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A Report on SARS CoV-2 Outbreak and Imposed Lockdown Impact on Public Health

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Abstract

Background: Today the whole world is facing a very big problem, as novel coronavirus outbreak, the SARS CoV-2 infection, which spread to different countries including India by the starting months of 2020. By observing the severity of infection, the government of India imposed a condition of lockdown in whole country. **Methods:**The carried out survey based study in Muzaffarnagar,India,tried to find the health status and change in behaviour of people by taking their views in lockdown period. Data of 539 people were taken from medicine sale centres and views of 432 (336 male, 96 female) people from their homeswere recorded during lockdown period from March 30,2020 to June 01,2020. After analysis of designed study tool data, based on house hold survey basis, the results were calculated in percent. **Results:**The present study revealed as 28.57% male people were found with anxiety, depression, and irritable behaviour. Approximately 65.47% male and 72.91% female individuals expressed fear from nCov outbreak. In rural areas, more than 90% people were expressed no fear of coronavirus infection and they were not wishing or aware to wear a face mask, regular use of soap to wash hands, use of sanitizer or other COVID-19 guidelines. Only less than 10% people were maintaining COVID-19 guidelines in rural areas.**Conclusion:** The imposed lockdown condition affected the routine life of people. People were found with different body disorders as anxiety, hypertension and digestive troubles. People in very less percentage were found maintaining COVID-19 guidelines in rural areas. 57.5% people were found in depression and anxiety due to lost of their jobs.

Keywords- 1. Hypertension 2. Hydroxychloroquine 3.Syndrome 4. Telemedicine 5. quarantine 6. disinfectant.

Introduction

SARS(Severe Acute Respiratory Syndrome) CoV-2 borne COVID -19 outbreak resulted in to a pandemic problem as started in the initial months of year 2020, showed a regular increasing trend leaving approximately 300,000 death and 4,000,000 infected people worldwide till mid of may, 2020.The COVID -19 or SARS CoV-2 outbreak was started in Wuhan, China in Dec. 2019 and spread in whole world. Till Dec.27, 2020 the total cases of SARS CoV-2 in India were 10,188,392 with 147,659 deaths (1.44%) and 9,761,538 recovered cases (95.81%). In whole world 80,778,406 cases were detected with 1,766,103 deaths (2.18%) and 56,983,625 recovered cases (70.54%) till same date. In Muzaffarnagar, the total SARS CoV-2 cases were detected as 7908 and 103 deaths (1.30%) as till Dec. 27,2020. By observing the infecting severity of nCoV-2 the governments of different countries imposed the lockdown condition. In the present study the lockdown condition impact on public health was investigated in Muzaffarnagar, India. Muzaffarnagar city is located in the middle of highly fertile

