

Survey for Immune Response and Allergic Reactions in Individuals with Covid Vaccination at Kannur District, Kerala, India

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ABSTRACT

Vaccination is a boon for humans as it prevents the microbes to cause disease. In the similar aspect it is important to know the immunoresponse generated by the administered vaccine. Such a study may help to improve the performance of vaccines and thereby to understand its suitability for individuals of various age group and physiological conditions. A Survey of individuals for COVID-19 vaccination from the Kannur district of Kerala from India is reflecting that most of the individuals are showing immune response post vaccination by Covishield and Covaxin. Different types of immunoresponse such as fever, headache, body pain, vomiting and nausea are observed. However, few individuals are not showing any above type of immunoresponse. Also, vaccinations are given mostly to an individual without knowledge of medical history or physiology.

Keywords: COVID-19, Vaccination, Immunoresponse, Covisheild, Covaxin.

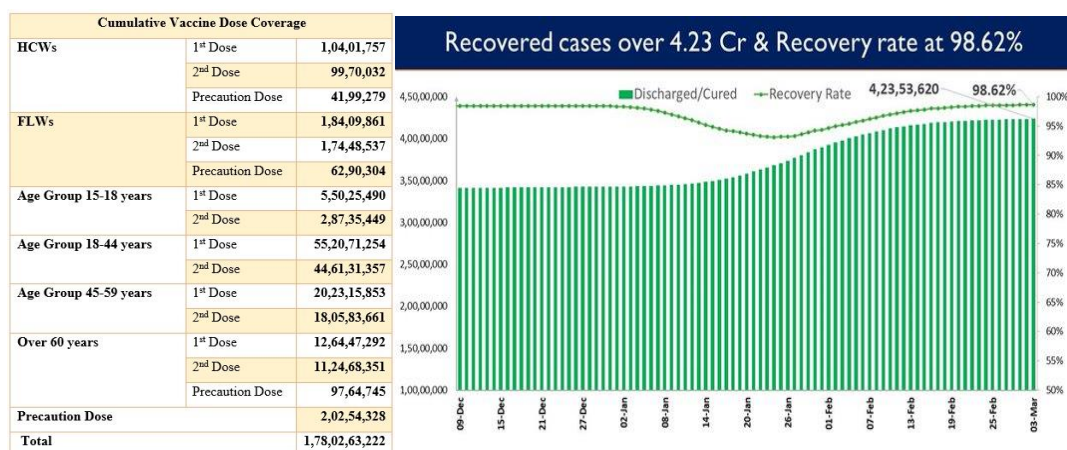
INTRODUCTION

Diseases are caused through various agents including microbes through different mode of interaction in the environment. And the similar disease causing microbes can be used to prevent it from inducing a disease or unhealthy condition in an individual through vaccination. There are many types of vaccines recommended for children from birth till age of 15 years and also some for adults like

Hepatitis vaccine. In the prevailing pandemic by COVID-19 we see many types of vaccines developed to tackle the disease before it causes infection to us. Till date in India first dose is completed by 178 Cr individuals, 79.2 Cr people are fully vaccinated. Ministry of health and family affairs in 2022 have published the cumulative data for vaccine dose coverage and recovery rate in India.

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Similarly, Kerala has so far administered 2,45,13,225 doses, out of which 1,77,88,931 individuals were given the first dose, and 67,24,294 were given the second dose (PSGopikrishnanUnnithan, 2021). Corbevax, Covaxin, Covishield, Johnson and Johnson, Moderna, Novavax, Sputnik light, Sputnik V and Zydus Cadila are the different types of vaccines developed and used around the world. Among these, Covishield and Covaxin are predominant in India and specifically in Kerala. The content of the vaccine may help an individual to understand the most suitable one. In concerned with Covishield, content includes L-Histidine, L-Histidine hydrochloride monohydrate, Magnesium chloride hexahydrate, Polysorbate 80, Ethanol, Sucrose, Sodium chloride, Disodium edetate dihydrate (EDTA) and water for injection. Serum Institute of India 2021 has stated that COVISHIELD™ has been administered in clinical trials in people with or without comorbid conditions. The safety profile was comparable in those with or without comorbid conditions (e.g.: Hypertension, Cardiovascular Disease, Asthma, Diabetes, etc). People with clinically stable comorbid conditions can

receive the vaccine. But as per present scenario it is evident that without any knowledge of the medical condition of an individual, COVID -19 vaccines are administered to all the individuals in the society. So, this survey research data relates the immune response generated by the people post COVID-19 vaccination with respect to the vaccine adapted.

MATERIALS AND METHODS

A. Area of survey – The present study is conducted from various regions of Kannur district (11.9709° N, 75.6208° E). Average temperature in Kannur fluctuates between 28°C to 32°C, humidity lies between 70% to 72% and annual rainfall in Kannur comprises 2410 mm.

B. Data collection: Survey is conducted in different regions of the Kannur district to understand the immunoresponses observed by individuals above age group of 18 years. Information such as date of vaccination, place of vaccination, doses taken, organization involved, name of vaccine and type of responses are recorded.

