COVID-19 pandemic control and administrative issues in Pakistan: How Pakistan mitigated both pandemic and administration issues?

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COVID-19 is wreaking havoc all around the globe, and Pakistan bears no exception. This study explores Pakistan's response toward controlling COVID-19 Pandemic from the day the 1st case was reported, February 26, 2020, in Pakistan until August 31, 2020. It explores the administrative conflicts among federal and provincial governments and political behaviors of political parties toward the COVID-19 pandemic by referring Government Response Index. By applying the ARDL model approach, results show that since the administrative harmony had been implemented in Pakistan in July 2020, its positive impact on combating the COVID-19 situation in Pakistan and substantial improvement in recovered cases and a downward trend new confirmed and fatal cases has observed in Pakistan. The findings demonstrate that administrative efforts scattered due to internal conflicts from February to mid-July 2020 have ended, and collective aggressive policy enforcement has been mitigating the adverse impact of COVID-19 in Pakistan since July to date. However, sustainable measures and prudent policy implications are needed to combat the ongoing COVID-19 pandemic and future calamities.

KEYWORDS
administrative conflicts, ADRL, COVID-19 pandemic, government of Pakistan, government response index, policy implementation

1 | INTRODUCTION

When nations were welcoming 2020, an uninvited and unexpected calamity called COVID-19 also appeared. A group of coronaviruses spread like a pandemic and engulfed the entire world in no time (Abbas, Xu, Sun, Ullah, et al., 2021a; Shim et al., 2020). Expecting that developing countries ought to face this pandemic's wrath the most, the actual situation was quite the opposite. Since this pandemic outbreak from Wuhan City of China on December 27, 2019, till today, China's fight against this problem was remarkable and appreciable. On the other hand, developed countries like United States, United Kingdom, Italy, France, and Spain have collapsed utterly in battling against this pandemic socially, economically, and psychologically (Mamun & Ullah, 2020; Moghanibashi-Mansourieh, 2020). Moreover, along with economic and social, world has also been facing climatic, energy shortage and development issues since the COVID-19 outbreak (Hoang et al., 2021; Le et al., 2020; Nguyen et al., 2021; Ullah, Pinglu, Ullah, & Elahi, 2021). The COVID-19 cases' situation is somehow better in developing countries; however, governance and response system issues ripped those countries to exposure, making the problem worse.

COVID-19 is wreaking havoc all around the globe, and Pakistan bears no exception. Pakistan is a developing country with a lower-middle-income category than the World Bank database (World Bank, 2020). However, since its inception, Pakistan has been facing economic deprivation, health, and socio-economic crisis precisely (Aslam, 2020). Aged 73 years, Pakistan did not have much significant
political stability and state agility in any socio-economic and governance indicators (Saqlain et al., 2020). These factors are critical to every country’s success, providing economic and social freedom and public well-being toward its masses. These variables did not show much progress in every elected government because of internal conflicts and external and other economic and non-economic factors, which becomes a more cause of economic deprivation in Pakistan. Political instability, political and ethnic conflicts are the biggest hurdles of Pakistan’s development. These conflicts and uncertainty are the consequences of bipartisan political regimes, federalism, devolution, and institutional corruption. It can be analyzed that until 2019, Pakistan has not been stable in terms of its political and internal encounters. Due to corruption and poor institutional governance, there is a lack of public confidence in the government (Muçollari, 2018).

This study has examined the current COVID-19 pandemic in Pakistan and its federal and provincial governments’ conflicts toward a policy implementation in tackling this problem using the Government Response Index (Ashraf, 2020; Hale et al., 2020). Nowadays, it is a worldwide hot debate about tackling this problem and eradicating it ultimately. Pakistan introduced this problem in late February 2020, and it has been showing an increasing trend throughout the country. Federal and provincial governments are trying to mitigate its effects and running various public service campaigns to create awareness among the general public; however, the results are still not promising (Abbas, Xu, & Sun, 2021b, 2021c).

This study attempted to explore Pakistan’s response system’s gray area, resulting in the further spread of COVID-19, as suggested by (Abbas, Xu, & Sun, 2021b, 2021c). It further analyzed that administrative conflicts and weak health response systems made the country vulnerable to current potential health crises. In the past, dengue fever spread in Pakistan is also one example of an inadequate health response system. Although the situation is somewhat better in Pakistan regarding COVID-19 cases than in other regional countries, it can worsen if effective strategies and action plans will not be implemented in the coming days (Ullah, Pinglu, Ullah, & Elahi, 2021; Ullah, Pinglu, Ullah, & Hashmi, 2021). This study attempted to examine the situation of administrative conflicts that hike the pandemic cases; however, this study gives an insight into this situation and provides a thought of provoking the government to affect their disputes to the state adversely. They should control the administrative conflicts and instability to draft effective public policies for future causalities.

2 | RESEARCH BACKGROUND

Since its inception, Pakistan has had different government styles, that is, democratic, autocratic, military, and bureaucratic (Aslam, 2020). Nevertheless, it failed to achieve its political stability in all regimes. The leading cause of this hardship is the tug of war for the command, that is, between federal and provincial administrations for policy implications. Affirmatively, Pakistan has been facing many likewise issues on which weak policy enforcement is observed due to this riddle of command and rule. On the other hand, a bipartisan political government makes public policy enforcement most unpleasant.

Public policy and political experts explained federalism as a governance model where the federal government coordinates and interconnects with the regional government and decisions (Dikshit, 1971). It further analyzed that this interconnection helps the government to useful policy implications across the country (Kincaid & Cole, 2002) and enhance the public institutional capabilities accordingly (Daumal, 2008; Lane & Ersson, 2005). Moreover, federalism helps to synchronize the institutions for the equal or appropriate distribution of resources among the regions, revitalizing public institutions’ outcomes in efficient manners without conflicts (Weingast, 2009). Federalism, along with national unity and harmony, also supports the governments to make healthy and productive international relations and treaties (Fisher, 2015) that lead to economic growth in developing countries (Baskaran et al., 2016), which has been surveyed and experienced by the public policy scholars (Marlin, 2016). Although federalism significantly impacts decision-making, no matter whether partisan or bipartisan political allies support the government. However, it also examined that it can create a conflict of interest among policymakers that intimate the shedding of political powers (Martin & Vanberg, 2020). Moreover, this friction or conflicts of interest in bipartisan political ideologies leads to inefficiency in policymaking (Abbas, Gillani, et al., 2020; Abbas, Xu, et al., 2020; Chan & Fan, 2020).

