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**"AN ANAYTICAL STUDY ON PELTZMAN EFFECT_IN LIEU TO
ARISING COVID 19 SITUATION WITH SPECIAL REFERENCE TO
VASAI VIRAR CITY"**

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ABSTRACT

In this study, the researcher has tried to identify the gap between the increasing number of covid cases despite being vaccinated. We have seen from starting Dec 2019 how Covid 19 has created havoc across the globe. Now since a year is down from 2020 to 2021, the pandemic is still here but scenarios are different i.e. In First Scenario, There was no vaccine and structure of the virus due to which people were taking safety measures seriously. In Second Scenario, There is a vaccine available with a variant of effectiveness from 60% to 95%. Also in late 2020 China helped the Globe in understanding the Structure of the Virus since these crucial things are available this made people around the globe habitual to risk compensation which as a result ended up with occurrence of the second wave which is more dangerous than the First wave as now virus comes with new variant making it more complex to heal patients. The above Risk Compensation concept is nothing but a popular theory laid by An Economist named Sam Peltzman, who identified it for the first time in 1975. "When safety measures are mandated, people's perceptions of risk are reduced, leading them to make riskier decisions, according to the theory." The outcome of this research would be identifying how true it is to term Ongoing scenario with Peltzman effect, whether this effect is the link to covid 19 scenarios or not which is reason to soaring new covid 19 cases.

INTRODUCTION & RATIONALE:

A number of vehicle safety features were introduced in the United States in the 1960s to reduce the risk of accident-related death. Although these steps were shown to be successful in reducing the risk of death, experts and authorities alike were

perplexed by the continued rise in accidents across the world. Sam Peltzman, an economist at the University of Chicago, devised a theory that is now known as the "Peltzman Effect."

People's perceptions of risk decrease as safety measures are mandated, according to Peltzman's hypothesis, causing them to make riskier decisions. Peltzman hypothesised that requiring the use of seatbelts in cars resulted in further incidents, implying that a sense of safety enhances one's willingness to take risks. In other words, people become more cautious when they perceive a higher risk and less cautious when they perceive a lower risk.

Automobile accident-related deaths rise after the implementation of safety measures such as seat belts; cyber-attacks become more frequent among networks that subscribe to cyber insurance; sportsmen take on additional risks after wearing protective gear; and COVID-19 cases skyrocket after vaccinations are introduced. There is one thing that all of these case studies have in common! When people's perceptions of safety improve, they're more likely to take risks, which can lead to negative consequences. The Peltzman Effect is the name given to this behavioural phenomenon. Many analysts have begun to attribute the rapid increase in numbers to this phenomenon, as the second wave of COVID-19 numbers in India surpasses the first wave despite the introduction of vaccines.

PROBLEM STATEMENT :

The need of this study is arise due to increasing numbers of covid 19 positives cases across globe, despite of availability of vaccination and good medical facility available from starch with identification of virus structure.

This scenario of soaring covid 19 cases is linked with peltzman effect, which means increase in safety leads to take risky decision which is result of current consequence.

OBJECTIVES :

TO STUDY RELIABILITY OF PELTMEN EFFECT IN SOARING COVID 19 POSITVES CASES :

In March 2020, India, for example, went into Covid-19 lockdown, prompting people to take the disease seriously. A year later, pandemic fatigue has set in, markets have opened up, and people's precautions have visibly slashed.

We currently have two vaccines on the market: Bharat Biotech's Covaxin, which has an efficacy of 80%, and the Serum Institute of India's Covishield, which has efficacy of approximately 60%. (if given eight weeks between doses). Although vaccinations help to control the spread of the disease, three steps that can reduce the risk of contracting Covid-19 — wearing a mask, washing hands often, and social isolation — must be implemented must be adhered to at all times.

As of 5 April, India had vaccinated a total of 7,91,05,163 people and will continue to do so in stages. The country is also experiencing a second wave of Covid-19 infections, with 1,03,794 new infections reported on April 4, the highest number of infections ever recorded in a single day.

