ImpactofLockdownonCOVID-19affectedpeople-Analysisin PakistanbytheYear2020

Abstract

Objective:

The study has been carried to find impact of lockdown on spread of COVID-19 by evaluatingnumber of affected cases in lockdown and post-lockdown period. The study was conducted toanalyseswhether lockdown haslimited spread ofdiseaseor otherwise.

Methods:

The study has been conducted retrospectively between 23rd March 2020 to 12th November 2020on number of affected cases reported in Daily Jang Newspaper of Pakistan. Since lockdownperiodwas47days,thereforedatawascollectedinmultipleof47toevaluateresultsinlockdown and post lockdown period.

Results:

Immediately afterlockdowndatahasshownanincreaseinpercentage(47.04),increaseofaffected cases (531.46), growth factor (6.31) and frequency of distribution (164244). Lowerincidencewas observed inlockdown with anumberof 26010 bearingpercentageof 7.45.

Conclusion:

The lockdown has limited spread of new viral disease (SARS-CoV-2) with reduced number ofaffected cases and huge increases in number of cases were observed immediately after lockdown.The number ofaffectedcases were found to be subsequently reducedunless start of secondphase of pandemic. On removing limitations due to lock down growth factor and frequency ofdistributionalso indicate higher incidenceofnewviral disease.

Keywords:

COVID-19,Lockdown,affectedcases,unknownetiology,
InternationalHealthRegulations,growthfactor,pandemic

Introduction:

The coronavirus disease (COVID-19) emerged in Wuhan Hubei province of China where largenumber of patients presented with pneumonia of unknown etiology. Later between December2019toearly2020diseasespreadnationwideandacrosstheworld.TheWorldHealthOrganization(WHO)announcedoutbreakofnovelcoronavirusdiseaseasapublichealthemergency of international concern under the International Health Regulations (IHR) on 30thJanuary 2020.It was declared as a pandemic on 11th March 2020 with affecting 169 countries andalmostallcontinents. [1]

In order to curb the spread of coronavirus disease (COVID-19) almost all countries has takenpreventivemeasuressuchaslockdownandrestrictionsofmovements.Thegovernmentimplemented complete lockdown, closure of businesses and mosques, restriction of movementsandworkingat hometopromotesocial distancingfor stoppingspread of disease.[1]

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

It was found that more than 500 students from Pakistan were living in affected area of China andassurance was given for care of students howeveryet it was demanded to remove the citizenfrom affected country. In the light of Hadith, Muslim Scholars stated that it was not advisable toremove student of Pakistan from affected areas in Wuhan city of China. The advice of MuslimScholars was based on the fact that it was advised in Muslim Sharia that in the epidemic area noperson shouldbeenterednor anybodyto leavesothat spread of diseasecanbecontrolled. [3]

Based on communicable nature of disease many preventive remedies has been taken globally tocontrol spread of disease where one of the primary measure was isolation and lockdown to limitthe new disease with a target of reduction ofaffected people and minimizing mortality rate duetopandemic.

Objectiveof Study

It has been seen that as compared to post lockdown period cases of COVID-19 and growth factorshowsadecliningtrend in lockdown in an observational analysis of 27countries.[4]

A global lockdown has been imposed almost all over the world after declaration of COVID-19disease as a pandemic. The purpose of lockdown was to control the spread of disease. It has beensuspectedthatbyimplementationoflockdownspreadofdiseasewouldhavebeencontrolled.The study has therefore been carried out in Pakistan to evaluate that whether lockdown haslimitedthediseaseor otherwise.

NullHypothesis&AlternateHypothesis

The Null Hypothesis (H0) in our study has proposed that there was no relationship betweenlockdown and affected cases whereas alternate hypothesis (H1) has been stating that there isrelationshipbetween lockdown and affected cases.

ResearchQuestion

The research question of the study has been defined that whether lockdown implementationwouldresult in reduced numberofinfectedcases dueto COVID-19or otherwise.

ReviewofLiterature

The disease started in Wuhan Hubei province of China and apparently it looks that lack oflimiting new viral disease affected persons in quarantine have resulted in spread of diseaseglobally and attained shape from an outbreak to pandemic in the world. One of the major remedyused to control new viral disease was lockdown which has been implemented almost all over theworld.