In terms of ideologies and political concerns, friction gives birth to other contrasting terminologies in political and public administration studies: Federalization and devolution. These terms describe the delegation of administrative strategies and later for political authorities for autonomous decision making (Bresser-Pereira, 2004). As some scholars supported federalism for decision making, others support devolution for economic growth at the regional level, where federalism cannot resolve the policy disputes (Balint & Mashinya, 2006; Hudson, 2006). However, scholars also have some cultural and regional concerns for devolution and do not fully support it (Rose & Miller, 2010; Tsukamoto, 2011). It further analyzed that devolution enhances ethnic and religious bonding; on the other hand, it arouses institutional corruption or misuse of powers if weakly controlled (Carlucci et al., 2017; Pozdena, 2018). However, in recent studies, it is also explored that devolution supports regional progress by taking demographic, social, health, and regional challenges and liaison with the federal government in policy implications, especially in developing and populated countries (Chan & Fan, 2020; Gaisie et al., 2019).

2.1 | Pakistan and structure of government

Since its inception 73 years ago, Pakistan has struggled for democratic and exemplary leadership (Asgar, 2013; Aslam, 2020). Pakistan comprises four provinces (Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan) and three special administrative regions (Islamabad Capital Territory, Azad Jammu and Kashmir, and Gilgit Baltistan). At the same time, the President is head of state, and Prime Minister is the head of
government. Moreover, more than a dozen political parties are working in Pakistan. However, among them, four are prominent, that is, Pakistan Tehreek-e-Insaf (PTI), Pakistan Muslim League-Nawaz (PML-N), Pakistan’s People Party (PPP), Pakistan Muslim League-Quaid-e-Azam (PML-Q), and Jamat-e-Islami Pakistan (JIP). Several parties worsen as everyone has their own political and national agenda for running the state (Martin & Vanberg, 2020).

This multiparty battle for the ruling has significantly impacted Pakistan's stability and progress. Pakistan has been facing a tug of political war for many years between federal and provincial governing. Especially since the announcement of the transformational devolution plan in 2000 for the precision of the federal and provincial government's rules of responsibilities (Ahmad & Akif, 2007). It further empirically analyzed that this plan or reform significantly impacted the institutional quality for public services outcomes, resulting from coordination among federal and provincial governments (Agranoff, 2011; Aslam & Yilmaz, 2011). It further explored that devolution or delegation of political power will help construct a strong constitution of Pakistan and develop a robust regional bonding among provinces (Myerson, 2014). However, some issues originate in its transition period (Lind, 2018), which needs to resolve with a healthy leadership system (Ahrens et al., 2020).

### 2.2 Pakistan response in health outbreaks

Being a developing country, Pakistan has been facing many socio-economic and health crises in the past, that is, earthquake 2005, flood 2010, dengue fever 2011, and recent COVID-19. World Health Organization has issued Pakistan's operational guidelines as an early disease warning system for health systems' preparedness from any uncertain epidemic (WHO, 2010). These programs address the danger of virus issues in developing countries, for example, dengue fever, SARS, MERS, and other virus issues. The dengue fever epidemic affected more than 50,000 people, with more than 300 deaths in different periods in 2011, 2015, 2017, and 2019 in Pakistan (WHO, 2019b). Although this virus affected Pakistan as a pandemic a couple of years ago, earlier than 2011, it never turned into an epidemic. It further analyzed that emerging infectious viral attacks are the most deadly in developing countries (Bakhsh et al., 2018; Khalil et al., 2017; Zubair et al., 2016). The dengue epidemic is linked with environmental changes and mainly outbreaks in the summer season due to mosquito biting; that is why proper awareness and early response system needs to be activated before it happens (Bakhsh et al., 2018). However, the development of a dengue emergency response committee, closure of Educational institutes, and imposed article 144 in the country was taken as preventive measures to mitigate its effects and control the situation.

As per the United States Centre for Disease Control and Prevention (CDC), most deaths occur in Pakistan due to virus-related diseases. In 2020, a novel coronavirus (COVID-19) pandemic was challenging and exposing Pakistan's response system (Faisal, 2020). COVID-19 has produced a global panic and chaos situation among public and health professionals since December 31, 2019, due to its unique contagious characteristics, making it challenging to track and control (Xiao, 2020). As per the Ministry of National Health Services Pakistan (NHS) and John Hopkins University Corona Resource Centre, as of August 31, 2020, more than 25,486,747 patients globally and 296,170 locally have been affected in Pakistan, although it hit Pakistan on February 26, 2020. As per the studies, Pakistan had to be vigilant because the response was not as quick as it would be (Nafees & Khan, 2020). So far, Pakistan does not have adequate measures and facilities (Quarantines and Isolations centers), making it unable to cope with this situation (Abbas et al., 2021b; Waris et al., 2020).

### 3 METHODOLOGY

This study has empirically analyzed the daily updates of all cases of the COVID-19 pandemic in Pakistan and government responses. The federal and provincial governments have implemented lockdown strategies, and social distancing awareness as control or mitigating measures has been taken under discussion that supported the results. The COVID-19 pandemic updates have taken from the Health Advisory Platform (HAP), an initiative by the Government of Pakistan (GOP), Humanitarian Data Exchange, World Health Organization, and time Horizon considered from the first date of the COVID-19 outbreak in Pakistan on February 26, 2020, to August 31, 2020.

