Article

Risk Management and Early Measures Taken by Pakistan to Combat with Novel Corona Virus (COVID-2019) in the Light of Global Health Security Index (GHS)

Wajahat Ali Ghulam 1,*, Jiuchang Wei 2

1 Wajahat Ali Ghulam; ali2019@mail.ustc.edu.cn
2 Jiuchang Wei; weijc@ustc.edu.cn
* Correspondence: ali2019@mail.ustc.edu.cn; Tel.: (0092-3435693853)

Abstract: This research paper is mainly aimed to elaborate the initial risk management and measures which government of Pakistan took towards Novel Corona Virus (COVID-2019). This initial response and planning was devised after the early outbreak of COVID-2019 in Wuhan, China in early time of January 2020. Pakistan devised a comprehensive plan that not to evacuate their student from Wuhan, China. The government of Pakistan in compliance with the National Institute of Health (NIH) devised and documented comprehensive plans such as the flight operations postponed related to Umerah pilgrims, which were intended to go to sacred places of KSA (The Kingdom of Saudi Arabia). The process of visa, immigration policy totally changed and the government of Pakistan notified it officially that, no new visas of visit, student, and business would be issued in due course of uncertainty due to COVID-2019. The government of Pakistan also announced medical emergency and notified through the country’s provinces the process of testing and treatment of COVID-2019. The government of Pakistan also allocated funds for medical supplies and named out the particular country’s best laboratories. The government of Pakistan also locked down all the cities with the emergency announcement that people should stay inside the home in quarantine or self-isolation.

NIH (The National Institute of Health) played a vital role in executing the planning to cope with COVID – 2019. The National Institute of Health responded as “The Centre for Disease Control”. In aid to the government, the national army of Pakistan responded in a proactive manner towards planed execution. The medical corps of Pakistan army dedicated themselves to treat the suspected patients of COVID – 2019. Due to plans, policies being documented, implemented in such a way productive way that from February 28, 2020 to till date there is not much critical situation and issues are not present. There are much productive results as there is not much boom in a rise of COVID-2019 patients. This lockdown under the authority of the provinces resulted in fruitful outcomes. (1) Background: On January 02, 2020, authorities of the People Republic of China elaborated that they have encountered with a novel type of infectious viral disease 2019. Later on January 12, the authorities from China elaborated the related sequence of Corona Virus diseases 2019 names as COVID – 2019. When COVID-2019 being identified in Wuhan, Hubei China, as an early response the Government of Pakistan in support of the National Institute of Health (Field Epidemiology & Disease Surveillance Division) published a health advisory about novel coronavirus; (2)

Methods: According to Global Health Security Index, Pakistan is ranked as 105th country
1. Introduction

Overview and introduction of Pandemic Situation COVID-19

On January 02, 2020, authorities of the People Republic of China elaborated that they have encountered with a novel type of infectious viral disease 2019. Later on January 12, the authorities from China elaborated the related sequence of Corona Virus diseases 2019 names as COVID – 2019. When COVID-2019 being identified in Wuhan, Hubei China, as an early response the Government of Pakistan in support of the National Institute of Health (Field Epidemiology & Disease Surveillance Division) published a health advisory about novel coronavirus (WHO, January 20, 2020). The countries around the globe encountered with a novel viral disease named as COVID-2019. However, according to many scientists of the globe, Coronavirus is not a new outbreak such as it is considered as a fifth type of Coronavirus names as SARS-VO2. It has related characteristics and evolving traits of epidemiology. Coronavirus is contained on the large number of families that might cause the illness and coldness phenomenon, severe level of diseases named as Middle East Respiratory Syndrome (MERS-CoV) in the year of 2012. As well as Severe Acute Respiratory Syndrome (SARS – CoV) in the year of 2003 (NIH, March 13, 2020). Contemporary level of strain of COVID-19, is novel one which has not been identified in humans in past times. As early, some people in the city of Wuhan reported some level of infections might be linked from seafood, concluded as animals to human being spread. Incremental level of patients reported that in the past they have not contact with animal. Both viral diseases such as MERS and SARS reported as known to have the cause of severe level of illness in the people. There is also many associations related to SARS – COV2 and which might be associated with COVID-2019. Even more, the results indicating several deaths reported in China, Japan, South Korea and other countries of the globe. There are many research
studies are still going on to find out the root causes of viral infection. According to World Health Organization, such public outbreaks are considered as public level of health concern. According to WHO, advisory all countries around the globe must curb some firm policies to detect and respond towards viral infectious disease as well as prepare great care for infected and potential patients, ensure efficient facilities in the hospitals and dedicated spaces, medical supplies, complementary staff, and lifesaving medical aids.

