

# Survey on Side Effects of Covid Vaccine

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**Abstract-** *This research paper explores the side effects associated with COVID-19 vaccines, focusing on the prevalence, severity, and duration of adverse reactions reported across various demographics. While vaccines have proven critical in controlling the pandemic, understanding their side effects is essential for public trust and effective healthcare policies. The study analyzes data from clinical trials, post-vaccination surveillance, and scientific literature, highlighting common side effects such as fatigue, fever, and localized pain, as well as rare adverse events like myocarditis and anaphylaxis. By evaluating risk factors and mitigation strategies, the paper aims to provide a balanced perspective to inform both healthcare providers and the general population.*

## I. INTRODUCTION

The COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, has resulted in a global health crisis, affecting millions of people worldwide[1]. First identified in December 2019, the virus spread rapidly, leading to widespread illness and death. In response, governments and health organizations implemented a range of public health measures, including social distancing, lockdowns, and mass testing. By December 2020[5], the development and distribution of vaccines became a crucial strategy to mitigate the impact of the virus, aiming to reduce transmission, prevent severe disease, and save lives[2].

Vaccines for COVID-19 were developed at an unprecedented speed, with vaccines from companies like Pfizer-BioNTech, Moderna, AstraZeneca, and Johnson & Johnson receiving emergency use authorizations in multiple countries[2]. These vaccines have proven to be highly effective in preventing symptomatic infections and reducing the severity of the disease, particularly in preventing hospitalization and death.

Like all vaccines, however, COVID-19 vaccines come with some side effects[1][2]. The majority of these effects are mild and temporary, such as pain at the injection site, fatigue, fever, and headaches, which typically resolve within a few days. In rarer cases, more serious reactions have been reported, including allergic responses, blood clotting disorders (notably associated with AstraZeneca's vaccine), and myocarditis or pericarditis, conditions involving inflammation

of the heart tissue, which have mostly affected younger individuals[4]. Despite the proven benefits, these potential side effects have contributed to concerns and, in some instances, diminished public trust in the vaccines.

These concerns, compounded by misinformation, have fueled vaccine hesitancy in certain communities. To address this, ongoing education and transparent communication are essential to maintaining public confidence in the safety and efficacy of the vaccines.

Additionally, the pandemic exacerbated existing social and economic inequalities, disproportionately affecting marginalized and low-income communities. Also some opposing parties ,attacking the ruling BJP over the issue, SP national general secretary Shivpal Yadav said, 'It has been exposed now that they have taken commission in vaccines too. Low quality vaccines and medicines were given to the people.[3]

While vaccines have been a critical tool in fighting the pandemic, access to them remained a significant challenge for economically disadvantaged groups. Many lacked access to healthcare facilities, transportation, or the digital resources necessary for vaccine registration. Furthermore, individuals working in informal sectors or as daily wage earners faced economic pressures that made it difficult to take time off for vaccination or recovery from potential side effects.

Governments around the world used vaccine distribution as a means of demonstrating leadership and control over the pandemic[6]. However, political factors often complicated public trust. Allegations of corruption, unequal vaccine distribution, and lack of transparency in procurement and delivery processes raised concerns. In some countries, political affiliations influenced vaccine access, leading to preferential treatment for certain groups and leaving vulnerable populations at a disadvantage. "Recent data suggest that previous COVID-19 may increase the risk for many entities of cardiovascular disease (CVD) to an extent similarly observed for traditional cardiovascular (CV) risk factors," the researchers wrote[4].

**II. OBJECTIVE**

The primary aim of this survey is to understand the public's experiences, perceptions, and attitudes regarding COVID-19 vaccination. The specific objectives are as follows:

**1. Assess Public Perception of COVID-19 Vaccines**

- Understand the level of trust in vaccine safety, efficacy, and the scientific process behind their development.
- Analyze public concerns regarding vaccine ingredients, development speed, and transparency in communication by health authorities.

**2. Document Post-Vaccination Experiences**

- Record the prevalence and severity of side effects experienced by vaccinated individuals.
- Explore long-term health effects and perceptions of overall well-being after vaccination.

