75.5
<b>Number of Family members</b>		
Less than 4	75	8.6
Between 4 to 7	549	62.6
More than 7	253	28.8
<b>Family Monthly Income (PKR)</b>		
Less than 20,000	111	12.7
Between 20,000 to 50,000	250	28.5
Between 50,000 to 100,000	266	30.3
Between 100,000 to 200,000	154	17.6
More than 200,000	96	10.9
<b>Residence</b>		
Khyber Pakhtunkhwa	333	38
Punjab	117	13.3
Sindh	188	21.4
Balochistan	73	8.3
Gilgit Baltistan	25	2.9
Tribal Areas	11	1.3
Azad Jammu Kashmir	86	9.8
Islamabad	44	5

The majority of the participants had relatively good knowledge (85%), of the importance of social distancing (96%), and quarantine (95%). The overall attitude of participants was optimistic, 88% of them agreed that Pakistan can win the battle against the Coronavirus.



**Figure 1: Distribution of participants according to positive and negative knowledge, attitude, and practices of COVID-19**

\*Positive KAPs were defined based on the number of questions answered correctly in the questionnaire, with >50% correct answered labelled as positive

A total of 87% of the people were regularly using masks and 96% were practicing frequent hand washing. The mean knowledge score (maximum 12) was 9.24 ±1.76; while mean attitude and practices scores (maximum 3) were 1.68±0.58 and 2.68±0.56 respectively. (Table 2) (Table 3)

**Table 2: Factors Contributing to the Early Control of COVID-19**

Questions	True (%)	False (%)	I don't know (%)
<b>Knowledge Questions (K)</b>			
K1. The main clinical symptoms of Coronavirus disease 2019 (COVID-19) are fever, fatigue, dry cough, and muscle pain.	85.6	10.2	4.2
K2. Unlike common cold symptoms like stuffy nose, runny nose, and sneezing are less common in persons infected with the Coronavirus.	23.7	48.1	28.2
K3. There is currently no effective cure for Coronavirus disease, but early symptomatic and supportive treatment can help most patients recover from the infection.	87.8	2.2	10
K4. Not all persons with Coronavirus will develop severe symptoms. Only those who are elderly, have chronic illnesses, and are obese are more likely to become severe cases.	68.5	17.6	13.9

K5. Eating or touching wild animals would result in infection by the Coronavirus.	26.6	45	28.4
K6. Individuals infected with Coronavirus cannot spread the virus to others when fever is not present.	5.8	78.3	15.8
K7. Coronavirus spreads via respiratory droplets of the infected individuals.	84.9	4.8	10.3
K8. General public can wear simple medical masks to prevent infection by the Coronavirus	76.2	16.5	7.3
K9. It is not necessary for children and young adults to take measures to prevent infection by the Coronavirus	11.5	83.6	4.9
K10. To prevent infection by Corona Virus, individuals should avoid going to crowded places such as train/bus stations, Bazaar and avoid taking public transportation.	96.4	0.6	3.1
K11. Isolation and treatment of people who are infected with the Coronavirus are effective ways to reduce the spread of the virus.	95.8	1.3	30
K12. People who have had close contact with the Coronavirus infected individual should be immediately isolated in a proper place. In general, the observation period is 14 days.	95	1.5	3.5
<b>Attitude Questions (A)</b>			
A1. Do you agree that Coronavirus will be successfully controlled?	1.4	9.8	88.8
A2. Do you have confidence that Pakistan can win the battle against the Coronavirus?	76.7	10.3	13
A3. People can shake hands or hug each other because it has no association with the spread of Corona Virus.	4.6	90	5.4
<b>Practice Questions (P)</b>			
P1. In recent days, have you gone to any crowded places?	15.2	84.8	-
P2. In recent days, have you worn a mask when leaving home?	87.8	12.2	-
P3. Do you use hand sanitizer or wash your hands with soap for 20 seconds after coming home from outside or before touching your face?	96.4	3.6	-

