Original Research Article

Analysis about impact of Lockdown on Affected Cases due to Coronavirus Disease (Covid-19) in Pakistan by the Year 2020

Abstract

Objective:

The study has been carried to find impact of lock down on spread of COVID-19 by evaluating number of affected cases in lockdown and post-lockdown period.

Methods:

The study has been conducted retrospectively between 3rd March 2020 to12th November 2020 on number of affected cases reported in Daily Jang of Pakistan.

Results:

The data has shown an increase in percentage of increase of affected cases, growth factor and frequency of distribution immediately after lock down period.

Conclusion:

The pandemic disease has found to show a reduced pattern of affected COVID-19 in lock down period

Key words:

COVID-19, Lock down, affected cases

Introduction:

The coronavirus disease (COVID-19) emerged in Wuhan Hubei province of China where large number of patients presented with pneumonia of unknown etiology. Later between December 2019 to early 2020 disease spread nationwide and across the world. The World Health Organization (WHO) announced outbreak of the novel coronavirus disease as a public health emergency of international concern under the International Health Regulations (IHR) on 30th January 2020 and declared a pandemic on 11th March 2020 with affecting 169 countries and almost all continents. [1]

In order to curb the spread of coronavirus disease (COVID-19) the countries have taken preventive measures such as lockdown and restrictions of movements. The government implemented complete lockdown, closure of businesses and mosques, restriction of movements, and working at home to promote social distancing for stopping spread of disease. [1]

Many steps were taken by the government including Pakistan to tackle disease and minimize the damage caused by the pandemic. One of the first steps that government of Pakistan took was to limit spread of virus within the community by imposing well-planned lockdowns in all major cities which imposed during different hours in different regions and most of the public spaces. [2]

It was found that more than 500 students from Pakistan were living in affected area of China and assurance was given for care of students however yet it was demanded to remove the citizen from affected country. In the light of Hadith Muslim Scholars stated that it was not advisable to remove student of Pakistan from affected areas in Wuhan city of China. The advice of Muslim Scholars was based on the fact that it was advised in Muslim Sharia that in the epidemic area no person should be entered nor any body to leave so that spread of disease can be controlled.[3]

It was seen that as compared to post lock down period the cases of COVID-19 patients and growth factor results have shown a declining trend in lockdown in an observational analysis of 27 countries.[4]

A global lockdown has been imposed all over the world after declaration of COVID-19 disease as a pandemic. The purpose of lock down was to control the spread of disease. It has been suspected that by implementation of lock down spread of disease would have been controlled. The study has been carried out to evaluate that whether lock down has limited the disease or otherwise.

Null Hypothesis (H0) was that there was no relationship between lock and affected cases whereas alternate hypothesis (H1) was stating that there is relationship between lock down and affected cases. The research question in the study was defined as that lock down would have resulted in reduction in number of cases

Methodology:

The study has been conducted retrospectively where data pertaining to number of affected cases has been examined during and after lockdown period. A content analysis of affected cases has been made quantitatively to see outcome of lock down on COVID-19 pandemic. [3]

The study period was from 23rd March 2020 to 12th November 2020 where "235" days were divided in five (5) equivalent segments and each segment was in equivalence of lock down period i.e., 47 days.

The Daily Jang has been a leading newspaper in Pakistan and selected as instrument of study to find number of reported affected cases of COVID-19 during and after lockdown.

Since the lock down period was pertaining to 47 days therefore data has been collected in multiples of 47 days after lock down. First segment of 47 days was taken from 23rd March 2020 to 8th May 2020 because lock down was implemented in Pakistan on earlier date and later date was the last day of complete lock down period. Afterward data has been taken in multiple of 47 days till 27th September 2020 which has indicated start of second and end of first phase of pandemic.

Data Analysis:

The data has been evaluated for independent/dependent variables, lock down, percentage of increase/decrease, increase/decrease in number of cases, growth factor and frequency of distribution.

Independent variable is the cause while dependent variable is effect [5]. Lock down has therefore been labeled as a causative factor in the shape of independent variable whereas presence or absence of lock down on different outcome factors has been taken as dependent variable consisting of affected cases, percentage of increase, growth factor and frequency distribution.