**3. Gauge Public Opinion on Vaccination Campaigns**

- Gather feedback on the effectiveness of government and healthcare vaccination campaigns, including communication strategies and outreach efforts.
- Understand how political influences and media coverage have shaped public opinions about the vaccination process.

**4. Investigate Long-Term Effects (If Applicable)**

- Explore if participants reported any lingering or long-term health effects post-vaccination.
- Identify cases where individuals attribute health issues to the vaccine over an extended period.

**5. Examine Side Effects Across Dose Intervals**

- Assess whether side effects increase, decrease, or remain consistent across multiple doses.
- Analyze differences in reactions to booster doses compared to primary doses.

**6. Study Management and Recovery from Side Effects**

- Collect data on how individuals managed side effects (e.g., over-the-counter medication, medical consultation).
- Analyze recovery time and effectiveness of management strategies.

**III. METHODOLOGY**

A structured questionnaire was designed to assess participants' demographic details, vaccine type, and their experiences with vaccine side effects. Participants shared their experiences regarding the side effects they encountered after vaccination, which ranged from mild symptoms like fever, fatigue, and muscle aches to more severe concerns such as cardiovascular issues (heart palpitations, chest pain, or shortness of breath). The Major focus was on the following :-  
Prevalence and severity of side effects.

Trust in vaccine-related information provided by health authorities.

Public perception of vaccine safety and efficacy.

Specific concerns regarding long-term cardiovascular effects of the vaccine.

**TABLE:** Google form questions provided for survey process.

1)	<b>Age Group</b> a)15 to 18 b)18 to 30 c)30 to 45 d)45 to 60 e)60 ++
2)	<b>Do you have?</b> a)High blood pressure b)Diabetes c)Both d)None
3)	<b>Which Vaccine have you taken?</b> a)Covisheild b)Covaxin
4)	<b>How would you rate your level of trust in COVID-19 vaccine information provided by health authorities?</b>
5)	<b>Have you faced any serious hospitalization after taking vaccine.</b> a)Yes b)No

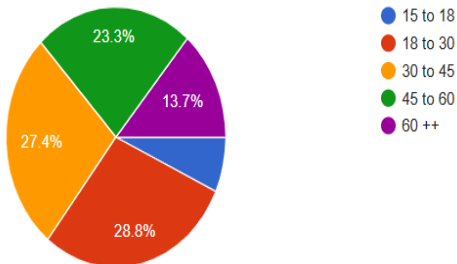
6)	<p><b>If yes, then what was the reason for your hospitalization</b></p> <p>a) Cardio Vascular Problems                  b) Dengue                  c) Malaria                  d) Breathing Difficulties                  e) Persistent cough                  f) Neurological symptoms</p>
7)	<p><b>How was your condition in Hospital?</b></p> <p>a) Mild                  b) Moderate                  c) Serious</p>
8)	<p><b>Are you experiencing more frequent illnesses or infections than before vaccination?</b></p> <p>a) Sometimes                  b) Often                  c) Many times</p>
9)	<p><b>Has your overall health changed since getting vaccinated?</b></p> <p>a) Improved                  b) No change                  c) Worsened                  d) Not sure</p>
10)	<p><b>Do you think that government is somewhat responsible for these side effects and are hiding number of serious</b></p>