**Table 3: Comparison of demographic characteristics with mean knowledge, attitude and practices score**

Demographics	Knowledge Score			Attitude Score			Practice Score		
	Mean	SD	P	Mean	SD	P	Mean	SD	P
<b>Gender</b>									
Male	8.96	1.95	.001	1.62	0.57	.001	2.64	0.59	.012
Female	9.55	1.48		1.74	0.49		2.73	0.52	
<b>Age Group</b>									
Less than 20 years	8.57	2.41	.001	1.58	0.58	.101	2.58	0.68	.292
21 to 30 years	9.40	1.65		1.70	0.52		2.68	0.56	
31 to 40 years	9.12	1.70		1.69	0.49		2.76	0.48	
41 to 50 years	9.03	1.53		1.67	0.57		2.69	0.57	
More than 50 years	9.12	1.99		1.48	0.71		2.66	0.59	
<b>Marital Status</b>									
Married	9.23	1.81	.773	1.66	0.55	.720	2.71	0.54	.341
Unmarried	9.24	1.70		1.68	0.53		2.67	0.57	
<b>Educational Status</b>									
Middle School and below	7.88	2.42	.001	1.77	0.44	.149	2.88	0.33	.806
Matric/O-level	7.69	3.14		1.69	0.63		2.61	0.65	
FA/FSc/A-level	8.95	1.76		1.57	0.57		2.68	0.59	
Bachelor's degree	9.33	1.73		1.71	0.50		2.69	0.55	
Master's and above	9.34	1.67		1.66	0.56		2.67	0.57	
<b>Occupation</b>									
Healthcare providers	9.77	1.2	.001	1.72	0.50	.789	2.70	0.50	.390
Non-healthcare providers	8.77	1.7		1.68	0.54		2.68	0.56	
<b>Number of Family members</b>									
Less than 4	9.33	1.64	.860	1.65	0.58	.777	2.84	0.43	.031
Between 4 to 7	9.25	1.67		1.69	0.53		2.69	0.54	
More than 7	9.20	1.98		1.66	0.54		2.64	0.62	

Family Monthly Income (PKR)									
Less than 20,000	8.63	2.10	.001	1.71	0.52	.181	2.63	0.68	.337
20,000 to 50,000	8.94	1.91		1.68	0.55		2.66	0.56	
50,000 to 100,000	9.36	1.60		1.65	0.55		2.74	0.52	
100,000 to 200,000	9.76	1.35		1.75	0.47		2.66	0.56	
More than 200,000	9.57	1.62		1.59	0.59		2.72	0.53	

About 44.8% of respondents chose social media. The second major source of knowledge was electronic media (18%) while 17% of the people gained knowledge from healthcare professionals. Almost 90% of the participants had a perception that the government is strictly dealing with this pandemic and that preventive strategies are adequate (Table 4).

**Table 4: Information Sources Regarding Covid-19**

Question	Yes	No	Yes, but not much
Have You searched literature regarding the COVID-19 pandemic?	90.3	3.8	5.9
Have you made preparations before the onset of the pandemic/lockdown in your country?	89.3	6.3	4.4
Did you spread awareness to your family and friends about the COVID-19 disease?	88.9	5.8	5.2
Do you strictly follow the government rules regarding Covid-19?	91	4.3	4.7
Do you make sure the rules regarding Covid-19 are being followed in your surrounding?	88.1	2.3	9.6
Are masks and sanitizers easily available in your locality?	89.3	4	6.7
If you get a chance will you do any volunteer work for the eradication of Covid-19?	81.2	9.5	9.4

## Discussion

On Wednesday, March 11, World Health Organization held a media briefing to declare the COVID-19 outbreak a global pandemic.<sup>12</sup> Very the preventive protocols were formulated to tackle the virus including activation of emergency mechanisms, isolation, and quarantine, tests were made available, social distancing was followed, use of masks, sanitizers, and public hygiene was made mandatory and a majority of the world went into the lockdown state, closing all the business as well as educational institutes for an undefined period of time with hopes to confine the spread of the disease.<sup>13</sup> However, even under strict policies and preventive measures, the virus could not be constrained in a large part of the world. The infected cases and death rate kept getting higher, while the research on treatment and vaccine was still in trials.<sup>14</sup>