Increase/Decrease in Number of Cases(Table-2)have found by calculating as;Increase in Number of Cases = No of cases in desired post lock down period - No of cases in lock down period/No of cases in lock down period*100

The growth factor has been the ratio by which a quantity multiplies itself over time. where it equals to number of cases attained on daily cases divided by cases on the preceding day. A growth factor of more than 1.0 indicates an increasing pattern of prevalence, whereas values between below 1.0 show a declining pattern.[4](Table-3)

In analyzing frequency of distribution maximum number of cases has been placed in descending pattern to observe occurrence pattern of disease in pandemic.(Table-4)

Results

It has been seen that numbers of affected cases were at lower side during lock down period with percentage of 7.45 whereas highest percentage (47.04) was observed in period immediately after lock down which was found to be subsequently reduced unless start of second phase of pandemic which have to be started by the end of September 2020. Table-1

It has been observed that a huge percentage of increase has been observed immediately after lock measured as 531.46 percent which is subsequently reduced till end of September 2020 when second wave of lock down has been started.Table-2

Growth factor of COVID-19 cases indicate that maximum growth (6.31) occurred in the immediate post lock down period which has subsequent decrease till start of second phase of pandemic 2020.Table-3

The analysis of data regarding frequency of distribution indicate that maximum number of cases (164244) immediately has been seen in the segment after lock down which found to be reduced till end of first phase.Table-4

Table 1: Percentage of Number of Cases:

Lock Down Period	**Date**	**Affected Cases**	**Percentage**
47 days Lock Down	23-03-2020 to 8-5-2020	26010	07.45
1st 47 Days after Lock Down	9-5-2020 to 24-06-2020	164244	47.04

2nd 47 Days after Lock Down	25-06-2020 to 10-08-2020	93966	26.91
3rd 47 Days after Lock Down	11-08-2020 to 26-09-2020	24565	07.03
4th 47 Days After Lock Down	27-09-2020 to 12-11-2020	40411	11.57

Table 2: Increase/Decrease in Affected Cases:

Lock Down Period	**Date**	**Affected Cases**	**Percentage**
47 days Lock Down	23-03-2020 to 8-5-2020	26010	NA
1st 47 Days after Lock Down	9-5-2020 to 24-06-2020	164244	531.46
2nd 47 Days after Lock Down	25-06-2020 to 10-08-2020	93966	261.26
3rd 47 Days after Lock Down	11-08-2020 to 26-09-2020	24565	-05.55
4th 47 Days After Lock Down	27-09-2020 to 12-11-2020	40411	55.36

Table 3: Growth Factor

Lock Down Period	**Date**	**Affected Cases**	**Growth Factor**
47 days Lock Down	23-03-2020 to 8-5-2020	26010	NA
1st 47 Days after Lock Down	9-5-2020 to 24-06-2020	164244	06.31
2nd 47 Days after Lock Down	25-06-2020 to 10-08-2020	93966	00.57
3rd 47 Days after Lock Down	11-08-2020 to 26-09-2020	24565	00.26

4th 47 Days After Lock Down	27-09-2020 to 12-11-2020	40411	01.64

Table 4: Frequency of Distribution

Frequency	Lock Down Period	Dated	Affected Cases
1	**1st 47 Days after Lock Down**	9-5-2020 to 24-06-2020	164244
2	**2nd 47 Days after Lock Down**	25-06-2020 to 10-08-2020	93966
3	**4th 47 Days After Lock Down**	27-09-2020 to 12-11-2020	40411
4	**47 days Lock Down**	23-03-2020 to 8-5-2020	26010
5	**3rd 47 Days after Lock Down**	11-08-2020 to 26-09-2020	24565

Discussion

Nadia Noreen et.al found that absolute lockdown resulted in slowing down of infection rate but due to the frail economy and the vulnerable class, the lockdown restrictions were eased in phases since Mid-May, resulting in a burst of infections at the end of May 2020. We agree with Noreen where we observed same findings in our results which have shown reduced affected cases during lock down period which increased to around sixty percent immediately after end of lock down.[6]