Statistics of World Wide cases to till date

According to worldometers.info/coronavirus, these are the statistics of COVID-19 as per April 10, 2020 and August 18, 2020.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1,760,468</td>
<td>4784</td>
<td>395,404</td>
</tr>
<tr>
<td>107,625</td>
<td>71</td>
<td>762</td>
</tr>
</tbody>
</table>

Source: Retrieved from covid.gov.pk and worldometers.info as per April 10, 2020

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22,397,244</td>
<td>290445</td>
<td>15,122,104</td>
</tr>
<tr>
<td>786,164</td>
<td>6201</td>
<td>272128</td>
</tr>
</tbody>
</table>

Source: Retrieved from covid.gov.pk and worldometers.info as per August 18, 2020

Global Health Security Index (GHS) about Pakistan

The Global Health Security Index (GHS) devised out a comprehensive level of assessment, being developed with the collaboration of Nuclear Threat Initiatives, Johns Hopkins Center for Health Security, and Economist Intelligence Unit, which is covering global health security linked with capabilities in 195 countries around the globe. The index of GHS enlisted the countries, which are efficiently prepared for epidemic or pandemic situations. The average scoring of all the countries around the globe is rated as about 40.2 out of 100. However, the high level of income possessing countries reported an average score of 51.9. The collective international level of responses from the countries around the world remained much weak.

Overall, the scoring system of GHS Index rated much level of weaknesses in the countries' preparedness towards detection and response to emergencies related to health. Many gaps being identified in the health system, the vulnerability of the political situation, socio economic activities and lack of paying attention to international regulations. The analysis in annual reports of the GHS Index found that no country depicts preparedness for situations like epidemics and pandemics. At large, the preparedness level of international counties is considered as much weak. Many countries around the globe, depicts not much evidence of the capacities of health security and the capacity to show the response towards prevention, detection, and to respond towards infectious outbreaks. Pakistan is ranked as the 105th country among 195 countries in GHS index. Overall Score of Pakistan is 35.5. The score of Early Detection & Reporting For Epidemics of Potential International Concern is 41.7. The Score of Rapid Response to and Mitigation of The Spread of An Epidemic of Pakistan is 38.7. The Score of Sufficient & Robust Health System to Treat the Sick & Protect Health Workers of Pakistan is 19.9. The Score of Commitments to Improving National Capacity, Financing and Adherence to Norms of Pakistan is 49.7. The Score of Prevention of Emergence or Release of Pathogens of Pakistan is 24.1. The Score of Overall Risk Environment and Country Vulnerability to Biological Threats of Pakistan is 38.7 (Index, 2019).

Risk Management Techniques to Combat Coronavirus by Pakistan

It was reported in a recent research study of results that developing countries like Pakistan has poverty, instability of the political system, the factor of terrorism as well as other epidemic and infectious diseases are present due to non-availability of healthy resources such as diagnostic and research laboratories. These are some risk management techniques to combat the corona virus (Khan, Siddique, Ali, Xue, & Nabi, 2020).

Isolation or monitoring technique

It is not feasible for Pakistan to completely lock down the country like China, because the country may face huge loss in terms of economy. Hence, is advised to enforce some primary level of prevention and isolation of
patients and potential suspected cases of coronavirus. According to these suggestions, the government of Pakistan also not completely lock down everything instead of a partial lockdown and some preventative measures (Tribune, March 20, 2020)

Robust Measures Technique

The research study of these authors also suggested that government of Pakistan must make robust measures to limit the movement of the international people, which may be infected of coronavirus. Therefore, government of Pakistan initially showed response towards coronavirus outbreak not to evacuate the students from the infected area of Wuhan, Hubei province, China to fight against nCOV-19. It resulted in much beneficial for Pakistan that from January 26 to February 25, 2020 that, “There were no cases of novel coronavirus reported in Pakistan just because of robust measure technique” (Web, March 24, 2020).