Table 1: Survey for immunoresponses among individuals of Kannur district post-vaccination

Sr.no	Name	Age	Gender	Residing	Disease history	Any medicine presently taking	Covid positive anytime	Vaccination date	Vaccinating place	Organization	Name of vaccine	Total vaccines taken	Immunoresponse observed
1.	Shajiputhalath	48	Male	Kadirur	Nil	Nil	Nil	20/09/2021	Kadirur	Government	Covishield	1	Nil
2.	Bindhu	39	Female	Panoor	Thyroid	Yes	Nil	10/09/2021	Chokli	Government	Covishield	1	Headache

3.	Roopa SD	40	Female	Punnol	Nil	Nil	Yes	6/06/2021	Panoor	Government	Covishield	1	Bodypain
4.	E kamalakshi	74	Female	Punnol	Heart patient	Yes	Nil	22/06/2021	Kodiyeri	Government	Covishield	1	Nil
5.	Vineetha prem	47	Female	Thalassery	Nil	Nil	Nil	10/04/2021	Iritty	Government	Covishield	2	Fever
6.	Jalaja A k	48	Female	Champad	Nil	Nil	Nil	12/05/2021	Thalassery	Government	Covishield	2	Headache
7.	Lisha	48	Female	Thalassery	Nil	Nil	Nil	19/09/21	Thalassery	Private	Covishield	2	Muscle cramps
8.	Rekha R	43	Female	Thalassery	Nil	Nil	Nil	10/06/21	Thalassery	Government	Covishield	2	Body pain
9.	Mohan K	54	Male	Kodiyeri	Diabetes	Yes	Nil	8/06/21	Panoor	Government	Covishield	1	Body pain
10.	Sugatha baby	51	Female	Chokli	Diabetes	Yes	Nil	15/04/21	Pallor	Government	Covishield	2	Bodypain
11.	Bineesh	36	Male	Pallor	Nil	Nil	Nil	23/05/21	New mahe	Government	Covishield	2	Nil
12.	Prajith K	46	Male	Thalassery	Nil	Nil	Nil	3/06/21	Pannyannur PHC	Government	Covishield	1	Fever and body pain
13.	Babu	57	Male	Chokli	Nil	Nil	Nil	5/06/21	Mahe	Government	Covishield	2	Nil
14.	Beena MV	44	Female	Thalassery	Nil	Nil	Nil	8/06/21	Kolasseri, UPHC	Government	Covishield	1	Body pain
15.	Rajina K	47	Female	Paral	Nil	Nil	Nil	13/08/21	Kodiyeri	Government	Covishield	1	Body pain
16.	Balakrishnan	65	Male	Pallor	BP	Yes	Nil	8/06/21	Pallor	Government	Covishield	1	Nil
17.	Achanya K	21	Female	Thalassery	Nil	Nil	Nil	15/08/21	Thalassery, to wn hall	Government	Covishield	1	Fever
18.	Anitha	56	Female	Chokli	Nil	Nil	Nil	15/08/21	Pallor	Government	Covishield	2	Body pain
19.	Jinisha A K	31	Female	Pallor	Nil	Nil	Nil	18/08/21	Mahe and pallor	Government	Covishield	2	Fever and Body pain
20.	Anurag K	28	Male	Thalassery	Nil	Nil	Yes	15/08/21	Thalassery, to wn Hall	Government	Covishield	1	Body pain
21.	Kamala K K	75	Female	Kodiyeri	BP	Yes	Nil	2/09/21	Panoor	Government	Covishield	2	Nil
22.	Sunil kumar	49	Male	Chokli	Nil	Nil	Yes	10/07/21	Mahe	Government	Covishield	2	Fever
23.	Saveesh	46	Male	Panyanoor	Diabetes	Yes	Yes	26/02/21	Panyanoor	PHC	Covaxin	2	Fever
24.	Surya	28	Female	Panoor	Nil	Nil	Yes	27/02/21	Panoor	PHC	Covaxin	2	Fever
25.	Praseedha	50	Female	Panoor	Nil	Nil	Yes	13/03/21	Panoor	PHC	Covaxin	2	Body pain and Fever
26.	Shaini	43	Female	Panoor	Nil	Nil	Yes	1/03/21	Pinarayi	PHC	Covaxin	2	Hand pain
27.	Anitha	42	Female	Mokeri	Nil	Nil	Yes	17/03/21	Panoor	PHC	Covaxin	2	Nausea
28.	Rajith	52	Male	Mahe	Nil	Nil	Yes	8/05/21	Pinarayi	PHC	Covaxin	2	Fever
29.	Shiju Mohan	44	Male	Kodiyeri	Nil	Nil	Yes	12/07/21	Dharmadam	PHC	Covaxin	2	Nausea
30.	Abhilash	33	Male	Paral	Diabetes	Yes	Yes	6/03/21	Pinarayi	PHC	Covaxin	2	Dizziness
31.	Shagima	35	Female	Dharmadam	Diabetes	Yes	Yes	13/04/21	Kanoor	MIIMS	Covaxin	2	Fever
32.	Reeja	53	Female	Palayad	Blood pressure	Yes	Yes	20/08/21	Palloor	PHC	Covaxin	2	Fever and body pain
33.	Nidhish	40	Male	Palayad	Nil	Nil	Yes	20/08/21	Panyanoor	PHC	Covaxin	2	Fever
34.	Biju	44	Male	Palayad	Kidney transplanted	Yes	Yes	12/04/21	Palayad	PHC	Covaxin	2	Nausea
35.	Sheena	40	Female	Muzhapil amgad	Thyroid	Yes	Yes	13/04/21	Dharmadam	PHC	Covaxin	2	Fever
36.	Vimala	68	Female	Panyanoor	Nil	Nil	Yes	15/03/21	Panyanoor	PHC	Covaxin	2	Fever and body pain
37.	Sajitha	45	Female	Thalassery	Nil	Nil	Yes	5/03/21	Thalassery	FHC	Covaxin	2	Fever
38.	Amina	72	Female	Thalassery	Nil	Nil	Yes	10/03/21	Panyanoor	PHC	Covaxin	2	Fever
39.	Nidhish	40	Male	Palayad	Nil	Nil	Yes	20/08/21	Panyanoor	PHC	Covaxin	2	Fever
40.	Biju	44	Male	Palayad	Kidney transplanted	Yes	Yes	12/04/21	Palayad	PHC	Covaxin	2	Nausea
41.	Saajid	45	Male	Thalassery	Nil	Nil	Yes	7/02/21	Pinarayi	PHC	Covaxin	2	Body pain
42.	Varun	35	Male	Panoor	Nil	Nil	Yes	18/07/21	Panoor	IGCH	Covaxin	2	Nausea and dizziness
43.	Nisha	47	Female	Palayad	Nil	Nil	Yes	7/05/21	Palayad	PHC	Covaxin	2	Fever
44.	Sunanda	53	Female	Palayad	Nil	Nil	Yes	6/05/21	Palayad	PHC	Covaxin	2	Body pain
45.	Reshma	33	Female	Perigalam	Nil	Nil	Yes	8/06/21	Panyanoor	PHC	Covaxin	2	Head ache and nausea
46.	Santhosh	50	Male	Mahe, Kannur	Cholesterol	Nil	Nil	09/07/21	Pandakkal, government vaccine	Government	Covishield	2	Fever
47.	Padmini	74	Female	Mahe, Kannur	Bp cholesterol	Nil	Nil	09/07/21	Pandakkal, government	Government	Covishield	2	Handpain