Furthermore, data regarding Pakistan's Health facilities were collected from Economic surveys of Pakistan—Ministry of Finance, Pakistan, and Pakistan Bureau of Statistics, and the time horizon for these data are the financial years 2008 to 2018 or (last updated). A newly developed Government Response Index by the University of Oxford Research group3 examined the government policy (stringencies, socio-economic support to masses, and emergency health investment) toward COVID-19 worldwide and ranges value (0–100, on the scale of weak to strictest policy implementation) from January 01, 2020, to date (Abbas et al., 2021b; Hale et al., 2020). Further, later data was discussed to assess Pakistan's health care response system and the government’s strategies for controlling COVID-19 analysis at a federal and provincial level in Pakistan. In a nutshell, this study has applied the mixed approach of descriptive, theoretical, and empirical estimations to make this study comprehensive and novel concerning Pakistan and its battle to COVID-19.

### 3.1 Empirical estimations

This study applied the auto regressive distributed lag (ARDL) co-integration approach (Pesaran et al., 1999, 2001). In recent studies,
researchers analyzed that due to the co-integration approach ARDL model is one of the most common dynamic unrestricted modes used in ARDL literature nowadays (Ghouse et al., 2018). In further studies, scholars identified in a long and short-run analysis that autoregressive distributed lag model (ADRL) is suitable for taking appropriate Lags numbers, which help capture correlation in co-integration variables (Shrestha & Bhatta, 2018). In an ARDL model, two-step rooted in a long-run analysis; first, identify the long-run and second estimation of co-efficient in the long-run and short-run in the same equation (McCann et al., 2010; Sulaiman et al., 2019). In a more profound analysis, this study applied robustness tests: Durbin–Watson test and Breusch–Godfrey test for identifying the serial correlation and no correlation, Breusch–Pagan, and LM ARCH Tests to check the heteroscedasticity and Ramsey RESET Test for specification are the critical testing tactics for ARDL (Shrestha & Bhatta, 2018).

Model 1 equations equation can be written as follows;

\[ NCC_{it} = \beta_0 + \sum_{n=1}^{\infty} \beta_1^{(i)} NCC_{i,t-n} + \sum_{n=1}^{\infty} \beta_2^{(i)} GRI_{i,t-n} + \mu_{it} \] (1)

Model 2 equations equation can be written as follows;

\[ RC_{it} = \beta_0 + \sum_{n=1}^{\infty} \beta_1^{(i)} RC_{i,t-n} + \sum_{n=1}^{\infty} \beta_2^{(i)} GRI_{i,t-n} + \mu_{it} \] (2)

Model 3 equations equation can be written as follows;

\[ DC_{it} = \beta_0 + \sum_{n=1}^{\infty} \beta_1^{(i)} DC_{i,t-n} + \sum_{n=1}^{\infty} \beta_2^{(i)} GRI_{i,t-n} + \mu_{it} \] (3)

where NCC represents new confirmed cases, RC indicates recovered cases, and DC is the deaths indicator. While GRI represents the Government Response Index. Apart from that, \( B_0 \) is the constant value, whereas \( \mu \) serves as an error term. Cross-sectional units are detonated by subscript \( i \) and \( t \) denoted time.

3.2 Research framework

Based on the above literature and Pakistan’s current situation toward political decision-making and conflicts, this study draws a conceptual research framework, Figure 1, to describe the federalism and devolution organizational conflicts in Pakistan. This framework demonstrates the current scenario of organizational conflicts in Pakistan toward public policy implementations. It shows that due to a difference of opinion in decision making of federal and provincial governments get ineffective outcomes. Simultaneously, political harmony and unity toward policy implementation and enforcement get effective and fruitful results.

As per the public institutional quality rating by world development indicators, international country risk guide, and quality of government institutes, Pakistan has faced these administrative conflicts obstacles in policy effectiveness and political stability. In the recent studies of Hayat (2019), Nafees and Khan (2020) examined that Pakistan is politically unstable due to internal politics more than external factors and threats, which raised the ineffectiveness toward policy implementations.

![Conceptual framework](image-url)
4 | DATA FINDINGS AND DISCUSSION

4.1 | Data analysis

Tables A1 and A2 demonstrate health care facilities in Pan Pakistan and provincial breakup, that is, no of hospitals, doctors, nurses, hospital beds, and Pakistan’s health expenditures. It has shown that doctors and the para-medical situation show improvement with population growth with time; however, hospital beds and healthcare expenditures do not show much progress in this context. Appendix A3 illustrates the 2018–2019 and 2019–2020 total budgets and Pakistan’s provincial budget situation in health and research and development.

4.2 | COVID-19 analysis in Pakistan

This section, through tabular and graphic, analyses the COVID-19 trends within Pakistan. With and by applying the inadequate resources mentioned in Tables A1–A3, the Pakistan government has been battling with the COVID-19 pandemic. The below review used the dashboard data of COVID-19 as quantitative and lockdown enforcement as a qualitative mixed approach to evaluate Pakistan’s situation.

COVID-19 pandemic first struck Pakistan on February 26, 2020, when two cases were tested positive in Pakistan’s Sindh province. After that, it has been spreading across Pakistan. Figure 2 shows the updated situation in Pakistan. So far, 296,149 confirmed cases, 6298 deaths, and 280,970 recovered cases have already been reported in Pakistan in 6 months battle against the COVID-19 pandemic. As per the updated trend, Pakistan’s situation has been improving compared to the months ago.

However, the Government Response Index trend explained that the government policies toward the closure of vulnerable areas and institutes, government support to the economic sector, and investment in the emergency health sector and vaccine development have not been practical in controlling the COVID-19 situation in Pakistan. In the initial days, with the immediate closure of the state’s economic and social cycle, cases were on the low side; however, as the government relaxed its stringency policies situation had been horrifying. The overall scores show that the Government Response Index negatively correlated with COVID-19 cases (Ashraf, 2020). Hence, as the COVID-19 has been devastating worldwide same and Pakistan bears no exception. From the start of July 2020 to date, COVID-19 and government policies show a strong positive correlation, which is a positive sign toward the resumption of the country’s social, economic, and psychological aspects.