COVID – 2019 Cases in Pakistan

Pakistan reported its first case of the novel outbreak of COVID-2019 in Karachi on February 26, 2020. On March 13, 2020, The government of Pakistan announced a country wide rapid response towards to combat coronavirus such shutting down the borders with neighboring countries like Iran and Afghanistan, imposing ban on public gathering and closing all the educational institutions across the country till May 31, 2020. (Web, March 24, 2020). As per April 10, 2020, from 4695 cases, the death rate of the patients is 8 percent and the recovery rate is 92 percent. It means that the steps taken by Pakistan are much efficient that the fatality rate is much lower in comparison to the recovery rate (Pakistan, 2020).

The Background of COVID-19 cases in Pakistan

Major chunks of the COVID-19 patients were Shi’te Muslims pilgrims who were returning from religious sites of Iran. In Iran, it was reported the death statistics due to outbreak of coronavirus rose from 1800 and more than 2300 cases. According to the Pakistani nationals returned back from countries such as Saudi Arabia, Syria, Iraq, Britain and the U.S also reported as coronavirus patients (VOA, March 23, 2020).

Around every year, a large number of Shia Muslims from Pakistan travel to Iran to visit the sacred shrine. The outbreak of coronavirus happened in Pakistan just because of the majority of the pilgrims returning from the Iran, Taftan border. As the pilgrim resides almost in all of the provinces of Pakistan therefore, it considered as a potential risk of spread across country. In the start, the government of Pakistan sealed the 560-mile border with the neighboring country Iran. For some time, the government of Pakistan lingered on the return of thousands of pilgrim along far long areas of the border.

Government of Pakistan constructed a quarantine camp in Baluchistan, but due to far distant from city facilities, the government decided not to be responsible for the occurrence of health and security crisis. Therefore, to keep alive the pilgrim along far long areas of the border, the government allowed the pilgrims to enter into the country’s quarantine centers. As per 18th amendment, the provincial governments of Pakistan act as autonomous administrative units. Therefore, major counter measures to be taken by the provisional governments. In the start, the provincial governments imposed a lockdown, when there has not been much boom in the potential positive cases of coronavirus. The government of Pakistan was already stuck in economic crisis, as it has not much financial as well as medical preparedness to deal with the outbreak, nor the capability to completely lock down the country as much of the population’s per capita income is not much high. In recent times, the economy of Pakistan is struggling through stumbling situation. The final ending and contemporary stage will have much severe impact on the economic situation of Pakistan. Might be in future, the government of Pakistan report the high rate of unemployment figures. As well as, the government may face political crisis, as there is not much consensus across the political parties of the country (ANALYST, April 13, 2020).

Historical Occurrence of Corona Virus
181

Source: Compiled by the researcher based on the historical facts.
2. Results

Graphical Depiction of cases in Pakistan
Source: Generated by the researcher retrieved from http://covid.gov.pk/stats/pakistan
Outcome of total cases in Pakistan: Recovery Rate VS. Death Rate

Source: Generated by the researcher retrieved from http://covid.gov.pk/stats/pakistan

Recovery VS. Death Rate of COVID-19 Cases in Pakistan
5. Conclusions

The Recovery Rationale

Usage of antimalarial drugs

As new cases reported in Pakistan across different regions, the government of Pakistan in compliance with other provinces cooperated in such a manner that the recovery rate is growing day by day. In recent media reports and interviews of Chief Executive Officer of Mayo Hospital Lahore, elaborated that “In the various hospital across the province Punjab, antimalarial drugs with the mixture of other drugs depicted the positive recovery results towards coronavirus patients”. In recent updates, the U.S authorities of the drug also approved limited utilization of antimalarial drugs, chloroquine and hydroxychloroquine, for curing the coronavirus patients. According to official figures given by Dr. Aslam, “In last fifteen day eight infected patients of coronavirus have been cured by using these medicines. The doctor also elaborated briefly that after successive results of usage of these medicines in China, almost all the hospital in Pakistan will use these medicines as for their productive results”. The spokesman of the provincial government of Punjab told that government has the capacity of almost 50,000 such medicines (G. News, April 01, 2020).