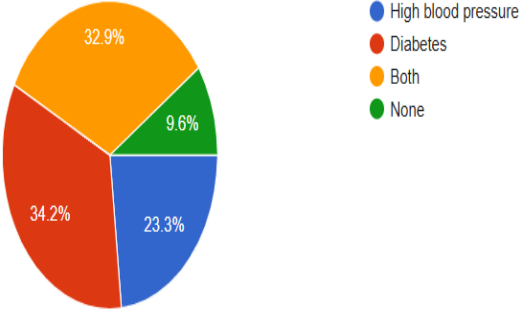
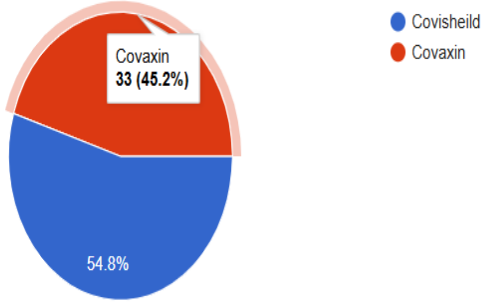
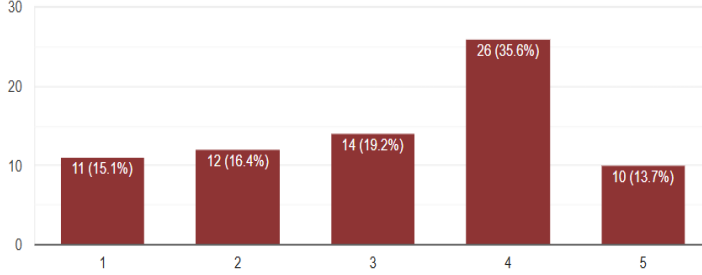
	<p><b>hospitalized cases after vaccination?</b></p> <p>a) Yes                  b) No</p>
11)	<p><b>What do you think that government could do to improve public trust in future for vaccines?</b></p> <p>a) By Increasing Transparency On Details Of Chemicals in Vaccine                  b) Lowering Prices of Vaccines                  c) Reducing Side Effects in Vaccines                  d) Public Awareness of Possible Symptoms in Vaccines                  e) Other</p>

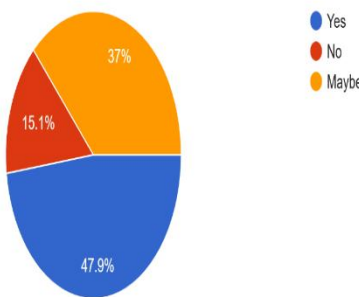
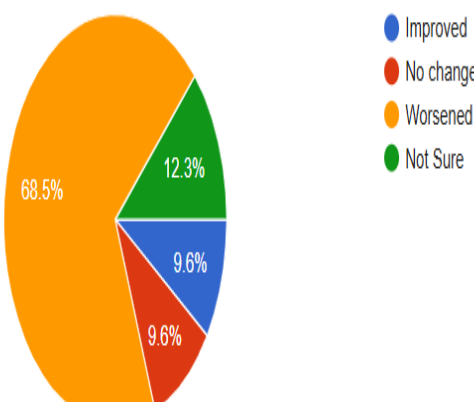
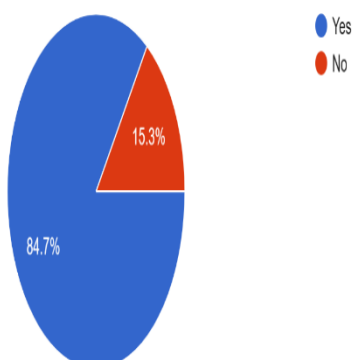
Thus in this questionnaire our major focus was on the following:- Prevalence and severity of side effects. Trust in vaccine related information provided by health authorities. Public perception of vaccine safety and efficacy. Specific concerns regarding long-term cardiovascular effects of the vaccine.

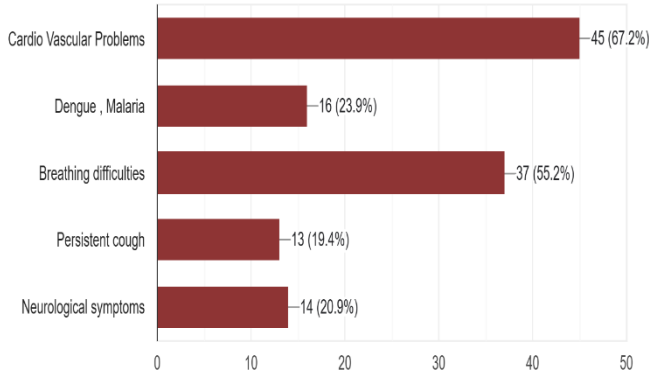
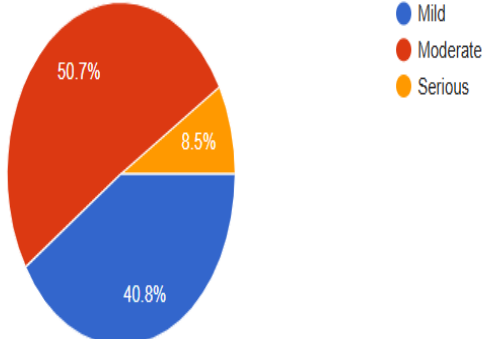
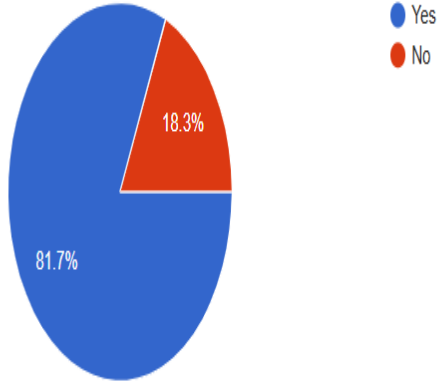
**IV. RESULT AND DISCUSSIONS**