It has been found by Ghosal et.al that lockdown has proven to be an effective strategy in slowing down the SARS-CoV-2 disease where progression for both spread of infection and death rate exponentially. The same finding has been observed in our study where it has been that infection and mortality was found lower in lock down period which has shown a huge surge immediately after lock release of lock down.(7)

Shafiun Nahin Shimul et.al has suggested that relaxation of lockdown measures negatively impacts the epidemic. We have found the same findings where it has been seen that relaxation of lock down has shown huge increase in number of cases as well death. (8)

It has been found by Shimul et.al about about negative impact of prolong lockdown measures on health and economy and recommended a balanced approach by taking economy in under consideration. In this regard we are of opinion that any strategy on the name of economy which put the lives at risk of mortality can't be recommended and therefore a balanced approach should be critically evaluated and concluded to formulate any strategy.(8)

It has been pointed by Jinan Abdul Ameer Abbas about importance of emphasizing need for proper planning and management of the region resources as well as environmental protection for sustainable development. We agree with Abbas that by proper planning with utilization of resources in justified manner could be major factor in control of not only outbreak or epidemic but as well as a bigger pandemic like Covid-19.(9)

Andrew J. Stier stated in their study that early pandemic COVID-19 case growth rates increase with city size and found that early in the outbreak COVID-19 spread faster in larger cities. Our data has not been limited to larger cities but rather it was taken from whole of the country where we have also found same finding about higher growth rate in early outbreak which found to be reduced with passage of time in the pandemic.(10)

Sawsan et.al found increasing number of Kawasaki-like disease in patients with COVID-19 continues to be reported worldwide. It was pointed by them that possibility of facing the emergence of COVID-19 post -infective complications high, urges us to set a systematic clinical, biological and echocardiographic follow-up of all patients who had infected with COVID-19.We have observed second phase of pandemic before end of 2020 and agrees with Sawsan that existence of post covid-19 complications can't be excluded due to new viral disease.(11)

Ahasan Ullah Khan et.al stated COVID-19 has spread rapidly to sixty-four districts in Bangladesh. The continuing occurrence of COVID-19 infections has emphasized the importance of the quick laboratory diagnoses to limit the spread as well as befittingly treat. In this situation,

people should avoid public gathering places as much as possible and return home as soon as possible after finishing work. We agree with Khan where it has been seen in our study that about 50 percent of observed cases occurred in immediate post lockdown period and as well 531.46 percentage increase has been seen after lockdown indicating rapid spread of disease and suggesting limitation of movement particularly in public gatherings due to contagious nature of disease.(12)

It is proved by Bushra Shamshad et.al from the canonical correlation analysis that adequate knowledge regarding communicable disease like HIV/AIDS leads sympathetic attitude towards the infected persons. Due to false conception regarding transmission it was recommended to conduct workshops on the awareness in educational programs. We agree with Shamshad that carrying out workshops on importance of lockdown and preventive measures to enhance awareness would have not only reduce the stigma but as well as reduction in the incidence of disease.(13)

Study carried out by Shahid, R., Zeb et.al has shown that occurrence of second phase of pandemic from 28th October 2020 with 750 cases per day. Our study has also shown start of second phase of pandemic in fourth 47 days period which was lying between 27th September 2020 to 12th November 2020 and indicate the same period with almost similar number of cases.(14)

The result have shown lock down has shown decreased number of cases as evident from data where percentage of affected cases raised from 5.47 in lock down period to 34.57 immediately after end of lock down which however afterwards shown to be invariably reducing pattern unless second wave of COVID-19 started in December.

The percentage of mortality(31.89)was found highest immediately after end of lock down which was 6.17% in indicating that quarantine measures in lock down has reduced mortality ratio. The death percentage found to be reduced unless second wave of CIVID-19 started.

Conclusion

The lock down has resulted in limiting spread of disease and huge surge in number of affected of COVID-19 affected cases were observed in immediately after lock down. However number of affected cases were found to be subsequently reduced unless start of second phase of pandemic

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