**Social Distancing and Lockdown: Did it really helped India in controlling COVID-19?**

**Abstract:**

India is tackling the COVID-19 menace by various non-pharmaceutical measures and among them, the important one is Social Distancing since there is no medicine available currently. This Public Health strategy was implemented very strictly and it made a huge impact concerning disease transmission. The complete lockdown served as a pre-emptive measure to curtail the transmission and it also helped in quick case identification and contact tracing. The success was very clearly visible through some of the crucial indicators and it’s a proven fact that our infectivity rate was kept under control when compared with other developed countries. This commentary tries to explore the factors which got influenced by lockdown and how it minimized the infection rate.

**Introduction:**

The Wuhan genesis disease COVID-19 spread so rapidly around the international continents. Since it’s a new disease there was no readily available treatment so social distancing was adopted as a strategy and as a mitigation step towards this deadly disease. The scientific community has accepted that the mortality and infection rates have come down due to this Public Health measure.(1) The very basic idea under-pinned with this strategy is to curtail the mass gathering among public spheres. Social Distancing is a very stringent non-pharmaceutical measure to follow among the masses and China has been successful in this by curtailing the disease transmission.(2) This commentary tries to explore the effectiveness of this Public Health approach briefly.

**Reducing the R0:**

A developing country like India will be lacking in the Medical facilities and proper infrastructure. Even if it turns into a community spread, the ability to tackle that kind of a situation by us remains a question.(3) On the contrary, India has significantly reduced the infection rate and mortalities from the projected values. This has attracted the international community’s eyes on how our country diligently worked in reducing the impact of COVID-19. The Government sources have said that this was possible due to stringent social distancing measures which were achieved by the means of lockdown and prohibiting all sorts of social gatherings.(4) Social Distancing has proved to be much effective in reducing the disease’s “Basic Reproduction Number (BRN)” less than one in turn leading to less transmission of this disease. This has been proved in a study that used mathematical models to estimate the future rise in case of numbers using different techniques. (E.g. Monte Carlo simulation using MATLAB).(5) Another study involving mathematical model has reported that due to stringent social distancing techniques and closure of social gathering places like schools, religious institutions etc. has brought down the BRN drastically for this disease. They have also found that lockdowns implemented with relaxations have enhanced the BRN due to a fall in the number of people following Social Distancing due to relaxations.(6,7) Even though it was a late realization about this deadly pandemic the Public Health measures were put in place promptly which paved way for this successful curtailment of COVID-19.

Lockdown measure, as stated above it’s a way of implementing the Social distance. This was found to be very effective in some states of India namely, Tamil Nadu, Delhi, etc. These are the states which took a bad hit in controlling the Incidence (new cases). In this situation of a rapid increase in case numbers, a research paper published in 2020 has suggested that using their mathematical modeling, lockdown can be very effective in areas where many symptomatic patients are found commonly known as “Hotspot Areas”.(8) This was empirically proved by a decrease in incidence rate in the states mentioned above. India imposed a total lockdown and advised to follow social distancing last March 2020 since then the new infections rate has come down to astonishingly to 78%. This finding throws some light on the importance of Social Distancing and due to that the peak of the epidemic curve has extended leaving some space to not only to react but effectively react.(9)

**Disease Propagation:**

The very idea behind social distancing is not only to curtail the spread but to prevent it from becoming a disease with the social transmission. Because any socially transmitting disease will be spreading faster (high BRN) thereby reducing the effectiveness of contact tracing and isolation. But due to this lockdown, the propagated epidemic’s average growth rate became 6% from 21% thereby preventing the disease from entering the community transmission stage. this was achieved by delaying the “Double – Time” period so that the patients with COVID-19 positive will be doubled which means the spread of the disease has been slowed. The initial double-time was 4.3 days and after lockdown, it went up to 10.9 days.(10)

When it comes to infectivity, we can’t relax ourselves saying that it’s the part of the virus to play its role in humans. It's not only an attribute for micro-organisms but it also depends greatly on hygiene practices that we follow. Social distancing is also thought to be a sub-domain of self-hygiene for years and now adding to that is the Personal Protection Equipment (PPEs) like respirators, face shields, etc. The key point here to understand is our customs and behaviors much likely influences the infection rates and BRN.(11) Another study which utilized Bayesian statistic to find the effectiveness of social distancing has reported that the countries which took Public Health measures at the very early stage has reported less number of cases and mortalities when compared to the countries which realized the negative effects of this disease very late (E.g. the USA) is experiencing the full force of this disease at present.(12)

Being the age of rapid technological advancements, the effectiveness of Social Distance was analyzed with the use of Machine Learning in a research article published this year. This study has reported to the scientific community that any changes in mobility will affect the disease transmission rates around 47% in that particular community. This study has also disclosed that closure of malls, theatres, gyms, parks etc. has an important role to play in disease transmission. On the other hand, mobility via driving is considered to be an attribute in disease spreading rate because of exposing him/herself to the hotspot areas. So red tapeism in providing the E – pass to travel among the districts has reduced number of new infections in India, considerably.(13)

**Negative consequences of Lockdown:**

Even though social distancing is a successful strategy in curtailing the disease spread in the second-most populous country there are some inevitable negative shades surfacing up for some vulnerable people. When the first lockdown was announced, people rushed to the grocery stores which violated the basic idea of announcing this Public Health measure. Workers from other states who migrated for economic opportunities crowded at the public transport stations increasing the disease transmission at a rapid phase and spread to other parts of the country. Slums are the areas where social distancing is just a word because of its high impossibility to adhere and other determinants of Health are compromised for these people.(14) Another problem that was discussed in many public forums was the increase in domestic violence during this lockdown period. A study has found that the number of complaints raised and Google search activity related to domestic violence was found to be much consistent. But what we define as domestic violence also matters in these scenarios.(15)

**Fall of Indian Economy:**

When speaking about the negative face of this disease, the Indian Economy is inevitable. It took a massive hit since all the economic sectors came to a standstill position. Many of the workers belong to informal sectors that depend upon daily wages for earning their bread. Even though the social securities act has been enacted, only 5 – 6% of the workforce has registered thus leaving the majority in a vulnerable situation. Also reduced mobility due to this lockdown has definitely created a demand and supply shock.(16) In the long run, we would know the exact fall in the Gross Domestic Product of our nation.

All the Public Health measures which were implemented will bear its fruits in the coming days only i.e., post lockdown. Because all these steps will yield positive results after some considerable amount of time only. So, some post-lockdown strategies such as social distancing and avoiding gatherings should be incorporated in order to see the results for previously executed long term hard work.(17)

**Conclusion:**

The social distancing measure was a successful strategy in the containment of the COVID-19 in India. Engaging good Public Health measures at the right time is not possible without political will. This much magnitude of success is not possible without engaging the local governments because in every nook and corner of the country has limited the disease spread. Now lockdowns are being enforced with phase wise relaxations and this will lead to improved herd immunity so that overwhelming of hospitals is prevented which leads to reduced critical care demands. In the coming days, social distancing should be continued to have better control on the second phase of the disease. It will be worthwhile to say that Social Distance practice has done its justice to the community.

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