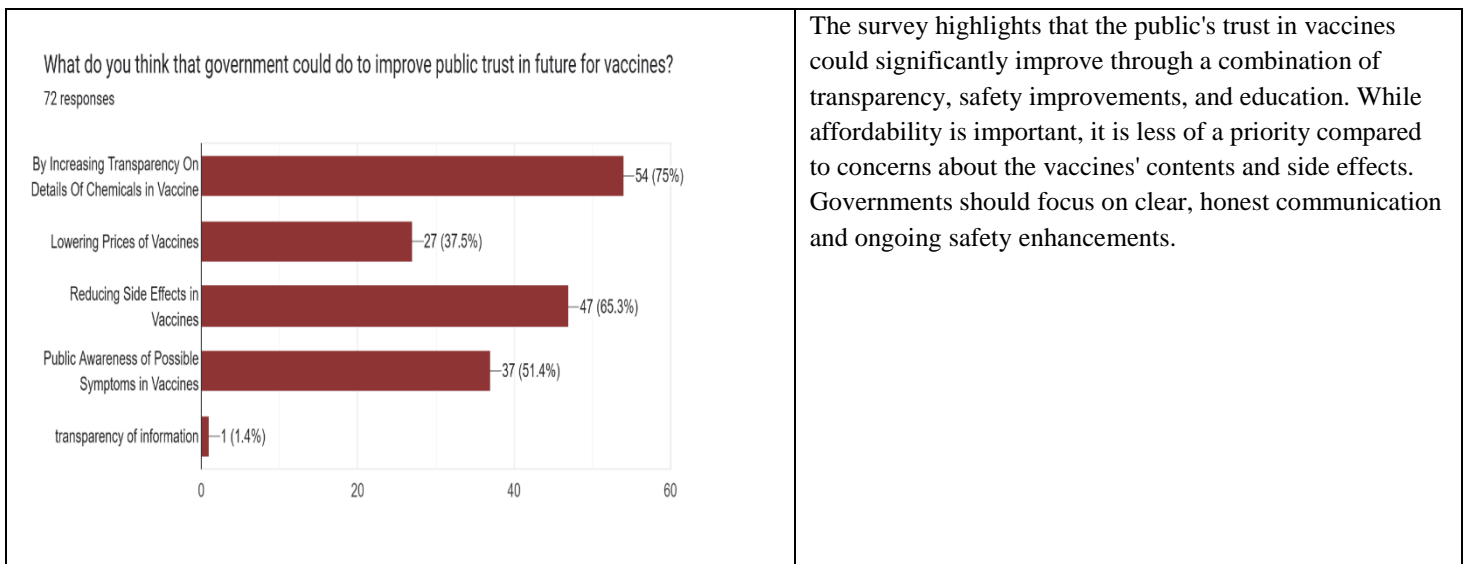
The responses gathered from respondents after the surveying procedure are graphically represented using a pie chart. The results, including graphical representations and discussions, are shown in Table