upper Ganga-Yamuna Doab region and is very near to New Delhi. It coordinates 29 28' 56"N 77 42' 00"E. It is a part of Delhi NCR (National Capital Region). It is situated midway on Delhi – Haridwar / Dehradun national highway, NH-58. It has a monsoon influenced humid subtropical climate characterised by much hot summers and cooler winters. Over the course of the year, temperature typically varies from 47 °F to 102°F and rarely below 41°F or above 109 °F. The most common form of precipitation throughout the year is rain alone, with a peak probability of 70% in last week of July. Central Pollution Control Board, CPCB, data showed pollution fell nationwide with cities recording 'good' air quality rising to 30 from 6. The ongoing lockdown due to COVID-19 pandemic has pushed pollution levels in Delhi to a 5 year low. During the lockdown period different industries located in Muzaffarnagar remained shutdown. In this area different industries as paper and pulp, iron and steeland other chemical industries are located. These industries remained responsible for bad air quality in area before lockdown period. The work at construction sites was also remained stopped. Generally private vehicles were not allowed to run on roads. Public transport facilities as road and rail were suspended.Such non polluting conditions contributed to cleaning up the air and air quality index entered green zone. Generally people remained confined in their homes. This was the time when normal working routine of people was getting changed. The current study was carried out to find out the environmental and publichealth impacts due to lockdown condition. During the lockdown period the people remained deprived from their routine jobs. The routine life activities were changed. Study regarding lockdown and people behaviour revealed some important aspects as noticed different disorders.A report said that this is the time when mental problems had been initiated in youths due to living in isolation. They were found worried about their jobs, career plans, loan and EMI. Youths were confined in their homes and felt anxiety, restlessness and depression due to current circumstances. The number of such cases were showing an increasing trend. 80 to 90 patients were being counselled through telemedicinal technology. Groups of such counselling seekers included children, youths and adults, even aged people were suffering from isolation connected disorders complained that they were remained deprived from out walking, talk with friends. People expressed fear of nCoV infection and daily news connected to nCoV infected casualties.[1]The transmission of virus was lower with physical distancing of 1m or more, compared with a distance of less than 1m (n=10736, pooled adjusted odds ratio [aOR] 0.18, 95% CI 0.09 to 0.38; risk difference [RD]- 10.2%, 95% CI -11.5 to -7.5; moderate certainty); protection was increased as distance was lengthened (change in relative risk [RR] 2.02 per m; p interaction =0.041; moderate certainty. Face mask use could result in a large reduction in risk of infection (n=2647; aOR 0.05, 95%CI 0.07 to 0.34, RD-14.3, -15.9 to -10.7; low certainty), with stronger associations with N 95 or similar respirators compared with disposable surgical masks or similar (e.g., reusable 12-16 layer cotton masks; p interaction=0.090; posterior probability >95%, low certainty). Eye protection also was associated with less infection (n=3713; a OR 0.22, 95% CI 0.12 to 0.39 RD-10.6%, 95% CI- 12.5 to -7.7; low certainty).[2] A nationwide survey of psychological distress among Chinese people in Covid-19 epidemic: implications and policy recommendations - a study report analysed the serious health threats to people' physical health and lies in the Covid-19. The implementations of unprecedented strict quarantine measures in China has kept a large number of people in isolation and affected many aspects of people' lives. It has also triggered a variety of psychological problems such as panic disorder anxiety and depression. This study received a total 52730 valid responses and almost 35 % of the respondents' scores were between 28 and 51, and 5.14% of the respondents' scores were _> 52. Female respondents showed significantly higher psychological distress than their male counterparts (mean (SD) =24.87 (15.03) v/s 21.41 (15.97), p<0.001). Women are much more vulnerable to stress and more likely to develop post traumatic stress disorder.[3]A report released by Community Medicine Department Safdarjung hospital, N.Delhi, an online survey was conducted worldwide including 400 people and results as found after conversation with people that 30 to 40 % people were found suffering from stress, and hypertension.[4]All India Institute of Medical science New Delhi report said that among counselling seekers, 20% cases were connected to prevent from suicidal tendency. As per the report of counselling agencies, in April 2020 thirty to forty percent cases were detected with hypertension, depression, irritation and anxiety disorders related to

financial paralysis of future plans as termination from jobs and salary deductions.Present study revealed that in rural areas most of the people were not aware to maintain COVID-19 prevention guidelines. Only 10% or less people were found, maintaining COVID-19 guidelines in social gatherings in rural areas. In such social gatherings, there were involved approximately 100 to 250 people in unlock condition. In the present study, it was found that no any person got infected from nCoV in rural areas after such social gatherings.

Materialsand methods

A survey based study was carried out to find the facts dependent on health problems and general behaviour of people in lockdown period imposed by government of India due to SARS CoV-2 outbreak. Data were collected from medicine sales centres with a total number of 539 people and direct views of 432 (336 male and 96 female) persons from their homeswere also taken. The study period was from March 30,2020 to June 01,2020. A survey based study tool was designed comprising different items as digestive, blood related problems, circulatory disorder, respiratory, neurological, diabetes, hypertension, anxiety, kidney related disorders, liver, skin, hair, hearing/ear problems, hormonal problems, restlessness, sleeping status, tobacco consumption habits, feeding habits, mood status due to good air quality, fear from nCoV, and body exercise related activities as yoga and meditation were included in study tools before and in lockdown period. Study respondents were general people during lockdown condition. The collected data were analysed and results were calculated in percent value.