Restrictions Imposed

“The lock down and other restrictions being imposed resulted in wide control the mass spread of the novel coronavirus”, said by Asad Umar, the federal minister of Planning and Development. Furthermore, the continuation of imposed restrictions would result in yield better productive results. In further details due to these precautionary measurements, there is no evidence of the escalation of the outbreak of coronavirus in the country as compared to Western countries where the number of cases as well as fatality rate is much high (T. News, April 02, 2020).

The evolving initial response of Pakistan and risk management of COVID-19

Lock down Decision by the government

First case of coronavirus reported in Karachi, Sindh. Hence, the provincial government of Sindh imposed lock down in the province. In compliance to impose the full lockdown across the cities of Sindh, the government called out the military support. As due to stumbling economic situation of Pakistan, the agenda of the federal government was to show the positive development towards the public health as well as to uplift the economy and save it major decline. Therefore, on March 24, 2020 not to hit the public at large by hunger and poverty, the federal government imposed the virtual lock down, by allowing the public to buy complementary food item and medicines from stores. Furthermore, on April 01, 2020 on examining the situation government of Pakistan extended the lock down till April 14, 2020 to combat COVID-19 (Web, March 24, 2020)

Not to evacuate students from Wuhan

As the novel coronavirus outbreak identified in Wuhan. The evolving response of the government of Pakistan in late January was not to evacuate about 500 students from Wuhan, Hubei Province, China. Due to the potential carrier of coronavirus, the government of Pakistan not evacuated its student from that city. However, the situation changed on February 26, 2020, when Pakistan reported its first case as the patient travelled from Iran and carried the virus (Web, March 24, 2020)

Border Shutdown and Suspension of Educational Institutions

On March 16, 2020, the government of Pakistan took the decision to shut the border with Iran, Afghanistan over the virus for two weeks. All technical institutions, public and private, at all levels, Education institutions across the country also closed. The federal government also announced that education institutions across Pakistan would remain closed until May 31. The government also announced that “the closure would be treated as summer vacation and if the coronavirus problem were resolved in the meanwhile, educational institutions would reopen in June” (AA, March 16, 2020)

Flight, Visa and Immigration suspension measures by Pakistan during COVID-19

Some people from Pakistan visit neighboring country Iran for business or religious visit. In the mean hour, Tehran was utilizing its efforts to combat coronavirus, the pilgrims started to return to Pakistan by air as well as land routes. At that time, the government of Pakistan too decision to suspend the flight operations from Iran. In addition, the screening process of the passengers started on airports. An isolation center was established with basic facilities to quarantine the pilgrim at Taftan in Baluchistan. On 28th January, 2020, the NIH (The
National Institute of Health of Pakistan) in compliance with aviation authorities issued Advisory on an outbreak due to novel coronavirus (Web, March 24, 2020)

**Role of the Pakistan Army to Cope with COVID - 2019**

The first response from The National Security Committee, an apex civil military coordination body emerged on March 13, 2020. Moreover, a delegation went out to Beijing, China to checkout complementary test kits and other related medical supplies to cure and stop the potential outbreak of virus (Stimson, March 24, 2020)

**Pakistan Deploys Army to Impose Coronavirus Lockdown**

On March 23, 2020, the Government of Pakistan in compliance with military forces decided to deploy troops to enforce thee lockdown of 220 million population to prevent the potential spread of an outbreak of novel coronavirus. The interior ministry of government of Pakistan deployed the troops in four provinces such as Punjab, Sindh, Khyber Pakhtunkhwa and Baluchistan. Later on, the military troops deployed to Pakistan Administered Kashmir, Gilgit Baltistan and in the line of control areas. In a press release issued by the media office of Pakistan military it was said that along with the troops of Pakistan army, the medical staff will also start its operations to combat the coronavirus (Gandhara, March 23, 2020)