<p><b>Graphical representations using pie charts to show results</b></p>	<p><b>Results and discussion on the basis of responses from respondents</b></p>												
<p>Age Group 73 responses</p>  <table border="1"> <caption>Age Group Distribution Data</caption> <thead> <tr> <th>Age Group</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>15 to 18</td> <td>6.8%</td> </tr> <tr> <td>18 to 30</td> <td>28.8%</td> </tr> <tr> <td>30 to 45</td> <td>27.4%</td> </tr> <tr> <td>45 to 60</td> <td>23.3%</td> </tr> <tr> <td>60 ++</td> <td>13.7%</td> </tr> </tbody> </table>	Age Group	Percentage	15 to 18	6.8%	18 to 30	28.8%	30 to 45	27.4%	45 to 60	23.3%	60 ++	13.7%	<p>According to the survey results, a significant majority, or 28.8%, of the participants fall within the age group of 18-30 years. Additionally, 27.4% of the respondents are between 30-45 years, 23.3% are between 45-60 years, 13.7% are above 60 years, while a smaller proportion, 6.8% belongs to the age group of 15-18 years. These findings provide insights into the distribution of participants who filled up the form.</p>
Age Group	Percentage												
15 to 18	6.8%												
18 to 30	28.8%												
30 to 45	27.4%												
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60 ++	13.7%												

<p>Do you have?</p> <p>73 responses</p>  <p>Legend:  <span style="color: blue;">●</span> High blood pressure  <span style="color: red;">●</span> Diabetes  <span style="color: orange;">●</span> Both  <span style="color: green;">●</span> None</p>	<p>This pie chart shows</p> <ul style="list-style-type: none"> <li>- 23.3% have high blood pressure.</li> <li>- 34.2% have diabetes.</li> <li>- 32.9% have both conditions.</li> <li>- 9.6% have none of these conditions.</li> </ul> <p>The majority of respondents (90.4%) reported having at least one of the conditions (high blood pressure, diabetes, or both), with diabetes being the most common individual condition. Only a small portion (9.6%) reported having none of these conditions. This indicates a significant prevalence of these health issues among the respondents.</p>
<p>Which COVID-19 vaccine you have received ?</p> <p>73 responses</p>  <p>Legend:  <span style="color: blue;">●</span> Covishield  <span style="color: red;">●</span> Covaxin</p>	<p>The survey reveals 54.8% reported receiving Covishield while 45.2% received Covaxin. While less than Covishield, Covaxin still represents a significant portion, nearly half of the participants. The distribution between Covishield and Covaxin is relatively balanced, with a difference of only 9.6 percentage points, showing no overwhelming dominance by either vaccine. This chart could indicate a fairly equal acceptance and administration of both vaccines within the group, which might reflect availability, trust, or governmental policy during the survey period.</p>
<p>Average rating (3.16)</p> <p>1      2      3      4      5</p> <p>★      ★      ★      ★      ★</p> 	<p>Ratings distribution:</p> <ul style="list-style-type: none"> <li>1 stars: (15.1%)</li> <li>2 stars: (16.4%)</li> <li>3 stars: (19.2%)</li> <li>4 stars: (35.6%)</li> <li>5 stars: (13.7%)</li> </ul> <p>This survey shows that the majority (35.6%) rated the vaccine 4 stars, showing a relatively high level of satisfaction or confidence. The overall reception of the COVID-19 vaccine is mixed, with a slight inclination toward positive feedback. However, the notable percentage of low ratings indicates room for improvement, possibly in terms of public confidence, side effects, or vaccine efficacy.</p>