Xiaolin et.al.found in their study that lockdowns are an effective way of reducingreproductionofCOVID-19virus and controllingspread ofthe disease in local communities. COVID-19becomes more severe among older adults. The evaluation of data in their study data has indicatedtowardtheobservationthatincreasedmobility withincountiesisassociatedwithincreasedaffectedcases in pandemic.[5]

Dhamija et.al.found in their study that person to person spread of a highly infectious disease canbe reduced by social distancing. Although lockdown is a most draconian but when implementedappropriately then it has temporarily decreased disease transmission by limiting human contact atscale. Public health campaigns do not get built overnight and lockdown has provided officialswithample time tostrategize andcomeupwithsystematicplanstocontrolthe spreadofCOVID-19.Lockdownshasgivenatemporaryemergencymeasurestoimprovemedicalinfrastructurewhich mayotherwisebeoverwhelmedbytheimmensityof the problem.[6]

Nazia et.al has stated that majority of the participants took appropriate preventive measuresagainstCOVID-19byavoidingtocrowdedandreligiousplaces.Thepercentageofmalesvisiting crowded places was higher than females. In local setting generally male population isinvolvedinrepeatedoutsidemovements forhousehold,financialtradingandtransportationpurposes. Risk of exposure among males was therefore higher than females in Pakistan. Femalesas compared to males are usually more likely to self-quarantine when sick with fever or cough.Association between educational level and reduction of outdoor activities for prevention andsafety was assessed and found that there was negative association between education level andreduction of outdoor activities. As with increased education level, the tendency of going outseemsto bereduced.[7]

Panagiotis et.al.found that due to high prevalence ofvirus governments all over the worldhasbeentakenrestrictivemeasuressuchassocialdistancing,localandnationallockdowns,quarantine and home isolationwhich radically changed people’s daily lives & habits. In additionfrom very first stages ofpandemic it has been suggested that health facilities andhospitals weremostly high transmission hotspots of virus resulting in an adjustment of health services provisionwith an emphasis on minimizing the contacts of patients with health personnel. The combinedeffectwithfearandreluctanceofcitizenstocomeathealthfacilitiesduetotheincreased

likelihood of exposure and infection with new coronavirus disease as well growing shortages ofavailablemedical staffledto delayedservicesforprevention,treatment andrehabilitation.[8]

OrganizationforEconomicCo-operationandDevelopment (OECD)wasofopinionthatCOVID-19 crisis placedsignificant pressure on social protectionwhich is inclusive of elderlyand dependent people, those with chronic or long term illnesses, poor & low income families,homelesspersons,un-insuredpeople,informalworkers, migrants, people withdisabilities etc.[9]

Erum et.al found in their study that mostly social life and mental health were affected thereforecounselingshouldhavebeenconsideredingeneralpopulationduringpandemicsorpublichealthemergencies.EconomicallyCOVID-19hascreatedhighlevelofuncertaintyandjobinsecurityamongthepopulation.Unemployedpeoplearenotonlyinneedoffinancialhelpbutalsomental health counseling.[10]

Muhammad Aledeh et.al studied on pandemic and said that unprecedented crisis caused by thenovel coronavirus 2019 (COVID-19) brought about an outbreaks of a highly infectious viraldisease where exposed people across all demographic groups in almost whole of the worldsufferedwithpossiblehealthhazardsandincreasednumberofinfectedpersonswithinarelatively short period of time. Older people were found to be highly vulnerable to deadly viruswithpossiblenegativepsychological impact.[11]

The study of literature has given an indication that new viral disease has spread globally in shortperiod of time which has affected whole of the community however elderly were found to bemore affected probably due to lower immunity. In early period of pandemic when no vaccinationor specific treatment was available lockdown has mostly shown to be an effective strategy tocompetethecrisis.

Methodology:

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

The study period was conducted from 23rd March 2020 to 12th November 2020 where “235” dayswere divided in five (5) equivalent segments and each segment was in equivalence of lock downperiodi.e., 47 days.

The Daily Jang has been a leading newspaper in Pakistan and selected as an instrument of studytofindout numberofreported affected cases of COVID-19duringand afterlockdown.

Since the lockdown period was pertaining to “47” days therefore data has been collected inmultiplesof47daysafterlockdown.Firstsegmentof47dayswastakenfrom23rdMarch2020to 8th May 2020 because lockdown was implemented in Pakistan on earlier date and later datewas the last day of complete lockdown period. Afterward data has been taken in multiple of 47days till 12th November 2020 which has indicated start of second and end of first phase ofpandemic.

DataAnalysis:

The data has been evaluated for independent/dependent variables, lock down, percentage ofincrease/decrease,increase/decreaseinnumberofcases,growthfactorandfrequencyofdistribution.