**Pakistan Army Provided Medical Assistance**

Military representative, Major General Babar Iftikhar concluded in a statement “Under the instructions of government, the Chief of the Army Staff gave directions of the deployment of the troops as well as medical staff to combat the corona virus outbreak”. Furthermore, the army chief explained that the planning of government would be effectively enforced as per directions. Army will cover all the aspects of the disciplines and cooperation of the public at large. Furthermore, the COVID-19 testing laboratories have been established in most of the military hospital across the country and centralized laboratories at the Armed Forces Institute of Pathology (AFIP). The Pakistan army also initiated the help desk for the patients to track and handle the patients and potential infected people. The Pakistan army is also fully engaged in managing and assisting the federal government as well as provincial governments to combat the outbreak of novel coronavirus. Chief of Army Staff also gave directions to initiate maximum precautionary measures to assist and aid the civil administration for safety and wellbeing of the people of Pakistan at large (Tribune, March 23, 2020)

**Role of Pakistan Army Scientists**

On March 31st, 2020, a press release issued by ISPR stating that Pakistan army soldiers, Scientists, employees of the National Command Authority (NCA), Engineers and Strategic Plans Division (SPD) took part in the fight against coronavirus in such a way that they contributed their salaries to COVID-2019 Relief Fund. Scientists of armed forces are providing assistance to manufacture sanitizers and troops be being sent to the quarantined places. Army has finalized crisis and risk management strategy to defeat the virus. The Pakistan Army personnel are ensuring enforcement measures to curb the spread of the coronavirus in the country after being summoned under Article 245 (ISPR, March 31, 2020):-

- Employees of Pay Scale 11-14 - 3 days
- Employees of Pay Scale 8-10 - 2 days
- Employees of Pay Scale 1-7 - 1 day

**Three and Four star hotels to become coronavirus quarantine centers**

On March 04, 2020, According to NDMA, almost all the three and four-star hotel became coronavirus quarantine centers. All these centers equipped with necessary measurements and aid. The National Disaster Management Authority issued a letter in compliance with the federal government that all provinces of Pakistan must follow these directions. In the letter, NDMA also stated that all level of administrations took precautionary and measures of preventative against novel coronavirus as per guidelines of the World Health Organization. All the three and four-stars hotels allocate a single room for a single coronavirus patients (Samaa, March 19, 2020)

**The Biggest quarantine center in Pakistan**

On March 04, 2020, The Government of Punjab, Pakistan established the biggest quarantine center in Pakistan to combat the outbreak of novel coronavirus. Officials of the government of Pakistan concluded in statements “Quarantine centers in Multan will cater about 6,000 patients in once time”. The Corpse Commander of Army, Lahore also responded that military troops would assist and cooperate with the government of Punjab to stop...
the spread of outbreak (A. News, March 18, 2020). On March 22, 2020, the Government of Pakistan establishes a 1000-beds Quarantine Centre in Wazirabad. This big achievement was the result of the public and private partnership venture. The private NGO named as Muslim Hands International (MHI) educational complex's area was utilized. At a time, one thousand suspected patients of coronavirus would be kept in such quarantine center. MHI also aimed that it will provide food also donate Rs. 5 million to quarantine center (Nation, March 22, 2020)

The Quarantine centers in Pakistan Railways Coaches
On March 30, 2020, Pakistan Railway established Quarantine Center in train coaches. Six coaches have been used to set up the quarantine center. The quarantine center has the capacity of housing 50 patients at one time. The Railway’s minister said that train services will not start sooner as the country is in the grip of the coronavirus outbreak (Recorder, March 30, 2020)