Under the given circumstances where even the developed world was suffering to keep a check on the virus, it was highly unexpected for a developing country with limited resources like Pakistan to be able to control the pandemic. However, to everyone's surprise in September 2020, the rate of rising of COVID-19 started to fall. The death rate has been comparatively quite low in this area too, the recovery rate has been very high and disease morbidity has been reportedly low.

Our findings have shown that the majority of the study population had sufficient knowledge regarding COVID-19. Approximately 77% of the people scored excellent points on our knowledge scale. A comparative study from Malaysia depicts that 80% of their population had a significant level of COVID-19 knowledge.<sup>11</sup> Another investigation from China asserted that people were knowledgeable about the basics of COVID-19.<sup>10</sup> The good knowledge of participants may be attributed to the reason that the majority of the respondents had (84%) had a bachelor, master's, or a higher degree. An educated person has relatively better access to electronic, print, and social media that can enhance their knowledge. Besides 90% of our participants revealed that they searched various databases to learn more about COVID-19. A similar trend was shown in various other studies as in Nigeria 90% of the respondents had a bachelor's degree.<sup>15</sup> Studies from Malaysia and Saudi Arabia showed the same trend which was directly proportional to the good knowledge of participants.<sup>11,16</sup> In the present study, results have demonstrated that the practice of people towards COVID-19 prevention was brilliant. As 96% of the participants were frequently using sanitizers and soap hand washing while 87% of them were using face masks when going outside. Besides, 84% of the respondents avoided crowded places. The same results were retrieved from a Chinese study

where 98% of the people were using facemasks and 96% of them avoided crowded places.<sup>10</sup>

Attitudes towards the disease have been known to affect the disease outcomes for a long hence giving rise to placebo and nocebo effects.<sup>17</sup> Our study also focused on the reaction and attitude of the population towards the uprising pandemic and followed the stress level after the disease was full-blown. Around 88.8% of the population in the study had a very positive attitude and were ready but stress-free. These individuals were noted to have no symptoms, minimal symptoms, and complete recoveries even when they got infected. Studies conducted based on stress levels related to COVID-19 have shown a greater rise and severity of the disease in populations with high-stress levels.<sup>18</sup> An American study showed a high level of stress among the participants. In addition Journal of anxiety disorders states higher stress-related covid-19 infection acquisition as well as severity.<sup>19</sup>

## Conclusion

The study identified a number of factors that were probably responsible for the unexpected early control of Covid-19. Most of the population was well versed and well aware of the disease and its prevention protocols and had started following the regulations strictly. Government awareness programs and support further helped reduce the expected morbidity index. However, all these factors are also observed all over the world, yet the disease is going out of hand. We identified that the main reason for different disease statistics in this region was related directly to the positive optimistic attitude and mental steadiness and belief that the pandemic could be defeated.

