

COVID-19: The vaccination drive in India and the Peltzman effect

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ABSTRACT

The ongoing COVID-19 vaccine drives across the world, including India, may have caused people to adopt risky behavior such as decreased or non-adherence to COVID-appropriate social behavior. Such phenomenon in which people are more likely to engage in risky behavior when security measures have been mandated is termed as the “Peltzman Effect” and apart from the emergence of various variants, it may have contributed to the recent upsurge in the number of new COVID-19 cases across the world, including in India. To make the worldwide COVID-19 vaccine drive successful, it is important to acknowledge, understand and minimize the potential harms from Peltzman Effect.

Keywords: Antimaskers, Covaxin, Covishield, pandemic fatigue, risk compensation, variant of concern

The Vaccine Drive in India

On January 16, 2021, India rolled out the world’s largest COVID-19 vaccination drive across 3006 vaccine centers in all its states and union territories.^[1] COVID-19 vaccination in India has been initiated with two types of vaccines: AstraZeneca-Oxford University’s Covishield and Bharat Biotech’s Covaxin, being manufactured by Serum Institute of India Ltd. and Bharat Biotech International Ltd. respectively.^[2] More recently, two other vaccines—the Russian COVID-19 vaccine, Sputnik-V, and US-based pharma company Moderna’s COVID-19 vaccine—have been approved for usage in India on April 12, 2021, and June 29, 2021, respectively.^[3,4] Each vaccination center will offer either of the vaccines, but not both. With the second largest populous country in the world (1.38 billion), the initial phase of the

COVID-19 vaccination program in India aims to vaccinate 300 million people by August 2021, including 10 million healthcare workers (HCWs), 20 million frontline workers (e.g. soldiers, policemen, and municipality workers) in the first phase and 270 million people aged >50 years and/or with co-morbidities in the second phase (commenced from March 1, 2021).^[1,2] However, any HCW or frontline workers left out in phase one are also eligible for vaccination in the second phase. To augment and simplify the process of registration and vaccination, The Ministry of Health and Family Welfare introduced the COWIN website, wherein the advance appointment for vaccination can be booked.^[5,6] Apart from this, onsite registration can also be done by visiting the nearest vaccination center after 3:00 pm, carrying identity proof (voter ID, passport, Aadhaar Card, bank passbook, or ration card).

The first vaccine in India was administered to a sanitation worker at All India Institute of Medical Sciences, New Delhi, and on the first day itself, 1,65,714 people were vaccinated. Thereafter, the vaccination program picked its pace and as of April 1, 2021,

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India had administered 6,51,17,896 vaccine doses across the nation, and by July 3, 2021, the total number of vaccine doses administered increased to 35,12,21,306.^[7,8] High coverage of the Indian population with COVID-19 vaccination is being looked as an integral step in controlling the global spread of the SARS-CoV-2 virus. Except for the ongoing nationwide COVID-19 vaccination program, India has also supplied tens of thousands of COVID-19 vaccine doses free of cost to several countries, a step which is widely being termed as “vaccine diplomacy.”^[9] According to the Indian Foreign Ministry, after meeting the domestic requirements and considering the international demands and obligations, India will continue to supply vaccines all over the world.^[9]

COVID-19: The Second Wave

More recently, the second wave of COVID-19 has caused worldwide havoc in terms of disease transmissibility, severity, and mortality and India has been among the worst-hit countries during the second wave. With 4,14,280 new cases on May 6, 2021, and 4,529 deaths on May 18, 2021, India recorded the highest single-day rise in COVID-19 cases and deaths in the past six months^[8] and by the third week of May 2021, India already contributed to approximately 45% of new cases and 34% of the deaths recorded globally.^[10] The recent surge in COVID-19 cases during the second wave was powered by Maharashtra and ten other Indian states (Uttar Pradesh, Delhi, Karnataka, Chhattisgarh, Kerala, Madhya Pradesh, Rajasthan, Gujarat, Tamil Nadu, and Telangana), which account for nearly 80% of the total cases.^[8] According to Central Government, the situation is turning from “bad to worse” and in the wake of a resurgence in the number of new cases in the past few weeks, the decision to speed up the process of vaccination has been taken. The Central Government has also communicated to States/Union Territories to focus on undertaking aggressive measures to break the chain of transmission and directed that those who are found positive should be isolated/hospitalized and their close contacts be traced, tested, and treated without delay. States have been advised to monitor the situation closely and regularly so that the gains made so far in COVID management and containment are not lost.^[11]