Results

People were noticed with different disorders as anxiety, depression, restlessness,digestive disorders andfear from SARS CoV-2.Data regarding change in feeding pattern, clean air and happiness and body exercise for fitness were also noted. Study data collected from medicine sale centres revealed that 28.94% people were suffering from digestive problems as indigestion, acidity and gas and they purchased antacids. 39.88% people purchased paracetamol tablets to relieve from fever and hydroxychloroquine (HCQ) as self prescription for prevention purpose from SARS CoV-2 infection. 57.5 % people were found in depression and anxiety due to lost of their jobs. 10.11% men were found with condition of diabetes and 10.41% women were also found suffering from diabetes. Anxiety and depression condition was observed in 28.57 % male individuals.42.85% men were found with hypertension condition. 16.66 % women complained of headache. Sleeping status was found changed in lockdown period and time period of sleeping was found as increased in 14.28% male individuals. 21.42% people accepted that they were using chewing tobacco and in lockdown period they quit this habit. Data were collected regarding feeding habit in this period and 28.57% people admitted that daily consumed food quantity was increased. As air pollution remained in controlled state with a good air quality index due to shutdown of factories in the proximity of Muzaffarnagar, India, suspension of running of transport vehicles and closure of construction works, the people were found happy with a percentage of 68.98 (male individuals - 70.23% and female individuals - 64.58%). 65.47% male and 72.91% female individuals expressed fear of novel coronavirus. During lockdown period people tried to keep themselve psychologically and physically fit and did yoga, meditation and physical exercise as 35.71% male and 41.66% female individuals were practising such activities (Fig1 and 2).

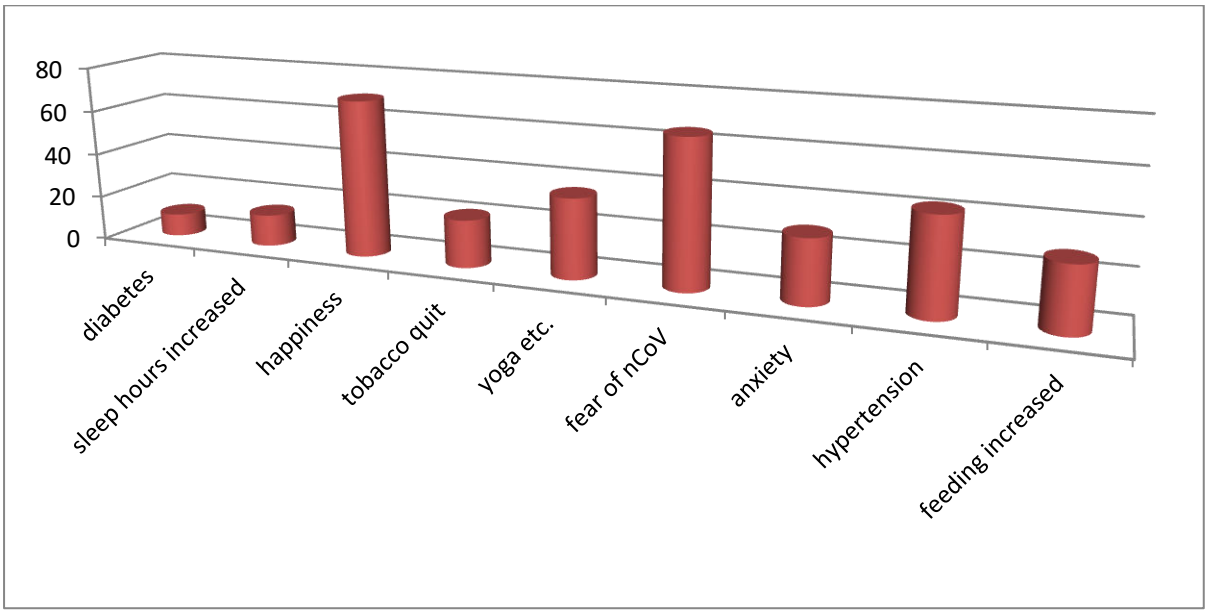

Fig: 1. Data regarding male respondents in percent.