It was observed that in the 6 months of the pandemic in Pakistan, confirmed infected cases are 1575, deaths were 34, and recovered cases were 1495 per day. Furthermore, it shows that in August 2020, recovered patients showed significant improving trends (in the red squared area) in Figure 2, compared to confirm and instances of death. However, initially, the government could not tackle the situation just like the rest of the world.

As per the current constitution arrangement of Pakistan’s health system, the provincial government is accountable for providing health in the respective region, and the federal health ministry plays only a governing and policy implications role. Owing to this arrangement, the provincial response toward controlling the COVID-19 is crucial in this discussion. As per Tables 4 and 5, Sindh is the second most populous region and comprises more than 22% of Pakistan’s population. However, it shows more confirmed cases, around 44% of 296,149 patients across the country. A confirmed case and recovered cases indifference trend to Pakistan’s population has been observed in Punjab, Sindh, Khyber-Pakhtunkhwa, Balochistan, and Azad Jammu Kashmir.

FIGURE 2 Daily COVID-19 situation in Pakistan. Source: Humanitarian Data Exchanges sponsored by John Hopkins University USA, National Health Services, Pakistan and University of Oxford COVID-19 Project.
However, Punjab and Sindh, the most populous regions, were affected the most due to COVID-19. In Punjab, 96,832 cases, the death rate is 2.27%, and the recovery rate is 95.53%, while Sindh showed approximately 44% cases overall with 129,469 patients, and its death rate the recovery rate is 1.86% and 95.06%. The situation is observed in KPK. Where the fatality rate is 3.46%, and the recovery rate is 94.07% in its 36,118 cases. Simultaneously, KPK suffered from the most deaths to the confirmed case ratio so far, and the KPK, Punjab, Azad & Jammu Kashmir, and Gilgit Baltistan’s fatality rates are higher the overall Pakistan fatality rate, that is, 2.13%.

### 4.3 Discussion on Pakistan health emergency arrangement

COVID-19 struck Pakistan on February 26, 2020; however, the government has prepared no action or proactive strategy. Soon after, the National Command and Control Authority (NCCA), headed by the Military, took charge of emergency arrangement in Pakistan. International travelers’ screened at airports; however, no adequate or satisfactory measures have been observed, and resultantly after 3 weeks till late march, more than 750 cases were tested positive in Pakistan. World Health Organization stated that imported transmitted cases became the host of the COVID-19 in Pakistan. NCCA also confirmed that 42% are those in Pakistan who had returned from foreign countries, and due to inappropriate airport screening, restrictions, and borderlines with Iran and Afghanistan, these numbers multiplied, spreading the COVID-19 across the country with 58% cases locally transmitted. Currently, federal and provincial governments are trying to make efforts at best to overcome this pandemic.

### TABLE 1 Provincial share of COVID-19 situation

| Province    | % Share to total cases | Cases | Deaths | Recovered |
|-------------|------------------------|-------|--------|-----------|
| AJK         | 0.78                   | 0.01  | 0.76   |
| Balochistan | 4.35                   | 2.24  | 4.20   |
| GB          | 0.98                   | 1.06  | 0.89   |
| Islamabad  | 5.28                   | 2.78  | 5.34   |
| KPK         | 12.20                  | 19.85 | 12.09  |
| Punjab      | 32.70                  | 34.92 | 32.92  |
| Sindh       | 43.72                  | 38.15 | 43.80  |
| Total       | 296,170                | 6298  | 280,970|

Source: Authors Estimation. National Health Services, Pakistan (Data Compiled) last updated August 31, 2020.

### TABLE 2 Province wise health emergency arrangement by government of Pakistan

| Province | Designated hospitals | Isolation center | Beds | Quarantine center | Testing labs | Daily testing capacity | Ventilators |
|----------|----------------------|------------------|------|------------------|--------------|------------------------|-------------|
| Punjab   | 5                    | 50               | 955  | 10,948           | 35           | 17,610                 | 324         |
| Sindh    | 4                    | 4                | 151  | 2100             | 22           | 12,430                 | 200         |
| KPK      | 7                    | 110              | 856  | 2760             | 22           | 5510                   | 171         |
| Balochistan | 11             | 14               | 534  | 5897             | 6            | 1830                   | N/A         |
| AJK      | 3                    | 15               | 310  | 530              | 3            | 700                    | 12          |
| GB       | 4                    | 21               | 126  | 972              | 4            | 400                    | 6           |
| ICT      | 1                    | 1                | 10   | 350              | 15           | 7350                   | N/A         |
| Total    | 35                   | 215              | 2942 | 23,557           | 107          | 45,830                 | 713         |

Source: National Health Services, Pakistan last updated August 31, 2020.

*Figures depicted functional ventilators situation in government hospitals.
+N/A denotes data not available.

### TABLE 3 Partial lockdown enforcement conflicts and impacts on the COVID-19 situation in Pakistan

| Lockdown consistency | Period             | New cases | Deaths | Cases P/D during lockdown |
|----------------------|--------------------|-----------|--------|--------------------------|
| Pre lockdown phase   | 26 February to 23  | 784       | 5      | 29                       |
| (27 days)            | March              |           |        |                          |
| 1st phase            | 24 March to 6      | 2493      | 45     | 178                      |
| (14 days)            | April              |           |        |                          |
| 2nd phase            | 7 to April 14      | 2439      | 46     | 305                      |
| (8 days)             | April              |           |        |                          |
| 3rd phase            | 15 April to 30     | 10,043    | 250    | 628                      |
| (16 days)            | April              |           |        |                          |
| 4th phase            | May 1 to May 9     | 11,715    | 272    | 1302                     |
| (9 days)             | May                |           |        |                          |
| 5th phase            | 10 May to August 04| 252,987   | 5381   | 2907                     |
| (87 days)            | August             |           |        |                          |
| 6th phase            | 5 to Date          | 15,388    | 295    | 569                      |