<p>Do you believe COVID-19 vaccines were effective in preventing serious illness during that time? 73 responses</p>  <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>47.9%</td> </tr> <tr> <td>No</td> <td>15.1%</td> </tr> <tr> <td>Maybe</td> <td>37%</td> </tr> </tbody> </table>	Response	Percentage	Yes	47.9%	No	15.1%	Maybe	37%	<p>This survey finds that:                      -Yes: 47.9% believe the vaccines were effective.                      - Maybe: 37% are unsure.                      - No: 15.1% do not believe they were effective.</p> <p>This indicates that almost half of the respondents believe in the effectiveness of COVID-19 vaccines in preventing serious illness, but there is still a significant portion (over 50%) that either doubts or is unsure about their effectiveness. This suggests mixed perceptions and potential room for further education or information dissemination.</p>		
Response	Percentage										
Yes	47.9%										
No	15.1%										
Maybe	37%										
<p>Has your overall health changed since getting vaccinated? 73 responses</p>  <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Worsened</td> <td>68.5%</td> </tr> <tr> <td>Not Sure</td> <td>12.3%</td> </tr> <tr> <td>Improved</td> <td>9.6%</td> </tr> <tr> <td>No change</td> <td>9.6%</td> </tr> </tbody> </table>	Response	Percentage	Worsened	68.5%	Not Sure	12.3%	Improved	9.6%	No change	9.6%	<p>This survey summarizes the responses of people regarding changes in their overall health since getting vaccinated. Here's a breakdown of the responses:</p> <ul style="list-style-type: none"> <li>• Worsened (68.5%): The majority of respondents reported their health worsened.</li> <li>• Improved (9.6%): A small portion indicated health improvement.</li> <li>• No Change (9.6%): Similarly, a small group reported no change.</li> <li>• Not Sure (12.3%): Some respondents were uncertain about any changes.</li> </ul> <p>The chart indicates that a significant portion of respondents feel their health has worsened since vaccination. However, a notable percentage is unsure or reports no change or improvement, reflecting a range of experiences.</p>
Response	Percentage										
Worsened	68.5%										
Not Sure	12.3%										
Improved	9.6%										
No change	9.6%										
<p>Have you faced any serious hospitalization after taking vaccine. (Note--for those 1 or 2 years have passed) 72 responses</p>  <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>15.3%</td> </tr> <tr> <td>No</td> <td>84.7%</td> </tr> </tbody> </table>	Response	Percentage	Yes	15.3%	No	84.7%	<p>Based on the survey data displayed in the pie chart: 84.7% of respondents indicated they did not experience any serious hospitalization after taking the vaccine within the past 1–2 years. 15.3% of respondents reported experiencing serious hospitalization after vaccination. The overwhelming majority of respondents (84.7%) did not face serious health issues requiring hospitalization post-vaccination, indicating that for most participants, the vaccine did not lead to severe adverse effects requiring hospital care. The 15.3% who experienced hospitalizations may warrant further investigation to determine specific causes or factors, such as underlying health conditions or other external influences.</p>				
Response	Percentage										
Yes	15.3%										
No	84.7%										

<p>If yes, then what was the reason for your hospitalization</p> <p>67 responses</p>  <table border="1"> <thead> <tr> <th>Reason</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Cardio Vascular Problems</td> <td>45</td> <td>67.2%</td> </tr> <tr> <td>Breathing difficulties</td> <td>37</td> <td>55.2%</td> </tr> <tr> <td>Dengue, Malaria</td> <td>16</td> <td>23.9%</td> </tr> <tr> <td>Neurological symptoms</td> <td>14</td> <td>20.9%</td> </tr> <tr> <td>Persistent cough</td> <td>13</td> <td>19.4%</td> </tr> </tbody> </table>	Reason	Count	Percentage	Cardio Vascular Problems	45	67.2%	Breathing difficulties	37	55.2%	Dengue, Malaria	16	23.9%	Neurological symptoms	14	20.9%	Persistent cough	13	19.4%	<p>Based on the survey data displayed in the bar chart:</p> <ul style="list-style-type: none"> <li>• Cardiovascular problems were the most common reason for hospitalization, accounting for 67.2% of cases.</li> <li>• Breathing difficulties were the second most reported cause, with 55.2% of respondents indicating this issue.</li> <li>• Dengue and malaria were the reason for 23.9% of hospitalizations.</li> <li>• Neurological symptoms were reported by 20.9% of respondents.</li> <li>• Persistent cough accounted for 19.4% of hospitalizations.</li> </ul> <p>The majority of hospitalizations were due to cardiovascular problems and breathing difficulties. The relatively smaller but notable proportions for dengue/malaria, neurological symptoms, and persistent cough suggest other health conditions that may also warrant attention.</p>
Reason	Count	Percentage																	
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<p>How was your condition in Hospital?</p> <p>71 responses</p>  <table border="1"> <thead> <tr> <th>Condition</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Mild</td> <td>40.8%</td> </tr> <tr> <td>Moderate</td> <td>50.7%</td> </tr> <tr> <td>Serious</td> <td>8.5%</td> </tr> </tbody> </table>	Condition	Percentage	Mild	40.8%	Moderate	50.7%	Serious	8.5%	<p>This survey summarizes condition of people in hospital. Here's a breakdown of the responses:</p> <ul style="list-style-type: none"> <li>• Moderate Conditions (50.7%):</li> <li>• Mild Conditions (40.8%):</li> <li>• Serious Conditions (8.5%)</li> </ul> <p>The majority of hospitalized cases (91.5%) were mild to moderate suggesting that while hospitalization may occur post-vaccination, most cases are not life-threatening. The 8.5% reporting serious conditions emphasizes the need for continuous monitoring and support for rare but severe adverse reactions.</p>										
Condition	Percentage																		
Mild	40.8%																		
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Serious	8.5%																		
<p>Do you think that government is somewhat responsible for these side effects and are hiding number of serious hospitalized cases after vaccination?</p> <p>71 responses</p>  <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>81.7%</td> </tr> <tr> <td>No</td> <td>18.3%</td> </tr> </tbody> </table>	Response	Percentage	Yes	81.7%	No	18.3%	<p>Based on the pie chart survey results:</p> <ul style="list-style-type: none"> <li>• 81.7% of respondents believe that the government is somewhat responsible for the reported side effects and may be hiding the number of serious hospitalization cases after vaccination.</li> <li>• 18.3% of respondents do not hold the government responsible or believe there is no such concealment of data.</li> </ul> <p>Conclusion: The majority of respondents have expressed a lack of trust in the government regarding the transparency and accountability of vaccine-related side effects and hospitalizations. This sentiment could reflect broader concerns about government communication, data disclosure, or public health policies surrounding vaccination campaigns</p>												
Response	Percentage																		
Yes	81.7%																		
No	18.3%																		



