The UIB Climatic Response on the Spread of COVID-19

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## CONTENTS

1. Introduction to COVID-19
2. COVID-19 & Climate
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What’s a Coronavirus?

A family of viruses affecting Respiratory Tract
Causing Disease from common cold to Pneumonia.
Usually lives in bats & other wild animals.
Transmitted to humans directly, or via other animals.
Can also transmit between humans via respiratory droplets,
CORONA VIRUS (COVID-19)  
Virus Structure

- RNA
- Hemagglutinin Esterase
- Membrane Protein
- Spike Glycoprotein
- Envelope Small Membrane Protein
CORONA VIRUS (COVID-19)

COVID-19 Epidemic Time Line

DEC 31
China alerts WHO to several pneumonia cases

Jan 7
France confirms Europe's first corona virus case

Jan 11
China announces first death from corona virus

Jan 13
WHO reports case in Thailand, the first outside Chania

Jan 30
China alerts WHO to several pneumonia cases

Feb 2
First death outside China recorded in the Philippines

Feb 7
Chinese doctor & whistle blower Li Wenliang dies

Feb 11
WHO names virus COVID-19

June 24
Total confirms cases in Pakistan 0.18 million

June 24
Total Death cases 3,000+
CORONA VIRUS (COVID-19)
Origin of the Virus Circulate in a Range of animals

MERS – COV
SARS – COV

???

2019 - NCOV

Range of Factors
Spillover
CORONA VIRUS (COVID-19)

Corona Virus Symptoms

- Shortness of breath
- High Fever
- Vomiting (In Some Case)
- Diarrhea (In Some Case)
- Coughing
- Pneumonia
CORONA VIRUS (COVID-19)
Prevention Measure of COVID-19

PREVENTION

Wash Hands with water and soap/Sanitizer, at least 20 Seconds
Avoid contact with sick people
Don’t touch eyes, nose or mouth with unwashed hands
Don’t eat raw food, thoroughly cook meat and eggs
Avoid contact with animals and animal products

IF YOU ARE INFECTED

Stay at home
Avoid Contact with others
Cover your nose and mouth when sneezing
Keep objects and surface clean
Wear a surgical mask
COVID-19 and Climate Response Over Different Parts Of The World
COVID-19 and Climate Response Over Different Parts Of The World

Fig. A spatio-temporal analysis for exploring the effect of temperature on COVID-19 early evolution in Spain.

Fig. Association of COVID-19 pandemic with meteorological parameters over Singapore.

COVID-19 Transmission

Meteorological Parameters

1. Temperature (°C)
2. Dew point (°C)
3. Pressure (hPa)
4. Relative Humidity (%)
5. Absolute Humidity (g m⁻³)
6. Water Vapor (g kg⁻¹)
7. Wind Speed (m s⁻¹)
8. Boundary Layer Height (m)
9. Ventilation Coefficient (m² s⁻¹)
COVID-19 and Climate Response Over Different Parts Of The World

**Fig.** The temperature and regional climate effects on communitarian COVID-19 contagion in Mexico throughout phase 1

**Fig.** Correlation between weather and Covid-19 pandemic in Jakarta, Indonesia
COVID-19 and Climate Response Over Different Parts Of The World

**Fig.** Association between the scaled transmission rate (STR) of COVID-19 and the meteorological parameter in China

\[ R = -0.56 \text{ (p value}= 0.01) \]

\[ K_{\rho'} = 0.07 \cdot (e^{-0.37T} + 17.84) \]

**Fig.** Temperature and precipitation associate with Covid-19 new daily cases: A correlation study between weather and Covid-19 pandemic in Oslo, Norway
# COVID-19 Current Situation in Pakistan

## Confirmed Cases

<table>
<thead>
<tr>
<th>Province</th>
<th>Confirmed Cases</th>
<th>Active Cases</th>
<th>Deaths</th>
<th>Recoveries</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJK</td>
<td>892</td>
<td>503</td>
<td>23</td>
<td>366</td>
</tr>
<tr>
<td>Balochistan</td>
<td>9,634</td>
<td>5,834</td>
<td>106</td>
<td>3,694</td>
</tr>
<tr>
<td>GB</td>
<td>1,337</td>
<td>353</td>
<td>23</td>
<td>961</td>
</tr>
<tr>
<td>Islamabad</td>
<td>11,483</td>
<td>6,363</td>
<td>108</td>
<td>5,012</td>
</tr>
<tr>
<td>KPK</td>
<td>23,388</td>
<td>13,148</td>
<td>855</td>
<td>9,385</td>
</tr>
<tr>
<td>Punjab</td>
<td>69,536</td>
<td>48,085</td>
<td>1,516</td>
<td>19,935</td>
</tr>
<tr>
<td>Sindh</td>
<td>72,656</td>
<td>33,131</td>
<td>1,124</td>
<td>38,401</td>
</tr>
</tbody>
</table>

## Total

- **Confirmed Cases**: 188,926
- **Active Cases**: 107,417
- **Deaths**: 3,755
- **Recoveries**: 77,754

![Map of Pakistan showing COVID-19 cases](image-url)
Pakistan’s Climatic condition and COVID-19
Pakistan’s Climatic condition and COVID-19

[Graph showing temperature trends in Islamabad and KP for COVID-19 cases and climatic conditions]
Pakistan’s Climatic condition and COVID-19
Pakistan’s Climatic condition and COVID-19
Pakistan’s Climatic condition and COVID-19

![Graph showing COVID cases and rainfall in Sindh](image1)

![Graph showing day light hours and total cases and deaths in Sindh](image2)
Pakistan’s Climatic condition and COVID-19
<table>
<thead>
<tr>
<th>Weather variables</th>
<th>Spearman correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature minimum/Tn (°C)</td>
<td>0.628</td>
</tr>
<tr>
<td>Temperature maximum/Tx (°C)</td>
<td>0.538</td>
</tr>
<tr>
<td>Temperature average/Tavg (°C)</td>
<td><strong>0.692</strong></td>
</tr>
<tr>
<td>Humidity (%)</td>
<td>0.012</td>
</tr>
<tr>
<td>Rainfall (mm)</td>
<td>0.039</td>
</tr>
<tr>
<td>Day Light (Hours)</td>
<td><strong>0.43</strong></td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.01 level (2-tailed).
Conclusion

- The weather is an important factor in determining the incidence rate of covid-19 in Pakistan.
- The regional climate parameters are important factors that may trigger the spread of the COVID-19.
- Average temperature, minimum temperature and air quality have significant correlation with COVID-19 epidemic.
- Regional climate associates significantly with the COVID-19 local transmission rate.
- The average daylight hours have a connotation with the spreading rate of pandemic disease.
Thank you