Experts predict a rise in risk-taking behavior as a growing number of people, including physicians, test positive for COVID-19 even after vaccination. In the case of COVID-19, vaccinations provide a sense of protection, which has contributed to

a rise in risky behavior, as explained by the Peltzman Effect. Low adherence to preventive measures such as mask use, social distancing, and repeated sanitization are examples of such behavior.

Although it is well understood that vaccinations do not provide immediate or complete protection (against infection or death), the feeling of security begins much sooner, even before the injection. In a thorough study of the Peltzman Effect, doctors from New York University's Langone Health said that the start of vaccination drives around the world gave rise to a "misplaced sense of confidence in 'herd immunity' long before widespread immunity is truly present."

Overconfidence in vaccines

Unwelcome overconfidence appears to have set in as a result of several vaccines' phenomenal success against the deadly virus SARS-CoV-2, which triggers COVID-19. According to experts, the same confidence that is needed to promote widespread vaccine acceptance can often lead people to forego preventive measures.

"Whether they realize it or not," the doctors added, "even those who have not received a COVID-19 vaccine can forego masks and social distancing if they know that others are receiving the vaccine." Even though pandemic fatigue is a factor in low adherence to preventive steps, the Peltzman effect must be considered. Besides, the principle is clear. The hypothesis is also supported by the fact that healthcare staff is using fewer PPE kits.

Peltzman Effect Minimization

The general public can be at risk as a result of this risk-taking conduct. However, for a health care professional who is in direct contact with COVID-19 patients, it may be harmful and affect the functionality of services rendered. This was demonstrated in a recent study of 37 doctors in a Delhi hospital who tested positive while receiving both doses. As a result, scientists say that understanding the Peltzman Effect is crucial to mitigating its potential negative consequences.

HYPOTHESIS OF THE STUDY:

H0 : Population not adhering to preventive measures like usage of mask, social distancing & sanitization due to ongoing vaccination which involves taking risky decision

H1 : Population adhering to preventive measures like usage of mask, social distancing & sanitization due to ongoing vaccination which involves taking less risky decision

LIMITATIONS :

This study is limited to Nallasopara city, located in the heart of Vasai Taluka as part of Micro Study to analyse the hypothesis. Also population opinions may vary from geography to geography base on different factors like Literacy, environment, no. of cases per day, behaviour etc.

SCOPE OF THE STUDY:

Future study can be done by taking wider geography than Vasai Virar City like Metropolitan Region of Mumbai, by analysing peltzman effect on mentioned geography this will help in identification of psychological risk appetite of

population which can help to take various crucial decision like Lock down, Partial Lock Down or shutting of some business for few day etc.

LITERATURE REVIEW:

○ **The Print :**

India has so far vaccinated a total of 7,91,05,163 as on 5 April, and will continue to vaccinate others in phases. India is currently in the throes of a second wave of Covid-19 infections, with 1,03,794 fresh infections on 4 April. There are two vaccines in the market: Covaxin by Bharat Biotech, which has an efficacy of 80 per cent, and Covishield by the Serum Institute of India, with 60 per cent efficacy. Wearing a mask, frequent hand-washing, and social distancing, need to be followed at all times, say doctors. The Peltzman Effect is named after Sam Peltzman, professor of economics at the University of Chicago's Booth School of Business, who argued that safety devices like seat belts and airbags make people feel like they can compromise on their own attentiveness or behaviour, making them take bigger risks. The effect may also grow as the number of people vaccinated increases.

The NCBI :

COVID-19 pandemic has manifested as "pandemic fatigue," decreasing adherence to risk reduction strategies in some populations. People respond to safety measures with a compensatory increase in risky behavior. To produce an increase in risk, a measure must first be visible, which the vaccines unquestionably meet. Motivation and control go hand in hand, and appear to be present in the pandemic, authors say. The effect of the Peltzman Effect has been notably absent in studies of the human papillomavirus vaccine, which did not result in any discernible change in sexual behaviors despite widespread media speculation. Risk compensation is more likely to occur if people are highly motivated to take on the risky behavior. The Pfizer-BioNTech and Moderna vaccines currently granted emergency use authorization are more than 94% effective. For the Peltzman Effect, however, this high efficacy is likely to further reduce adherence to other precautions. Widespread misinformation and a highly politicized public he he he may worsen this effect, authors say. The effect may also grow due to a misplaced sense of security in "herd immunity" long before widespread immunity is truly present, they say. It is important to note that for COVID-19, a Peltzman Effect may manifest in different ways for different patient populations, they write.