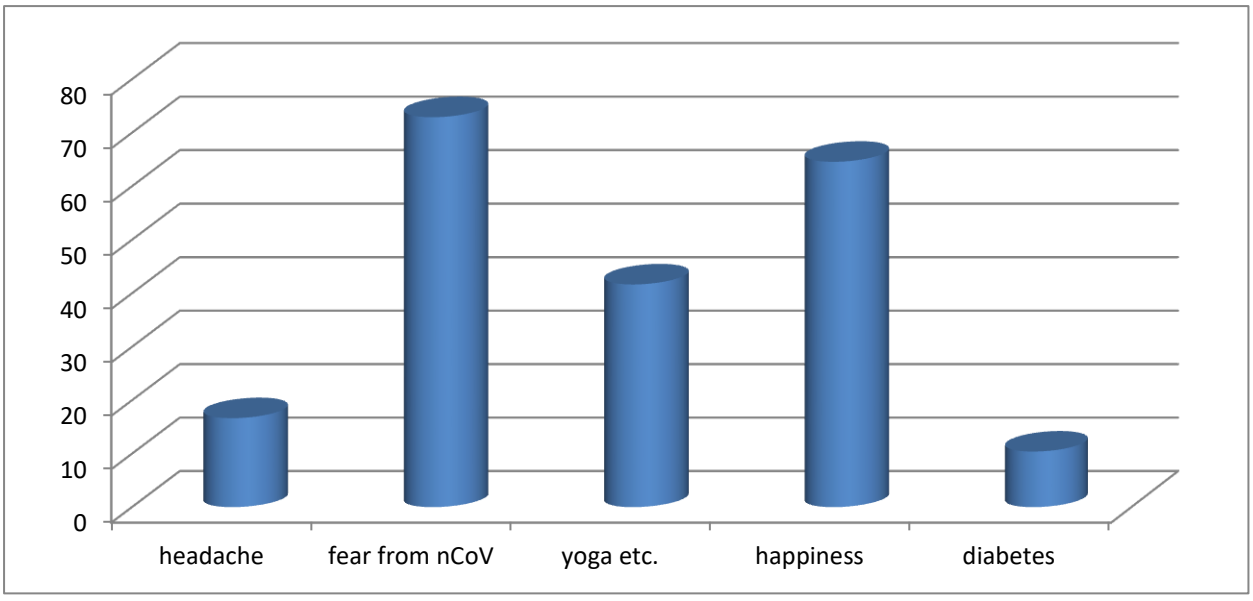

Fig.2 : Data regarding female respondents in percent.

People did not respond to rest study points.Common labourers faced great problem due to their job termination and forced to travel to reach their homes. They travelled hundreds of kilometre route without any transport mean. They used either bicycles or went on feet, faced health and psychological problems in journey. No sufficient money and food were available with them. They were dependent on public food donation for survival on roads.60% people of age group 18 to 25 years were found worried to their future due to uncertainty in career field. They were found with depression and anxiety. People were found with less tobacco consuming habits and cut down 50% tobacco consumption. . In our country, the SARS CoV-2 tested samples were 24.04 lakh (2.404 million) up to May 19,2020 and till

June 22, 2020 the tested samples were 69.52 lakh (6.952 million), revealing increase in positivity rate from 4.89% to 10.34% (data released by Govt. of India on June 23, 2020). Perhaps the increase in positivity rate was due to unlock condition and increase in testing rate. In reference of diagnostic testing of SARS CoV-2 in our country, we performed 121,233 tests as compared to USA- 739,393, Brazil- 134,086, Russia - 609,735, France - 517,072, UK- 767,815, Turkey- 278,435, Italy- 430,102, Spain- 555,805 and Germany- 401,697 tests per one million population till Dec. 27, 2020 as per the data released by WHO (Fig 3).

