

Perspective

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Peltzman effect and resurgence of COVID–19 in India

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With a daily rise of over 400 000 cases, the deadly COVID-19 wave has gripped India with grim milestones. India's test positivity rate (TPR) was 16% with 1 356 133 tests^[1,2] (Figure 1). The number is still steeply climbing and has burdened the already overwhelmed health system. A frightening situation of lack of availability of hospital beds and critical care units has been witnessed in several states in recent days. The two reasons that are thought to propagate the resurgence of cases are “risk compensation” and the emergence of mutant SARS COV-2 strains (including recently named double mutant, B.1.617)^[3-6]. Risk compensation was first described by University of Chicago economist Sam Peltzman in 1975^[3]. The phenomenon, where increased safety regulations cause behavioral modification of the public to partake in riskier endeavors as they have a false perception of safety, later came to be known widely as the Peltzman effect^[3]. Though intended as a means to explain mass behavior in an economic or social context, the Peltzman effect applies to the current resurgence of SARS-CoV-2 infection.

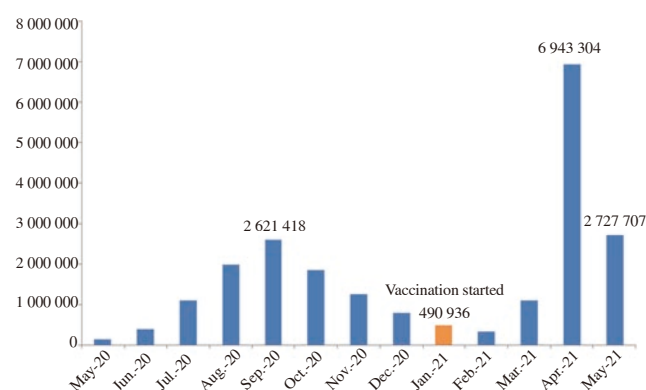


Figure 1. New cases COVID-19 per month from May 2020 to May 2021.

Data adapted from MoHFW^[1] India, and Our World in Data^[2].

The usage of masks, stringent lockdown and COVID-19 protocols established over the last year had been effective, as is evident from the steady decline in fresh cases in India by the end of 2020. However, the false perception of safety brought by ongoing vaccination that started early this year, and the decline in the number of new cases led to a behavioral change in the public, with regards

to laxity in following those norms and the resultant increase in the cases^[4]. A study that compared before and after face mask orders found out that mandatory rules for COVID-19 protocols led to risk compensation behavior, like wearing masks but spending more time outside in public and commercial areas^[5]. Another study found out that the increased mask-wearing was compensated by reduced social distancing, which negated the benefits^[7].

As per Cumulative Coverage Report of COVID-19 vaccination till the third week of April 2021, more than 100 million Indians have received their first doses of either Covaxin (inactivated vaccine; Bharat Biotech) or Covishield (Oxford-AstraZeneca vaccine with viral vector; manufactured locally by the Serum Institute of India^[8]). However, considering the population of India, this is just over 5% of the total population and it might take years to achieve complete vaccination for the entire country. The vaccination started in January, when cases were low (Figure 1). It might be interesting to note that curves of new cases and vaccination, both are showing upward trends which can be attributed to the Peltzman effect. The active cases on the first day of the vaccination drive that started on January 16th were only 200 000, whereas on May 8th, it has almost reached a whopping four million cases.

Vaccination confers immunity or lessens severity of COVID-19, thus decreasing mortality rates. Studies are scant and scientific data are still not available as to the duration of immunity provided by vaccination, and its capability to prevent the spread of the disease. They are more likely to offer milder covid disease and not immunity

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from a covid infection.

The vaccination beneficiaries in India should have been ideally prioritized for two groups from the early schedules. The vaccination in the first group, *i.e.* elderly, for minimizing the severity of infection and mortality, and the second group, for younger people who are frontline workers and active in society to minimize the number of infections; this is important in the Indian community where a larger number of people who commute to work using public transportation are younger population. With several media reports that show a high rate of hospital admissions in people <50 years, this is the foremost concern fuelling vaccine policy changes. There are several cases in which fully vaccinated people have been infected; an individual who has received only the first dose is only partially protected. The short and long-term benefits of vaccination are still to be studied, so adherence to covid protocols (masks, hand washing, and social distancing) regardless of vaccination status should be encouraged. The social mingling of vaccinated individuals should be restricted to vaccinated groups in the community, and crowded gatherings and visiting with unvaccinated people should be avoided.

High risk health care workers, especially dentists, who had staggered clinical practices last year, are getting fully vaccinated and restarting routine treatment, but many prefer antigen tests over RT-PCR (Reverse Transcription Polymerase Chain Reaction) for patients. This also points to Peltzman effect where compromising on necessary tests under false perception of vaccine safety can lead to infection and cross-transmission. Workplace protocols should not be relaxed, and RT-PCR should be done for patients who are not vaccinated, as well as procedures in which considerable aerosols are produced.

We have to speed up the pace of vaccination, along with policy changes, and educating the public regarding the risk compensatory behaviors is the need of the hour.

Conflict of interest statement

We declare that we have no conflict of interest.

Authors' contributions

Simi Thankappan contributed to the concepts, design and definition of intellectual content. She also did the literature search, data acquisition and analysis, manuscript preparation, editing and review. Sherin Nedumpillil contributed to the data acquisition and analysis along with preparation and editing of the manuscript. All authors have read and approved the final manuscript.

References

- [1] Ministry of Health and Family Welfare. *COVID-19 state-wise status*. [Online]. Available from: <https://www.mohfw.gov.in/>. [Accessed 8 May 2021].
- [2] Ritchie H, Ortiz-Ospina E, Beltekian D, Mathieu E, Hasell J, Macdonald B, et al. India: Coronavirus pandemic country profile. [Online]. Available from: <https://ourworldindata.org/coronavirus/country/india>. [Accessed 8 May 2021].
- [3] Prasad V, Jena AB. The Peltzman effect and compensatory markers in medicine. *Healthc (Amst)* 2014; **2**(3): 170-172. doi: 10.1016/j.hjdsi.2014.05.002.
- [4] Mantzari E, Rubin GJ, Marteau TM. Is risk compensation threatening public health in the covid-19 pandemic? *BMJ* 2020; **370**: m2913. doi: 10.1136/bmj.m2913.
- [5] Yan Y, Bayham J, Richter A, Fenichel EP. Risk compensation and face mask mandates during the COVID-19 pandemic. *Sci Rep* 2021; **11**(1): 3174. doi: 10.1038/s41598-021-82574-w.
- [6] Michael Le Page. India's covid-19 surge. *New Sci* 2021; **250**(3330): 7. doi: 10.1016/S0262-4079(21)00627-8.
- [7] Guenther B, Galizzi MM, Sanders JG. Heterogeneity in risk-taking during the COVID-19 pandemic: Evidence from the UK lockdown. *Front Psychol* 2021; **12**: 643653. doi: 10.3389/fpsyg.2021.643653.
- [8] Cumulative coverage report of COVID-19 vaccination. [Online]. Available from: <https://www.mohfw.gov.in/pdf/CumulativeCOVIDVaccinationCoverageReport18thApril2021.pdf>. [Accessed on 20 April 2021].