The Forbes India :

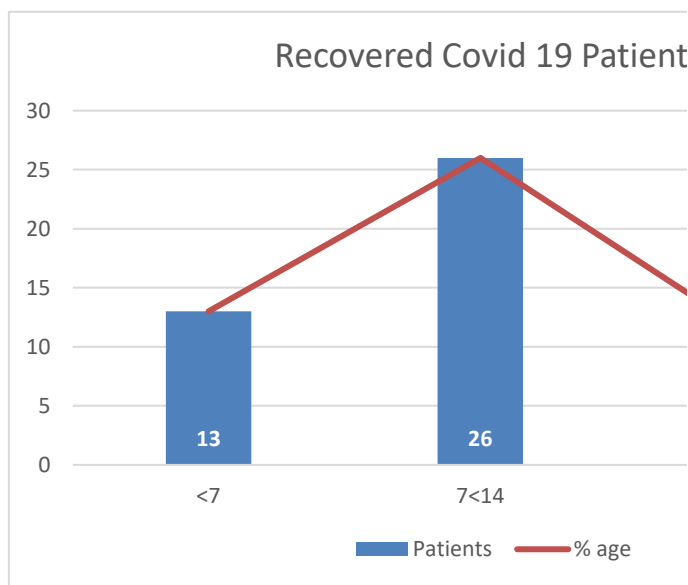
The Peltzman Effect says that people are more likely to engage in risky behaviour when security measures are mandated. Pakistan's Prime Minister Imran Khan reportedly tested positive with the coronavirus a few days after being vaccinated. People assume, wrongly, that vaccination makes you invincible and you can get back to partying and a pre-Covid-19 normal life. The immunity builds up only a few weeks after the second dose and immunity is not absolute. You can still get infected after being vaccination, just like you could die in a car accident even though you are wearing a seatbelt. But just like the seat belt can't protect you if you drive like an idiot, the vaccine won't protect You if you behave like one. Some other idiot can get you infected, even if you are an innocent bystander. The basics: wear a mask, maintain social distance and wash your hands.

RESEARCH METHODOLOGY :

The present study used convenience sampling and followed the primary survey method. Respondents (male and female) were a group of population who fell in the age group 20 to 60. The participants belonged to a small city – Vasai Virar - in the state of Maharashtra (India); the town has a population of nearly 1,222,390. Mainly, the residents of Vasai Virar recovered from covid 19 . A well-structured questionnaire was framed and randomly circulated among 50 Covid 19 Recovered Patients.

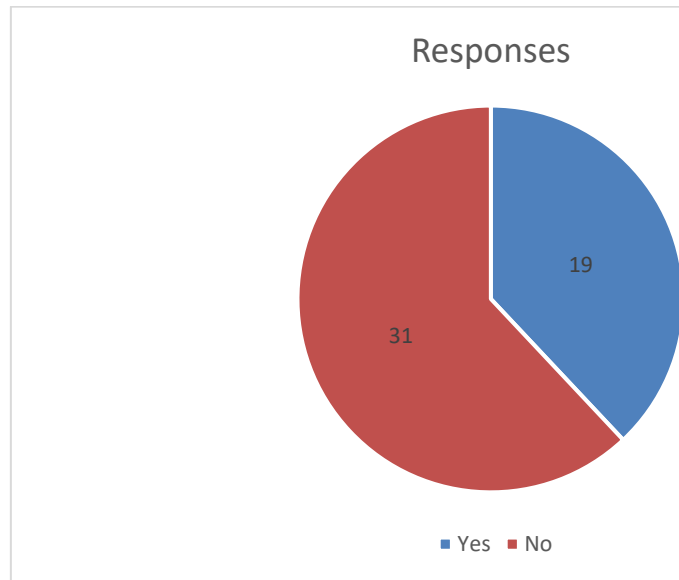
Q1) How much time it took you to recovered from Covid 19