## References

- Ahn DG, Shin HJ, Kim MH, Lee S, Kim HS, Myoung J, Kim BT, Kim SJ. Current status of epidemiology, diagnosis, therapeutics, and vaccines for novel coronavirus disease 2019 (COVID-19). doi.org/10.4014/jmb.2003.03011
- Wang C, Horby PW, Hayden FG, et al. A novel coronavirus outbreak of global health concern. *The Lancet* 2020; 395: 470–473. doi.org/10.1016/S0140-6736(20)30185-9
- Covid-19 Public Health Emergency of International Concern (PHEIC) Global research and innovation forum, [https://www.who.int/publications/m/item/Covid-19-public-health-emergency-of-international-concern-\(pheic\)-global-research-and-innovation-forum](https://www.who.int/publications/m/item/Covid-19-public-health-emergency-of-international-concern-(pheic)-global-research-and-innovation-forum).
- Covid-19 Live Update: 154,676,421 Cases and 3,233,394 Deaths from the Coronavirus - Worldometer, <https://www.worldometers.info/coronavirus>.
- Corley DA, Peek RM. COVID-19: Guidance for What Clinicians and Scientists Should Do and When. *Gastroenterology*. 2021 May 1;160(6):1922-3. doi.org/10.1053/j.gastro.2021.04.011
- Noorimotlagh Z, Jaafarzadeh N, Martinez SS, et al. A systematic review of possible airborne transmission of the COVID-19 virus (SARS-CoV-2) in the indoor air environment. *Environ Res* 2021; 193: 110612. doi.org/10.1016/j.envres.2020.110612
- Afzal A. Molecular diagnostic technologies for COVID-19: Limitations and challenges. *J Adv Res*. 2020; 26: 149–159. doi.org/10.1016/j.jare.2020.08.002
- Kaur SP, Gupta V. Covid-19 Vaccine: A comprehensive status report. *Virus Research* 2020; 288: 198114. doi.org/10.1016/j.virusres.2020.198114
- Abid K, Bari YA, Younas M, et al. Progress of COVID-19 Epidemic in Pakistan. *Asia-Pacific J Public Heal*. 2020; 32: 154–156. doi.org/10.1177/1010539520927259
- Zhong BL, Luo W, Li HM, et al. Knowledge, attitudes, and practices towards Covid-19 among chinese residents during the rapid rise period of the Covid-19 outbreak: A quick online cross-sectional survey. *Int J Biol Sci*. 2020; 16: 1745–1752. doi.org/10.7150/ijbs.45221
- Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *Plos one*. 2020 May 21;15(5):e0233668. doi.org/10.1371/journal.pone.0233668
- World Health Organization. Coronavirus disease (Covid-19): situation report, 166.
- Maipas S, Panayiotides IG, Tsiodras S, Kavantzias N. COVID-19 pandemic and environmental health: effects and the immediate need for a concise risk analysis. *Environmental Health Insights*. 2021 Feb;15:11. doi.org/10.1177/1178630221996352
- Han S. Clinical vaccine development. *Clin Exp Vaccine Res* 2015; 4: 46. doi.org/10.7774/cevr.2015.4.1.46
- Reuben RC, Danladi M, Saleh DA, Ejembi PE. Knowledge, attitudes and practices towards COVID-19: an epidemiological survey in North-Central Nigeria. *Journal of community health*. 2021 Jun;46(3):457-70. doi.org/10.1007/s10900-020-00881-1
- Al-Hanawi MK, Angawi K, Alshareef N, Qattan A, Helmy HZ, Abudawood Y, Alqurashi M, Kattan WM, Kadasah NA, Chirwa GC, Alsharqi O. Knowledge, attitude and practice toward COVID-19 among the public in the Kingdom of Saudi Arabia: a cross-sectional study. *Frontiers in public health*. 2020 May 27;8:217. doi.org/10.3389/fpubh.2020.00217/full
- Colloca L, Barsky AJ. Placebo and nocebo effects. *NEJM*. 2020 Feb 6;382(6):554–61. doi.org/10.1056/NEJMra1907805
- Park CL, Russell BS, Fendrich M, Finkelstein-Fox L, Hutchison M, Becker J. Americans' Covid-19 stress, coping, and adherence to CDC guidelines. *J Gen Intern Med*. 2020 Aug;35(8):2296-303. doi.org/10.1007/s11606-020-05898-9
- Asmundson GJ, Paluszek MM, Landry CA, Rachor GS, McKay D, Taylor S. Do pre-existing anxiety-related and mood disorders differentially impact COVID-19 stress responses and coping. *J Anxiety Disord*. 2020 Aug 1;74:102271. doi.org/10.1016/j.janxdis.2020.102271