Source: National Health Services, Pakistan and Authors Estimation.
Table 2 demonstrates the health emergency arrangement by the government of Pakistan across the country. In total, 35 hospitals were designated for the COVID-19 treatment with a 2942 bed capacity in 215 isolation across the country. Balochistan (Taftan) shares the border with Iran, which became the epicenter of this pandemic in Pakistan as it allocated more quarantined bed facilities 5897 for Zaireen (pilgrims from Iran). These Zaireen were placed at a quarantine facility if tested positive. Table 2 depicted that testing labs are inadequate in Pakistan, along with that testing kits are insufficient to tackle this situation. As of June 10, 2020, daily testing capacity (including public, private, and military hospitals) has increased in Pakistan across the country to 45,830 per day. As of August 31, 2020, 2,621,146 persons\(^4\) have been tested so far in Pakistan in 216 million population with 12,134 tests conducted per million population with an average of 14,323 tests per day in 188 days. These official statistics reveal that only 1.21% of the population has been tested yet in Pakistan, and the infected outcome is 11.30%.

It was observed that the COVID-19 is spreading its fear across the globe, including Pakistan. Being a developing country and politically unstable, it is a matter of concern about how Pakistan will cope with this situation. First officially locked-down and a preventative policy enforced into Pakistan by the Sindh Provincial Government followed by the Punjab Government and rest of the provinces on March 24, 2020. It analyzed that till March 23, 784 confirmed cases and five deaths have already occurred across the country. As per Tables 1 and 3 confirmed cases, Pakistan’s death rate is much worse than its regional countries, e.g., China, Iran, and India, from the first date reported until August 31, 2020. However, Pakistan’s delayed health response system came into action (Nafees & Khan, 2020). The health system in Pakistan under devolution (Ahmad & Akif, 2007; Aslam & Yilmaz, 2011) and their policy and preventive strategies also differ. That shows the indifference trend in adopting preventive measures and reflects the inadequate remedial measures to tackling the situation (Waris et al., 2020).

It has witnessed an unprecedented situation in Pakistan regarding austerity measures to tackle the condition\(^5\); however, decision-making was delayed. Its shows that governments are not following the international agencies recommendation and guidelines for its health response systems. WHO issued guidelines for Pakistan (WHO, 2010), an emergency health action plan (WHO, 2019a) globally, as well as European Union made an epidemic response system (Antofie et al., 2018) to tackling such a situation. Unfortunately, both were ignored in policy drafting; otherwise, the condition would not have been this painful. An article in Harvard Business School on March 27, 2020, criticized the global health response against the COVID-19, stating the world had not learned the experience of China, South Korea, Italy, and Iran.

It was observed that the difference of opinion and conflicts of opening the border with Iran between federal and provincial governments also ignited the heat among policymakers and institutions. Flight operations and industry closure have also been controversial. Despite social media awareness on social distancing, the government was unable to implement the lockdown completely. On April 15, 2020, the federal government relaxed lockdown for low risk and some other industries, which started the new debates among local governments; the Sindh government criticized the federal government’s decision while new cases and deaths increased in Pakistan. Another conflict was observed on May 1, 2020, where the federal government gave further relaxation in lockdown across the country in the construction sector and religious institutions; conversely, the Sindh government tightened its lockdown measures and restricted the people at homes. A blame game of the rising trend of the COVID-19 increasing trend observes between the Sindh government and federal

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\(^4\)https://data.humdata.org/dataset/total-covid-19-tests-performed-by-country

\(^5\)Hina Sheikh, COVID-19 Pakistan preparedness and response: https://www.theigc.org/blog/COVID-19-pakistans-preparations-and-response/
government (the same political party rules Punjab, Balochistan, and KPK provinces). However, no one is taking ownership of this worst situation; neither can enforce social distancing and preventative measures in the appropriate manners. Unfortunately, the federal and Provincial governments have failed to engage the public toward adopting preventative measures due to its internal administrative conflicts.

As of July 15, 2020, federal and provincial governments proposed the two-week complete lockdown across the country, but Sindh province refused this proposal and continues the partial lockdown and extended the tighten policy enforcement toward preventative measures. Sadly, these conflicting outcomes showed that policies have been ineffective yet regarding COVID-19 cases, which shows that policies lack effectiveness, as depicted in Table 3. However, for future policy measures, the government should consider the stringent guidelines by assuming socio-economic crises to control the COVID-19 trend and make a comprehensive policy to cater to future unforeseen calamities (Ashraf, 2020), and educate the public in a better way to adopt social distancing and other precautionary measures (Shim et al., 2020).

Table 3 depicted that government policy implementation has remained ineffective throughout the pandemic until the end of July 2020, mainly since May to July was the crucial time for Pakistan. Although the government response index shows a much higher value, the Government Response Index are stringency, socioeconomic, and health containment policies. Even by the imposed high degree of lockdown, health emergency measures, and economic support to the business sector, internal administrative conflicts and religious conflicts with socio-economic crises hinder policy effectiveness. As per the International Country Risk Guide (2019), Pakistan has faced a high degree of political, religious, and ethnic conflicts, obstructing ineffective policy implementation. During the COVID-19 pandemic, the same political and administrative battle has been witnessed among federal and provincial governments by implying lockdown, socio-economic and health policies, and the resulting hike of COVID-19 situation observed in Pakistan.

As Figure 2 illustrated, the more precise picture of policy implementation and its effectiveness. It depicted that the government's inconsistent policy implementation and relaxation in lockdown policies raise the cases of COVID-19 and still have been relaxing the policy terms. On the other hand, it depicted that increasing the testing capacity government has not diagnosed enough people. It also happened due to the misallocation of health resources in the health sector. Sindh province has not been equipped enough compared to its population ratio due to administrative conflicts between federal and Sindh provincial governments. However, by administrative harmony and unity, a better picture has been depicting on controlling the COVID-19 situation in Pakistan since July to date (Ayub, 2020; Abbas et al., 2021b).