Days	Patients	% age
<7	13	26%
7<14	26	52%
>14	11	22%
Total	50	100%



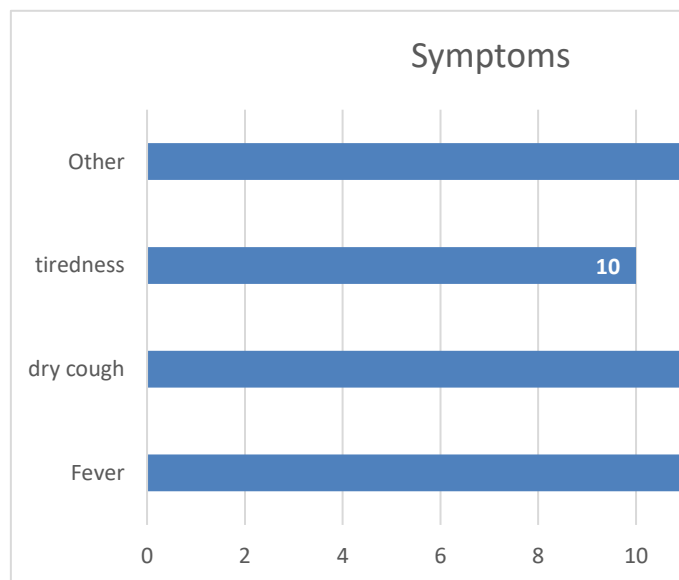
Q2) Are you Vaccinated with Covaxin or Covishield ?

Options	Responses	%age
Yes	19	38%
No	31	62%
Total	50	100%



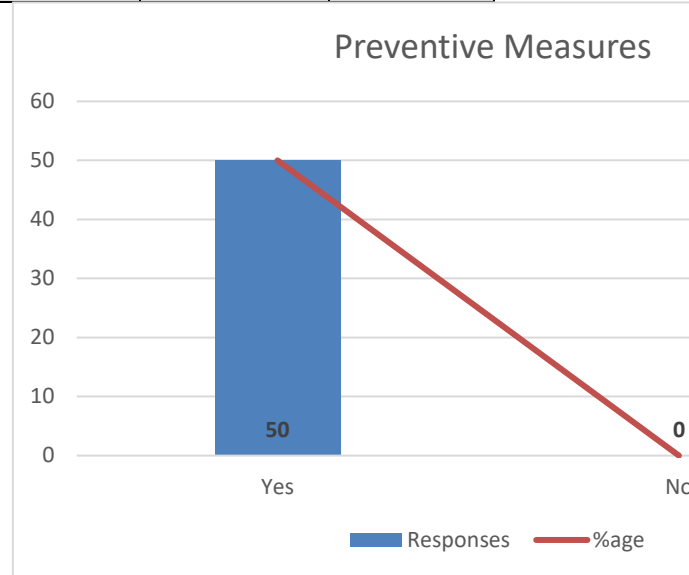
Q3) What are symptoms indentified during your infected period?

Options	Responses	%age
Fever	13	26%
dry cough	14	28%
tiredness	10	20%
Other	13	26%
Total	50	100%



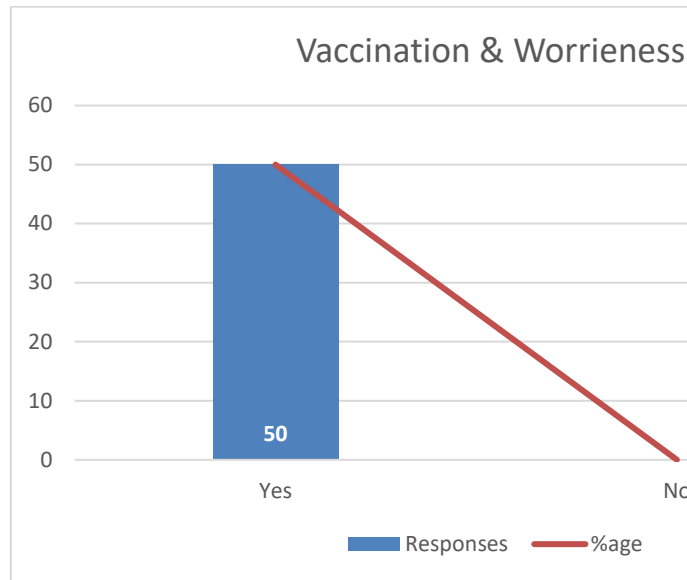
Q4) Do you Follow Preventive Measure properly i.e. Wearing Mask, Social Distancing & Santization ?