Independentvariableisthecausewhiledependentvariableiseffect[12].Lockdownhasthereforebeenlabeledasacausativefactorintheshapeofindependentvariablewhereaspresence or absence of lockdown on different outcome factors has been taken as dependentvariableconsistingofaffectedcases,percentageofincrease,growthfactorandfrequencydistribution.

Increase/Decrease in Number of Caseshave found by calculatingas;Increase in Number ofCases = No of cases in desired post lockdown period - No of cases in lock down period/No ofcases in lockdownperiod*100 (Table-2)

The growth factor has been the ratio by which a quantity multiplies itself over time where itequals to number of cases attained on daily cases divided by cases on the preceding day. Agrowth factor of more than 1.0 indicates an increasing pattern of prevalence whereas valuesbetweenbelow 1.0 showadecliningpattern.[4](Table-3)

Inanalyzingfrequencyofdistributionmaximumnumberofcaseshasbeenplacedindescendingpatternto observeoccurrencepattern ofdiseaseinpandemic.(Table-4)

Results

It has been seen that number of affected cases were at lower side during lock down period withpercentage of 7.45 whereas highest percentage (47.04) was observed inperiod immediately afterlockdown which was found to be subsequently reduced unless start of second phase of pandemicwhichwas started bytheend ofSeptember 2020.(Table-1)

It has been observed that a huge percentage of increase has been observed immediately afterlockdown and found to be 531.46 percent which is subsequently reduced till end of September2020indicatinginitiation ofsecond waveofpandemic.(Table-2)

GrowthfactorofCOVID-19casesindicatethatmaximumgrowth(6.31)occurredintheimmediate post lockdown period which has subsequent decrease till start of second phase ofpandemic2020.(Table-3)

The analysis of data regarding frequency of distribution indicate that maximum number of cases(164244)hasbeenseenimmediatelyinsegmentafterlockdownwhichfoundtobereducedtillend offirst phase.(Table-4)

Table1:Percentageof Numberof Cases:

Lockdown Period	**Date**	**AffectedCases**	**Percentage**
47 daysLock down	23-03-2020to 8-5-2020	26010	07.45
1st47DaysafterLockdown	9-5-2020to 24-06-2020	164244	47.04
2nd47DaysafterLockdown	25-06-2020to 10-08-2020	93966	26.91
3rd47DaysafterLockdown	11-08-2020to 26-09-2020	24565	07.03

4th47Days AfterLock down	27-09-2020to 12-11-2020	40411	11.57

Table2:Increase/Decreasein AffectedCases:

Lockdown Period	**Date**	**AffectedCases**	**Percentage**
47 daysLock down	23-03-2020to 8-5-2020	26010	NA
1st47DaysafterL ockdown	9-5-2020to 24-06-2020	164244	531.46
2nd47Daysa fterLockdo wn	25-06-2020to 10-08-2020	93966	261.26
3rd47Daysa fterLockdo wn	11-08-2020to 26-09-2020	24565	-05.55
4th47Days AfterLock down	27-09-2020to 12-11-2020	40411	55.36

Table3:GrowthFactor

Lockdown Period	**Date**	**AffectedCases**	**Growth Factor**
47 daysLock down	23-03-2020to 8-5-2020	26010	NA
1st47DaysafterL ockdown	9-5-2020to 24-06-2020	164244	06.31
2nd47Daysa fterLockdo wn	25-06-2020to 10-08-2020	93966	00.57
3rd 47 DaysafterL ockdown	11-08-2020to 26-09-2020	24565	00.26
4th47Days AfterLock down	27-09-2020to 12-11-2020	40411	01.64

Table4:Frequencyof Distribution

Frequency	LockdownPeriod	Dated	Affected Cases
1	**1st47DaysafterLockdown**	9-5-2020to 24-06-2020	164244
2	**2nd47DaysafterLockdown**	25-06-2020 to10-08-2020	93966
3	**4th47 DaysAfterLockdown**	27-09-2020 to 12-11-2020	40411
4	**47days Lockdown**	23-03-2020 to8-5-2020	26010
5	**3rd47DaysafterLockdown**	11-08-2020 to26-09-2020	24565

Discussion

Nadia Noreen et.al found that absolute lockdown resulted in slowing down of infection rate butdue to the frail economy and the vulnerable class lockdown restrictions were eased in phasessince Mid-May, resulting in a burst of infections at the end of May 2020. It is agreed as we alsoobserved same findings in our results which have shown reduced affected cases during lockdownperiod which increased to aroundsixtypercent immediatelyafterend oflockdown.[13]