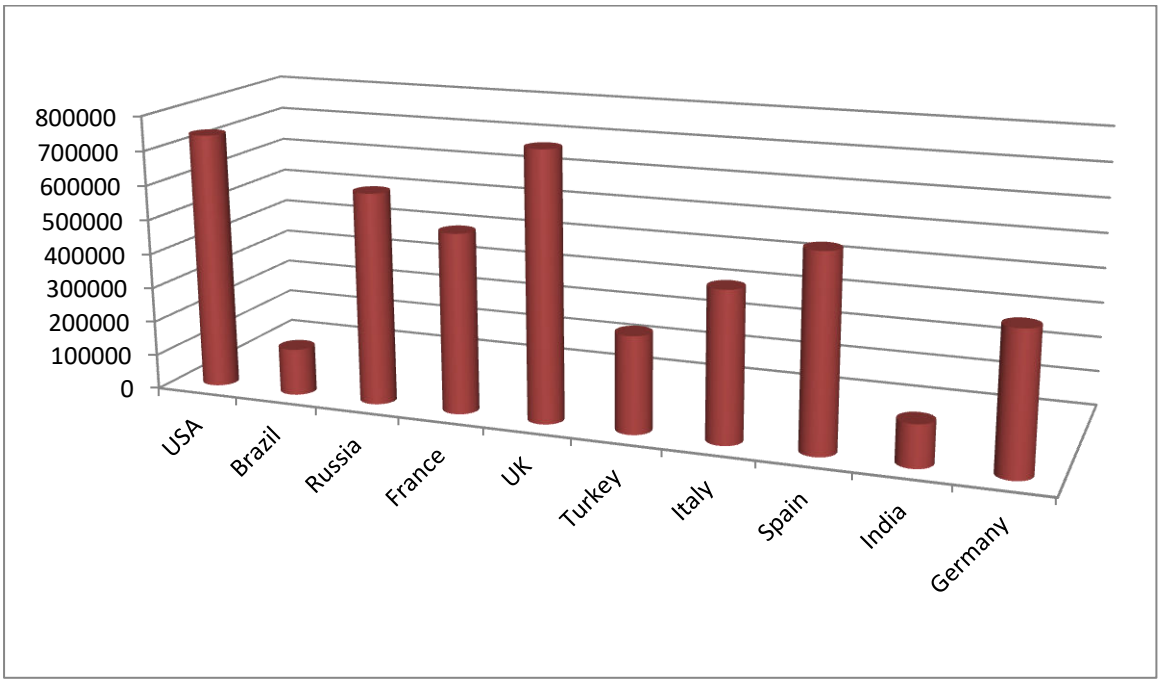

Fig. 3: **nCoV diagnostic tests per million population till Dec. 27, 2020. Source Internet: data released by WHO.**

These data show that in India the adequate tests for SARS CoV-2 could have been done.

Discussion

An study investigated that the rates of mental health symptoms among the survey respondents were 27.9% (95% CI,27.5% - 28.2%) for depression, 31.6% (95% CI, 31.2% - 32.0%) for anxiety, 29.2% (95% CI, 28.8%-29.6%) for insomnia, and 24.4% (95% CI, 24.0% - 24.7%) for acute stress.[5]Prevalence of SARS CoV-2 in Spain (ENE-COVID): a nationwide, population based sero-epidemiological study findings showed that seroprevelance was 5% (95% CI 4.7-5.4) by the point of care test and 4.6% (4.3-5.0) by immunoassay, with a specific sensitivity range of 3.7 (3.3-4.0; both tests positive) to 6.2% (5.8-6.6; either test positive), with no difference by sex and lower seroprevelance in children younger than 10 years (<3.1% by the point -of- care test). The majority of Spanish population is sero -ve to SARS CoV- 2 infection, even in hotspot areas. Most PCR - confirmed cases have detectable antibodies but a substantial population of people with symptoms compatible with COVID-19 did not have a PCR test and at least a 3rd of infections determined by serology were asymptomatic. These results emphasised the need for maintaining public health measures to avoid new epidemic wave.[6]An Indian study report revealed that there are no necessary arrangements to wash hands properly for more than 50

million people in India. The report expressed concern about spread of coronavirus infection and chances are likely more due to lack of such basic facilities. As per the research findings of Institute of Health Matrix and Evaluation in Washington University USA, said that more than 2000 million people living in low and medium income group countries were not having water and soap to wash hands, subjected to prone to coronavirus infection. This was the one-fourth population of whole world. Journal of Environmental Health perspective report said that more than 50% population living in 46 countries having no availability of water and soap to wash hands. According to this report a population of more than 50 million, living in each country as India, Pakistan, China, Bangladesh, Nigeria, Ethopia, Congo and Indonasia were not having the facility of hand washing. A report based on data released by Kerala government, India said that counselling related to stress and depression of 30844 people had been done till May 17,2020 due to nCoV fear.