4.4 | Results of descriptive and autoregressive distributed lag model statistics

Table 4 demonstrates the descriptive statistics of the data selected from February 26, 2020, to August 31, 2020. Table 5 depicts the correlation matrix of one independent variable, GRI, and three dependent variables NCC, DC, and RC. Results show that NCC and DC are positively correlated with GRI, while RC is negatively correlated with GRI. The analysis shows that with time, relaxation in policy implications in Pakistan has been observed. A high degree of policy enforcement but interval political conflict had a low positive impact on controlling the COVID-19 situation in Pakistan in a more profound analysis. However, even to a low degree, internal harmony and joint aggressive policy enforcement positively impact combating the COVID-19 crisis in Pakistan and hike the recovered cases, negatively correlating with the government response index.

By applying the ARDL approach in Table 6, results show that GRI has a more significant impact on recovered cases of COVID-19 in Pakistan with a 99% confidence interval at the Lag length 1. At the contract, NCC and DC show their significance with a 99% confidence interval at Lag length 3 and Lag 2, which indicates that GRI has a substantial impact on Pakistan's recovery situation. Findings suggest that based on enforcement policy confrontations, health containment efforts have been more efficient and positively impacted combating COVID-19. Health policy implementations on recovery cases show a positive trend with an R-square value of 0.2157. While a considerable positive impact on controlling and decreasing trend has been observing in NCC and DC in Pakistan with R square value 0.7998 and 0.7583 which indicates that new infection and fatality of COVID-19 has remained highly under controlled period due to massive spread situation in all over the world and aggressive policymaking in Pakistan after the initial 04 months of pandemic battle. Detailed ARDL results are demonstrated in Table 6.

4.5 | Robustness/diagnostic tests

Table 7 demonstrates the Long and Short Run relationship of the COVID-19 indicators and GRI situation in Pakistan, which indicates that in the long-run overall impact of policy enforcement has a more substantial impact on Pakistan in its initial 6 months battle. However, in the short run, the policy was not effective at all, and the COVID-19 situation had worrisome.

ARDL bound test shows the Cointegrating of the data in Table B1. In checking the robustness and autocorrelation in the data, the Durbin-Watson test, heteroscedasticity, Breusch-Pagan, Breusch–Godfrey LM, and Ramsey RESET test estimated showed in Tables B2–B4. A value of 1–2 shows a positive autocorrelation in robustness analysis, while 2–4 depicts a negative autocorrelation. The study results show a negative correlation or no correlation present in the data with values 2.038233 and 0.000, respectively. Another robustness analysis has run in STATA: Breusch–Pagan/Cook–Weisberg test and Lagrange Multiplier autoregressive conditional heteroskedasticity (LM ARCH) test to check the heteroskedasticity (refers to the error variance, or dependence of scattering, within a minimum of one independent variable within a particular sample) in data. In Breusch–Pagan and LM ARCH tests, the p-value of chi should be below 0.05 to reject the heteroskedasticity. The result shows a
### Table 6 ARDL regression analysis

| Model (1) NCC | Model (2) RC | Model (2) DC |
|---------------|--------------|--------------|
| L. NCC 0.340*** | L. RC 0.411*** | L. DC 0.262*** |
| –4.77 | –5.79 | –3.61 |
| L2. NCC 0.224** | L2. DC 0.340*** |
| –3.04 | |
| L3. NCC 0.365*** | L3. DC 0.318*** |
| –5.15 | |
| GRI –4.125 (–0.23) | GRI –16.1 (–0.32) | GRI –0.129 (–0.32) |
| L. GRI –7.932 (–0.31) | L. GRI –12.35 (–0.17) | L. GRI –0.0477 (–0.08) |
| L2. GRI –7.406 (–0.29) | L2. GRI –50.18 (–0.68) | L2. GRI –0.0133 (–0.02) |
| L3. GRI 24.23 | L3. GRI 77.73 | L3. GRI 0.169 |
| –0.97 | –1.06 | |
| L4. GRI –1.115 (–0.06) | L4. GRI –18.04 (–0.36) | L4. GRI 0.0797 |
| _cons –131.7 (–0.53) | _cons 2338.5** (–0.23) | _cons –1.28 (–0.23) |
| N (Days) 179 | N (Days) 172 | N (Days) 179 |
| F(8, 170) 84.87 | F(6, 165) 7.56 | F(6, 165) 66.66 |
| Prob > F 0.0000 | Prob > F 0.0000 | Prob > F 0.0000 |
| R-squared 0.7998 | R-squared 0.2157 | R-squared 0.7583 |
| Adj. R-squared 0.7903 | Adj. R-squared 0.1872 | Adj. R-squared 0.7469 |
| Root MSE 841.2035 | Root MSE 2436.0856 | Root MSE 19.1292 |

Source: Authors Estimation.

Note: *t* Statistics in parentheses, *p* < 0.05, **p** < 0.01, ***p*** < 0.001.

Abbreviations: ARDL, autoregressive distributed lag model; GRI, Government Response Index.

### Table 7 Long and short run relationship

|           | Model (1) | Model (2) | Model (3) |
|-----------|-----------|-----------|-----------|
| D. NCC    | D. RC     | D. DC     |
| Adj.      | Adj.      | Adj.      |
| L. NCC    | –0.0497   | –0.405sup>/sup> | –0.0702 |
|           | (–1.38)   | (–4.51)   | (–1.76)   |
| GRI       | 72.84     | –33.18    | 0.731     |
|           | –0.86     | (–1.31)   | –0.64     |
| Long run (LR) | | | |
| L2D. NCC  | –0.466sup>/sup> | –0.186* | –0.319sup>/sup> |
|           | (–5.48)   | (–2.45)   | (–4.44)   |
| L3D. NCC  | –0.157*   | _cons    | –1.094    |
|           | (–2.09)   | (–1.94)   | (–0.20)   |
| N         | 179       | 172       | 179       |

Source: Authors Estimation.

Note: *t* Statistics in parentheses, *p* < 0.05, **p** < 0.01, ***p*** < 0.001.