Options	Responses	%age
Yes	50	100%
No	0	0%
Total	50	100%



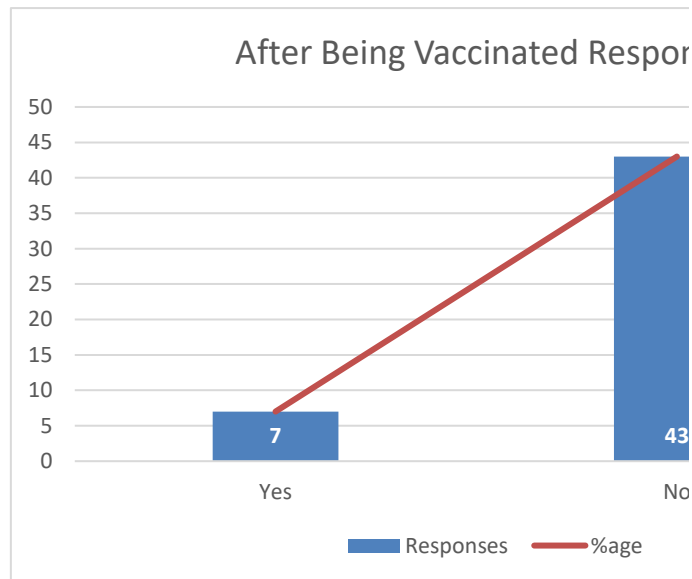
Q5) Would you have worried less after been vaccinated or by getting vaccination ?

Options	Responses	%age
Yes	50	100%
No	0	0%
Total	50	100%



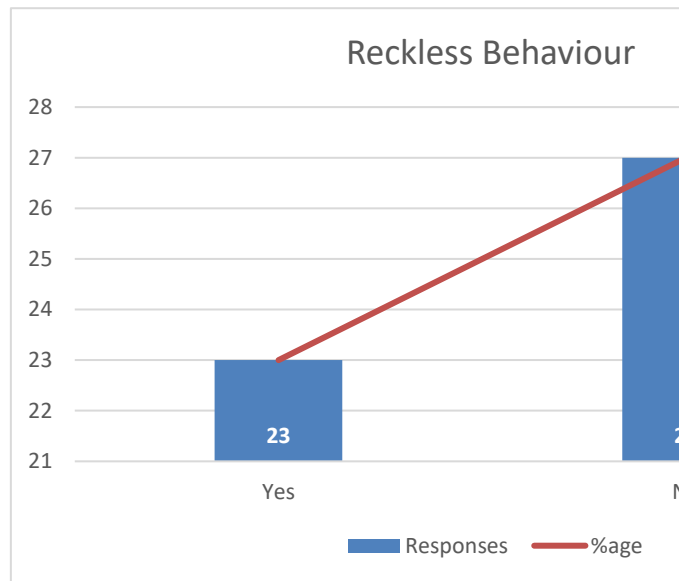
Q6) Do you think after being vaccinated there is no need to take preventive measures?