## V. CONCLUSIONS

The analysis of the survey data reveals a complex narrative surrounding the side effects of COVID-19 vaccines. While the majority of respondents experienced mild to moderate side effects, such as fever, fatigue, and localized pain, a concerning number of severe cases were also reported. These severe cases, though relatively rare, included allergic reactions, cardiovascular complications, and prolonged health issues, which have sparked significant public concern.

### •Key Takeaways:

**Prevalence of Severe Side Effects:** Severe side effects were reported by a small but notable percentage of respondents (<5%). These cases often involved individuals with pre-existing health conditions or heightened immune responses. Cardiovascular symptoms, such as chest pain or irregular heartbeat, were among the most serious adverse events. While rare, these cases require further investigation to determine causality and risk factors.

### • Impact of Vaccine Type:

Severe reactions were more frequently associated with certain vaccine types, potentially due to differences in vaccine platforms (e.g., mRNA vs. viral vector vaccines).

### • Public Perception of Severe Side Effects

Reports of severe side effects, amplified by social media and misinformation, have significantly influenced public trust in vaccines. Many individuals expressed hesitation about boosters or future vaccinations due to fear of adverse events.

### • Long-Term Implications:

A small fraction of respondents reported prolonged health issues post-vaccination, including persistent fatigue and neurological symptoms. These cases, though not conclusively linked to the vaccines, warrant further clinical and epidemiological studies.

### • Need for Post-Vaccination Monitoring:

The data highlights the critical importance of robust post-vaccination monitoring systems to identify and address severe adverse events promptly. Improved reporting mechanisms and follow-up support for affected individuals can help mitigate public fear.

### • Balancing Risks and Benefits:

While severe side effects are concerning, it is essential to contextualize their occurrence against the broader benefits of vaccination in preventing severe COVID-19 cases, hospitalizations, and deaths. Public health messaging must emphasize this balance while acknowledging and addressing individual risks.

In conclusion, while COVID-19 vaccines have played a pivotal role in controlling the pandemic, the occurrence of severe side effects in a little majority of cases underscores the need for continuous monitoring, transparent communication, and tailored medical support. These measures are critical to maintaining public trust and ensuring the safety and efficiency of future vaccination programs.

## VI. ACKNOWLEDGEMENT

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- [3] Deccan Herald (<https://www.deccanherald.com/india/who-would-be-responsible-for-heart-attack-deaths-opposition-slam-bjp-over-covishield-row-3002187>)
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