As per the WHO report, the tobacco products were responsible for compromising immunity of body and high risk of SARS CoV-2 infection. A report by American Society of Clinical Psychology and other research revealed that cancer patients were found highly vulnerable to SARS CoV-2 as they have low immunity. nCoV affected persons lowering ability to smell and taste as reported by University of Milan, Italy's *Instituto Clinico Humanitos* , nCoV changed the structure of brain affecting its ability to smell and taste centres. In India 38% death case were reported in 60-74 years age group and 12% death cases were reported in 75 and more than 75 years of age. 73% people in India were found already sick affected from other infections and found corona positive due to compromised immunity up to June 3, 2020. In Diabetology Journal report, the blood vessels were affected in case of diabetes increasing viral load due to lack of immunity. 89% type 2 diabetic patients were nCoV positive.

One out of 10 diabetic patients was died due to nCoV in world due to compromised immunity. The centre for disease control and prevention in USA Report said that there were no disease symptoms in 35% nCoV+ve cases and they spread the virus in society. 45% patients were found with cough, fever, fatigue and respiratory diseases while infected by SARSCov2. In 42% people of age group 20-40 years no nCoV symptoms appeared. In unlock period nCoV +ve samples doubled. In lockdown period every 25th sample was found nCoV+ve while in unlock period condition it was every 10th sample was found +ve, as testing rate increased, the infection rate also increased from 4.89 to 10.34%. In serious cases dexamethasone could be given. Methylprednisolone was being given to patients. Remdesivir and Fevipiravir medicines were also being used for treatment of nCoV patients. Report published in Journal of Association of Physicians in India (July, 2020) disclosed that HCQ is not effective as a treatment of Covid-19. Itolijumeb, the injection to treat psoriasis is conditionally permitted to CoV infected patients who were suffering from cytokine release syndrome (CRS) and Severe Acute Respiratory Distress Syndrome (SARDS) to recover from hypoxia and respiratory problems. nCoVwas found in middle and inner ear parts affecting hearing capacity and swelling was noticed behind the tympanic membrane.CoV-2 infection was detected in unborn baby from mother as tested mother and child post birth and it is called vertical transmission.Encephalopathy has been reported for 93 patients in total, including 16 (7%) of 214 hospitalised patients with Covid-19 in Wuhan, China and 40 (69%) of 58 patients in intensive care in France.

Encephalitis was described in 8 patients to July 02,2020 and Guillain-Barre Syndrome in 19 patients.[7] Seven coronaviruses (CoVs) have been isolated from humans so far. Among them, three emerging pathogenic CoVs, including SARS-CoV, Middle East Respiratory Syndrome (MERS-CoV) and a newly identified CoV (2019-n CoV), once caused or continue to cause severe infections in humans. Both SARS CoV and MERS CoV are zoonotic viruses, using bats as their natural reservoirs, and then transmitting through intermediate host , leading to human infections. The intermediate host for 2019 n-CoV is still under investigation and the vaccine against this n-CoV is in developing stage. CoVs belong to the subfamily Othocoronavirinae, in the family Coronaviridae of the order Nidovirales. The human CoVs are enveloped viruses with a positive sense, single stranded RNA genome. They are 80-160 nm in diameter. Like other CoVs, human CoVs contain the largest viral genome [27-32 kilo

base pairs (kb)] among the RNA viruses.[8]Young children showed more clinginess, disturbed sleep, nightmares, poor appetite, inattentiveness and significant separation problems.[9] The migrant workers experienced the highest level of distress since the highest mortality rate occurred among the elderly during the epidemic as they were more likely to be psychologically impacted.

Conclusion:

On the basis of results of present conducted study, it was found that the people' routine life was affected and they faced constrained conditions due to imposed lockdown. Change in sleeping hours was observed and 14.28% people were found investing more time period in sleeping. People expressed fear of nCoV. Women were found more fearful from nCoV than men. A less than ten percent people in rural areas were found maintaining COVID-19 guidelines. We can prevent the people from getting infected on the basis of diagnostic testing of presence of SARS CoV-2 and then isolation of infected person because such people can act as spreader of virus. By testing, isolation, quarantine and following the guidelines released by WHO as use of face mask, sufficient personal distance from people while there are chances of infection, and by use of disinfectant, a big segment of society can be protected from getting infected.

In future we have to strengthen our healthcare infrastructure by establishing a chain of new diagnostic centres using government organizations as universities and colleges having laboratories in life sciences departments after certain training programs by health department. Provision of sufficient funds for this purpose should be made in every annual financial budget to provide good healthcare services as diagnosis treatment and vaccination for our big population.

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Declaration:

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Conflict of interest: None declared.

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