Abbreviation: GRI, Government Response Index.
p-value chi is 0.0435, which denotes that the null hypothesis of heteroskedasticity is rejected and heteroskedasticity is expected, and no arch effect is observed in data. Another diagnostic analysis was run by applying the Ramsey RESET test to check the linear regression model specification. Its value should be from 0 to 1, which shows no omitted variables and depicts a non-linear combination of the response’s fitted values variable.

5 CONCLUSION AND POLICY IMPLICATIONS

This study analyzed the COVID-19 situation in Pakistan in the background of conflicts between federal and provincial governments in coping with this pandemic. Moreover, the government response index and COVID-19 NDR (new confirmed, death, and recovered) cases have been taken under analysis. As per world governance indicators issued by The World Bank, the Internal Country Risk Guide and Quality of Government Institute shows that compelling Policy implications and regional administrative conflicts have remained a problem in Pakistan, which are also observed in the current COVID-19 pandemic. It has been summarized that differences between federal and provincial governments make the situation worse by analyzing the statistical data. It examined that the federal government’s initial reluctance on lockdown, which provincial governments opposed, also contributed to the rise in the number of new COVID-19 cases in Pakistan. Furthermore, for more profound and prudent policymaking, the Federal Government of Pakistan should bring all stakeholders on board so that one united message is conveyed to all regarding getting the COVID-19 situation under control and making a sound strategy to cater to future calamities.

The results show that since the administrative harmony had been implemented in Pakistan in July 2020, it positively impacts combating the COVID-19 situation in Pakistan and substantial improvement in recovered cases and a downward trend in new confirmed and fatal cases observed in Pakistan. The findings demonstrate that administrative efforts scattered due to internal administrative conflicts from February to mid-July 2020 have ended, and collective aggressive policy enforcement has been mitigating the adverse impact of COVID-19 in Pakistan since July to date. It concludes that, for more profound and prudent policymaking, the Federal Government of Pakistan should bring all stakeholders on board so that one united message is conveyed to all regarding how to get the COVID-19 situation under control and make a sound strategy to future calamities.

COVID-19 is affecting the world at an increasing rate with each passing day. As of August 31, 2020, 25,486,747 cases of the COVID-19 have been reported worldwide. Like any other country, Pakistan has also taken many measures to control this pandemic. Initially, the situation in Pakistan remained better as compared to other regional countries. However, it started to get worse quickly. Primarily because of the differences in policy implications between federal and provincial governments. The authorities estimate to have more COVID-19 positive patients by the end of the third quarter of 2020 with the second wave of COVID-19 if proper precautionary measures will not be taken seriously. However, as per the updated trend in July 2020, the situation of the COVID-19 is getting better in Pakistan compared to a few months ago, and the daily recovery rate is increasing and getting higher than in new cases. Furthermore, this happens because of deferral and provincial government same page initiatives with standard operating procedures toward COVID-19 policy implications, lacking in the initial days.

Similarly, the federal government’s decision to partially open up industries and businesses after the partial lockdown is also opposed by the Sindh provincial government. These differences have rendered the policy implementation regarding the COVID-19 ineffective. Moreover, Government Response Index denoted the policy inputs have been getting unfavorable outcomes until the end of June; however, the situation somehow improved from July to date. It is crucial for all stakeholders in Pakistan to join hands with each other and unanimously take policy decisions. Moreover, this paper suggests that all state institutions should avoid conflicting policies and take this pandemic to the front desk. All stakeholders, including religious and political scholars, should promote social distancing, a crucial preventive measure against the COVID-19. When all the stakeholders convey a standard message, implementing policy decisions regarding the COVID-19 will become much more effective in Pakistan as the country fought against measles, polo, and dengue in the past. Only in this way, the situation can bring under control. The fruitful administrative harmony is witnessed recently when The Economist issued a Global Normalcy Index6 in May 2021 and ranked Pakistan third in 75 global economies with 75% population of the world and hold 95% global GDP. This index shows how the government of the respective government has made prudent and excellent administration to get economic activities back after deadly COVID-19 waves. Moreover, a significant long-term conflict management policy is a dire need in Pakistan’s political system so that all political parties will work in emergencies as a unit and overcome the calamities.

5.1 Future research

This study focused on the civilian government’s policy perspective on the COVID-19 combating in Pakistan with empirical research due to limitations and updated policy measures. For future studies, the Military’s role and the civilian government on the COVID-19 pandemic can be analyzed. Furthermore, besides the authoritarian perceptive, attitude, and behavior of the general public toward complying with the guidelines and taking precautionary measures of the COVID-19 will be an excellent perspective to investigate the COVID-19 battling Pakistan. The impacts of the smart lockdown concept of Pakistan by partially lockdown the infected areas on controlling COVID-19 will also be analyzed from a policy perspective. Further, for future studies, a sound policy can cater to future emergencies by using this administration scenario. In future studies, a comparative policy analysis of

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6https://www.economist.com/graphic-detail/tracking-the-return-to-normalcy-after-covid-19
past and current epidemics/pandemics with their outcome will be an excellent approach to study, for example, dengue fever and COVID-19.

CONFLICT OF INTEREST
The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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### TABLE A1  
Health care facilities in Pakistan since 2008–2018

| Year | HCE % GDP | Hospitals | Doctor per population | Nurse per population | Bed per population |
|------|-----------|-----------|-----------------------|----------------------|--------------------|
| 2008 | 0.56      | 948       | 1229                  | 2547                 | 1544               |
| 2009 | 0.56      | 968       | 1205                  | 2428                 | 1674               |
| 2010 | 0.53      | 972       | 1186                  | 2356                 | 1592               |
| 2011 | 0.23      | 980       | 1170                  | 2295                 | 1647               |
| 2012 | 0.27      | 1092      | 1133                  | 2220                 | 1616               |
| 2013 | 0.56      | 1113      | 1111                  | 2163                 | 1557               |
| 2014 | 0.69      | 1143      | 1087                  | 2110                 | 1591               |
| 2015 | 0.73      | 1172      | 1054                  | 2054                 | 1604               |
| 2016 | 0.77      | 1243      | 1015                  | 2003                 | 1592               |
| 2017 | 0.91      | 1264      | 999                   | 2002                 | 1580               |
| 2018 | 0.97      | 1279      | 964                   | 1962                 | 1609               |

Source: Authors Estimation. Ministry of Finance (MOF), Pakistan and Pakistan Bureau of Statistics (PBS).  
Abbreviation: HCE, health care expenditures.