Risk Compensation, Pandemic Fatigue and Peltzman Effect

During the COVID-19 pandemic, the world has become more familiar with the term called “risk compensation,” i.e. in situations that are considered risky, people adjust or compensate their behavior to minimize the risk. However, over a period of time, the effects of risk compensation tend to fade, and in the case of COVID-19, this has been termed as “pandemic fatigue,” i.e. decreased or non-compliance to risk reduction strategies among the population, which eventually can have adverse effects on public health measures to contain the disease transmission. The ongoing COVID-19 vaccine drives across the world, including in India, may have caused people to adopt risky

behavior like decreased or non-adherence to COVID-appropriate social behaviors (wearing masks, social distancing, hand hygiene practices, etc.). Such phenomenon in which people are more likely to engage in risky behavior when security measures have been mandated is termed as the “Peltzman Effect,” named after Sam Peltzman, an economist from the University of Chicago who first described it in 1975.^[12,13] Experts believe that despite the nationwide vaccination program in place, the sudden upsurge in the number of new COVID-19 cases in the past few weeks to an extent can be attributed to Peltzman Effect. While vaccines neither give immediate or full protection, nor the absolute immunity to the SARS-CoV-2 virus, the sense of security starts much earlier, even before the actual injection with the vaccine and Peltzman Effect comes into play: People either do not wear masks or wear them with less caution, or as soon as they reach the vaccination center, they forgo masks and do not follow social distancing and hand hygiene. Moreover, some people may feel protected by just looking at the vaccination numbers, or by looking at other people getting vaccinated. As the number of vaccinated people increases, this effect may also grow with the misplaced idea of “herd immunity” even before widespread immunity is present. The Peltzman Effect has also been noted among HCWs with a drastic decline in the usage of PPE kits after getting vaccinated. Of note, while talking of COVID-19, Peltzman Effect may manifest differently for different patient populations. Among those who have rejected the social distancing guidelines or wearing masks from the beginning of the pandemic (so called “antimaskers”), the Peltzman effect will be nil. They cannot reduce their preventive measures any further and would benefit from the maximum positive effect of the vaccination. However, the population with the highest pre-vaccine compliance to the recommended preventive measures and COVID-appropriate behavior are at the highest risk, and must be targeted with any possible attempts to minimize this effect.

What Needs to be Done?

To make the worldwide COVID-19 vaccine drive successful, acknowledging, understanding, and minimizing the potential harms from Peltzman Effect is imperative. Family medicine and primary care physicians are among the first-line medical caregivers, particularly in the rural and resource-constrained settings, and they need to counsel the patients about COVID-19 vaccines and the possibility and harms of the Peltzman Effect. People should be instructed about strictly adhering to the COVID-appropriate behavior even after they get vaccinated. Prioritizing mask-wearing, maintaining social distancing, avoiding crowded places or gatherings in closed-contained spaces regardless of the vaccination status will definitely result in public health benefits. Moreover, the focus should be more toward the individuals who abided by social health guidelines before vaccination rather than those who never followed such guidelines.

Conclusion

Currently, we are facing a new phase of the COVID-19 pandemic wherein emerging variants of the SARS-CoV-2

virus are being increasingly reported. Moreover, such variants, often named variants of concern, are capable of “immune escape” and increased transmissibility.^[14] Although vaccination will prevent/decrease the associated morbidity and mortality, COVID-appropriate social behavior and core public health measures (test, trace, isolate, and treat) will have to continue. The cognitive biases that drive risk compensation thrive on our ignorance and needs to be overcome. Until and unless every person/citizen will not understand their individual, moral and social responsibilities, to win a war against this global pandemic seems to be a far cry.

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Conflicts of interest

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