IthasbeenfoundbyGhosalet.al.thatlockdownhasproventobeaneffectivestrategyinslowing down SARS-CoV-2 disease which was progressing in both ways consisting of spread ofinfection and death rate exponentially. The same finding has been observed in our study where ithas been seen that infection was found lower in lockdown period which has shown a huge surgeimmediatelyafter releaseof lock down.[14]

ShafiunNahinShimulet.alhassuggestedthatrelaxationoflockdownmeasuresnegativelyimpacts the epidemic. We have found the same findings where it has been seen that relaxation oflockdownhas shown hugeincreasein numberof cases as welldeath. [15]

It has been found by Shimul et.al about negative impact of prolong lockdown measures onhealthandeconomyandrecommendedabalancedapproachbytakingeconomyinunderconsideration .Inthisregardweareofopinionthatanystrategyonthenameofeconomywhich

put the lives at risk of mortality can't be recommended and therefore a balanced approach shouldbecriticallyevaluated and concluded to formulateanystrategy.[15]

It has been pointed by Jinan Abdul Ameer Abbas about importance of emphasizing need forproper planning and management of the region resources as well as environmental protection forsustainabledevelopment.WeagreewithAbbasthatbyproperplanningandutilizationofresources in justified manner could be major factor in control of not only outbreak or epidemicbutas well as abigger pandemiclikeCOVID-19.[16]

Andrew J. Stier stated in their study that early pandemic COVID-19 case growth rates increasewith city size and found that early in the outbreak COVID-19 spread faster in larger cities. Ourdata has not been limited to larger cities but rather it was taken from whole of the country wherewe have also found same finding about higher growth rate in early outbreak which found to bereducedwith passageof timein thepandemic.[17]

Sawsan et.al found about increasing number of Kawasaki-like disease in patients with COVID-19 and continued to be reported worldwide. It was pointed by them that possibility of facing theemergence 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.Wehave observed second phase of pandemic at the end of 2020 and are of opinion that existence ofpost COVID-19 complications can be controlled with regular follow up of infected patients fromnewviral disease.[18]

AhasanUllah Khan et.al stated that COVID-19 has spread rapidly to sixty four districts inBangladesh. The continuing occurrence of COVID-19 infections has emphasized the importanceof the quick laboratory diagnoses to limit the spread as well as befittingly treatthe disease.
Inthissituationpeopleshouldavoidpublicgatheringplacesasmuchaspossibleandreturnhomeas soon as possible after finishing work. We agree with Khan where it has been seen in our studythatabout50percentofobservedcasesoccurredinimmediatepostlockdownperiodandaswell
531.46 percentage increase has been seen after lockdown indicating rapid spread of disease andsuggesting limitation of movement particularly in public gatherings due to contagious nature ofdisease.[19]

ItisprovedbyBushraShamshadet.alfromcanonicalcorrelationanalysisthatadequateknowledgeregardingcommunicablediseaselikeHIV/AIDSleadstosympatheticattitudetowards infected persons. Due to false conception regarding transmission it was recommended toconduct workshops on the awareness in educational programs. We agree with Shamshad thatcarryingoutworkshopsonimportanceoflockdownandpreventivemeasurestoenhanceawareness would have not only reduce the stigma but as well as reduction in the incidence ofdisease.[20]

Study carried out by Shahid, R., Zeb et.al has shown occurrence of second phase of pandemicfrom28thOctober2020with750casesperday.Ourstudyhasalsoshownstartofsecondphaseof pandemic in fourth 47 days period which was lying between 27th September 2020 to 12thNovember2020and indicatethe sameperiodwithalmost similar numberofcases.[21]

The result have shown that lockdown has decreased number of cases as evident from data wherepercentage of affected cases raised from7.45 percent in lockdown period to 47.04 percentimmediately after end of lockdown which however afterwards shown to be invariably reducingpatternunless secondwaveof COVID-19 startedin December.

Conclusion

The lock down has resulted in limiting spread of disease and huge surge in number of COVID-19affected cases were observed immediately after lockdown. The number of affected cases werefound to be subsequently reduced unless start of second phase of pandemic. On removal oflimitations of lockdown, growth factor and frequency of distribution has also indicated towardhigher incidence of new viral disease. The results has therefore suggested for conclusion thatthereis reciprocalrelationship between numberofaffected casesandlockdown.

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

Abbreviations

COVID-19-coronavirus diseaseof2019

SARS-CoV-2-severe

acuterespiratorysyndrome2IHR- International

HealthRegulations

OECD-OrganizationforEconomicCo-operationandDevelopment

HIV/AIDS-HumanImmunodeficiencyVirus/Acquiredimmunodeficiencysyndrome

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