### TABLE A2  
Province wise updated healthcare facilities in Pakistan

| Area            | Hospital* | Beds*   | Doctors** | Nurses*** | Doctor per population | Nurse per population | Bed per population |
|-----------------|-----------|---------|-----------|-----------|-----------------------|----------------------|--------------------|
| Punjab          | 397       | 57,644  | 109,115   | 64,846    | 1010                  | 1700                 | 1926               |
| Sindh           | 473       | 40,502  | 80,789    | 35,000    | 593                   | 1368                 | 1182               |
| KPK             | 277       | 23,570  | 31,657    | 8410      | 1328                  | 5000                 | 1784               |
| Balochistan     | 132       | 7640    | 7012      | 1706      | 937                   | 3851                 | 860                |
| AJK****         | 24        | 2995    | 5619      | 1756      | 721                   | 2306                 | 1352               |

Source: * Pakistan Bureau of Statistics, Compendium Gender 2019 Report.  
**Pakistan Medical and Dental Council Statistics, 2019.  
***Pakistan Nursing Council Statistics, 2019.  
****A Special Administrative area under federal government.

### TABLE A3  
State and provincial budget allocation in health and R&D in Pakistan

| Head                      | Billion | FY2019-2020 | Share % | FY2018-2019 | Share % | Growth % |
|---------------------------|---------|-------------|---------|-------------|---------|----------|
| Total budget              | 7899    | 5062        | 50.65   |             |         |          |
| Provincial share to total budget |         |             |         |             |         |          |
| Punjab                    | 51.74%  |             |         |             |         |          |
| Sindh                     | 24.55%  |             |         |             |         |          |
| Khyber Pakhtunkhwa        | 14.62%  |             |         |             |         |          |
| Balochistan               | 9.09%   |             |         |             |         |          |
| Health                    | 11.08%  | 0.14        | 13.99   | 0.28        | -20.80  |          |
| Research and development  | 27%     | 0.34        | 19.03   | 0.38        | 41.11   |          |
| Public Sector Development Program (PSDP) | 1613 | 20.42 | 1200 | 23.71 | 34.42 |           |
| Sub-head of PSDP          |         |             |         |             |         |          |
| National health services  | 13.37%  | 0.83        | 8.13    | 0.68        | 64.45   |          |

Source: Pakistan budget financial year 2019–2020 Ministry of Finance (MOF), Pakistan.
APPENDIX B: (ROBUST AND VALIDITY TESTS OF ARDL)

TABLE B1  ARDL bound test analysis

**Pesaran et al. (2001) ARDL bounds test**

H0: no levels relationship $F = 1.805$

$t = -1.756$

|  | $[I_0]$ | $[I_1]$ | $[I_0]$ | $[I_1]$ | $[I_0]$ | $[I_1]$ | $[I_0]$ | $[I_1]$ |
|---|---|---|---|---|---|---|---|---|
| $L_1$ | $4.04$ | $4.78$ | $4.94$ | $5.73$ | $5.77$ | $6.68$ | $6.84$ | $7.84$ |

Accept if $F < \text{critical value for } I(0) \text{ regressors}$

Reject if $F > \text{critical value for } I(1) \text{ regressors}$

Critical values (0.1–0.01), $F$-statistic, Case 3

|  | $[I_0]$ | $[I_1]$ | $[I_0]$ | $[I_1]$ | $[I_0]$ | $[I_1]$ | $[I_0]$ | $[I_1]$ |
|---|---|---|---|---|---|---|---|---|
| $L_1$ | $-2.57$ | $-2.91$ | $-2.86$ | $-3.22$ | $-3.13$ | $-3.5$ | $-3.43$ | $-3.82$ |

Accept if $t > \text{critical value for } I(0) \text{ regressors}$

Reject if $t < \text{critical value for } I(1) \text{ regressors}$

$k$: # of non-deterministic regressors in long-run relationship

Critical values from Pesaran et al. (2001)

Variables: NCC, DC, RC, GRI

Source: Authors Estimation.

Abbreviation: ARDL, autoregressive distributed lag model.

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TABLE B2  Robustness autocorrelation tests

**Durbin-Watson $d$-statistic**

|  | Durbin-Watson $d$-statistic (6, 179) = 2.038233 | Breusch-Godfrey LM test |
|---|---|---|
|  | Durbin-Watson $d$-statistic (2, 182) = 0.3029669 | Lags (p) | Chi$^2$ | $df$ | Prob > Chi$^2$ |
|  | 2 | 139.003 | 2 | 0 |

Source: Authors Estimation.

**Breusch-Pagan/Cook-Weisberg test**

|  | LM (ARCH) test |
|---|---|
|  | Lags (p) | Chi$^2$ | $df$ | Prob > Chi$^2$ |
| Variables: GRI | 1 | 21.96 | 1 | 0 |

Chi$^2 (1) = 4.08$

H0: no ARCH effects vs. H1: ARCH(p) disturbance

Prob > Chi$^2 = 0.0435$

Source: Authors Estimation.

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TABLE B4  Ramsey RESET test of specification

|  | Ramsey RESET test of specification |
|---|---|
|  | Ho: Model has no omitted variables |
|  | $F(3, 177) = 23.86$ |
|  | Prob > $F = 0.0000$ |

Variable | VIF | 1/VIF |
|---|---|---|
| GRI | 1 | 1 |

Mean VIF | 1 |

Source: Authors Estimation.

Note: Specification: Ramsey RESET test using powers of the fitted values of NCC.

Abbreviation: GRI, Government Response Index; VIF, Variance Inflation Factor.