Food / Medical Supplies by the government of Pakistan to the Combat COVID-19
The Ministry of Food Security and Research devised a plan and present to the National Food Security to assist the government of Pakistan. All the provincial government of Pakistan also depict preparedness to food security plans and must ensure the timely availability of food and ration to the people. In this regard, the government of Pakistan issued PKR 50 billion. The Minister of the State and Frontier Region visited Afghan refugee village in Kohat, and distributed food rations to 1000 refugee families. The UNHCR provided medical supplies and sanitation products (sanitary clothes, soap and disinfectants) to the health facilities in support of refugees and host communities in Baluchistan, Khyber Pakhtunkhwa and Punjab (NIH, March 13, 2020)

Pakistani Artificial Intelligence Company “Poulta” Developed a Portable Ventilator
Many companies have submitted designs and models of their own ventilators, which will be approved by a government-created committee after testing. A Pakistani startup of Artificial Facial Intelligence has also quickly developed a ventilator that has been introduced to the Pakistan Engineering Council (PEC) and Pakistan Disaster Management Authority (PDMA). In order to cope with the shortage of ventilators in the country, the Government of Pakistan has taken rapid efforts to bring together all the relevant public and private companies and technology product companies on one platform, who are instructed to present designs and models of ventilators.

“Poulta”, a Pakistani startup of Artificial Intelligence (AI), has also quickly developed a ventilator that has been introduced to the Pakistan Engineering Council (PEC) and Pakistan Disaster Management Authority (PDMA). He said that currently there is a shortage of ventilators worldwide and in Pakistan may not be able to get them immediately from other countries. If they are ordered from overseas, such ventilators cost from $10,000 to $12,000, while they have manufactured the same quality and similar ventilators for only $2200 e (Recorder, March 31, 2020)

The Prime Minister’s Corona Relief Tigers
On March 31, 2020, The Prime Minister of Pakistan imitated to launch Corona Relief Tigers. This force is a volunteer force, who would assist the government about the ground situation. The ministry gave a statement that all community level people can be registered in force as a volunteer through Prime Minister Office by registering online portal digitalized form. Interested people must provide their name, age, contact and a union council on required form to be part of force. The members from each union council will be given the task to deliver the food and ration to deserving people such as low wagers. These registered volunteers will work and report under the deputy commissioners of each district of Pakistan. The task force will be responsible of distributing the necessary food items to the needy people. This task force will also have close monitoring on potential patients from union councils (Nation, March 29, 2020)

Pakistan approved a financial relief package
Government of Pakistan approved about Rs. 1200 billion relief package to combat the potential and recent cases of coronavirus. The Economic Coordination Committee (ECC) elaborated that this financial package will be utilized as relief to different areas (Standard, March 31, 2020).

**Conclusion**

To till date, the government of Pakistan tried its level best to minimize the coronavirus cases as much as they can. However, the ending of the potential attack of an outbreak would depend upon the well organized and coordinated approach at all levels such as true directed decisions, fully preparedness, as well implementation and evaluation of continuous decisions. As the recovery rate of the cases is 98 percent and merely death rate is 2.1 percent, concluded that in future it would be a good sign to stop the potential outbreak. Also, lock down as well as precautionary measurement taken by the provincial governments resulted a decline number of COVID-19 cases in the country. Another good sign is that merely 4 percent population of Pakistan is of more than 60 years of old it can be concluded that there are less chances of mass death due to outbreak of COVID-19. Most of the population of Pakistan is youth, therefore, it is considered as an edge. Also the month of April and May are considered as having more temperature. The medical staff are indulged in curing the patients with antimalarial drugs, chloroquine and hydroxychloroquine. The results are much productive. In addition, the doctors of Pakistan are working on some more curing medicines such as by using the plasma of the cured patients and injecting them into patients. From all the steps, the decisions it can be concluded that very soon Pakistan will be in a position to say that we have controlled the new outbreak cases of COVID-19.

**Author Contributions:** Mr. Wajahat Ali Ghulam wrote up the paper. Jiuchang Wei validated the formulated, conceptualized the idea and scenario of paper.

**Funding:** “This research received no external funding”.

**Acknowledgments:** for technical support and guidance, researcher is thankful to Jiuchang Wei, professor at University of Science and Technology of China (USTC).

**Conflicts of Interest:** “The authors declare no conflict of interest.”

**References**