Options	Responses	%age
Yes	7	14%
No	43	86%
Total	50	100%



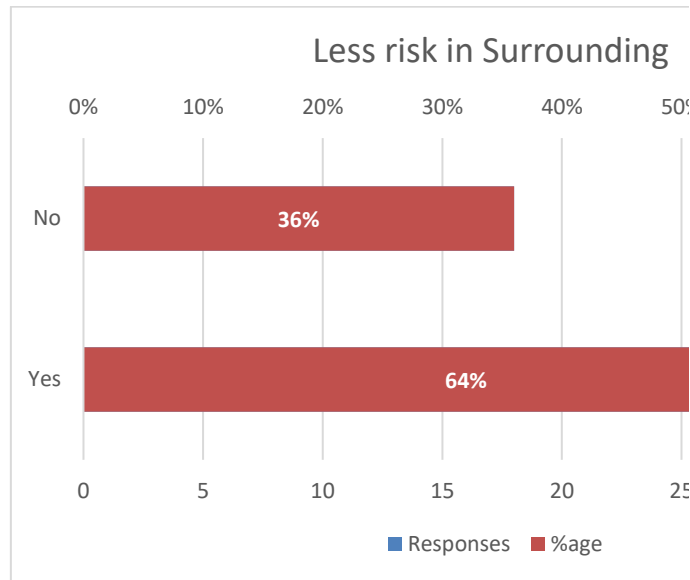
Q7) Do you believe that due to on going vaccination drive people are behaving recklessly in terms of following safety measures ?

Options	Responses	%age
Yes	23	46%
No	27	54%
Total	50	100%

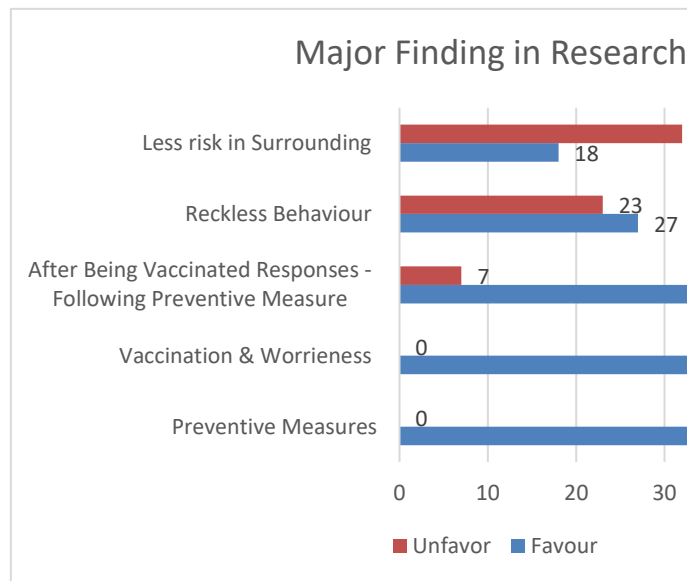


Q8) Do you believe that even those people who are yet to be vaccinated are behaving recklessly in terms of following safety measures due to feeling of less risk of covid in surrounding?

Options	Responses	%age
Yes	32	64%
No	18	36%
Total	50	100%



Major Finding in Research :



z-Test: Two Sample for Means

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	37.6	12.4
Known Variance	208.3	208.3
Observations	5	5

Hypothesized Mean Difference	0
z	2.760742558
P(Z<=z) one-tail	0.002883506
z Critical one-tail	1.644853627
P(Z<=z) two-tail	0.005767012
z Critical two-tail	1.959963985

Since z-value is “**2.76**” which is greater than z Critical two-tail value i.e. “**1.95**”, null hypothesis is rejected as there is definitely difference between two sample . Hence, Null hypothesis is rejected and alternate hypothesis is accepted which is, Population adhering to preventive measures like usage of mask, social distancing & sanitization due to ongoing vaccination which involves taking less risky decision.

INFERENCE :

The Peltzman Effect can be applied to a broad range of risk-taking behaviours, especially in the domain of health-related behaviours. The current Covid-19 pandemic, specifically the influence and effectiveness of vaccination programmes, is a crucial possible application of the Peltzman Effect.

Based on the Peltzman Effect, we would expect people who have been vaccinated to have a greater sense of security and therefore participate in riskier activities that could help the virus spread. Furthermore, as more people are vaccinated, these habits may become more prevalent, as people assume that herd immunity reduces risks even further. Despite the fact that it will be a long time before widespread immunity is achieved. Furthermore, while optimistic messages about the vaccine's safety benefits can be helpful in motivating people to get the vaccine, it can also contribute to a reduced perception of risk among those who have been vaccinated. As a result, the advantages of vaccination programmes in minimising Covid-19 transmission can be offset in part by the risks of vaccinated people engaging in more social activities and taking less safety measures as a result of their lower risk perception.

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