									vaccine				
48.	Anitha	48	Female	Mahe, Kannur	Bp	Nil	Nil	09/07/21	Pandakkal, government vaccine	Government	Covishield	1	Handpain
49.	Sherly	40	Female	Nidumbra m, Kannur	Nil	Nil	Nil	22/02/21	Koothuparam ba, government vaccine	Government	Covishield	2	Mild headache
50.	Sahitha	46	Female	Mahe, Kannur	Thyroid hypertension	Yes	Nil	16/05/21	Palloor, government vaccine	Government	Covishield	2	Bodypain Headache Tiredness
51.	Sreeba	47	Female	Mahe, Kannur	Stroke	Yes	Nil	29/04/21	Pandakkal, government vaccine	Government	Covishield		Mild fever Headache
52.	Niranjana	18	Female	Mahe, Kannur	Nil	Nil	Nil	17/08/21	Palloor, government	Government	Covishield	2	fever Hand pain
53.	Ramani	80	Female	Kadirur, Kannur	Thyroid Bp	Nil	Nil	14/08/21	Wayanad, government vaccine	Government	Covishield	1	Nil
54.	Vineetha	47	Female	Kadirur, Kannur	Nil	Nil	Nil	15/07/21	Iritty, government vaccine	Government	Covishield	2	Fever Bodypain
55.	Manikandan	45	Male	Pinarayi, Kannur	Nil	Nil	Yes	09/07/21	Pinarayi, government vaccine	Government	Covishield	1	Handpain Fever Headache
56.	Seemand	24	Male	Mahe, kannur	Nil	Nil	Nil	13/06/21	Pandakkal, government vaccine	Government	Covishield	1	Body pain Fever Headache
57.	Unnikrishnan	40	Male	Pinarayi, Kannur	Nil	Nil	Nil	09/07/21	Pinarayi, government vaccine	Government	Covishield	1	Hand pain Fever Headache
58.	Sujana	36	Female	Pinarayi, Kannur	Nil	Nil	Nil	09/07/21	Pinarayi, government vaccine	Government	Covishield	1	Fever Handpain Headache
59.	Seema	46	Female	Pinarayi, Kannur	Nil	Nil	Nil	07/09/21	Pinarayi, government vaccine	Government	Covishield	1	Handpain Fever Headache
60.	Bhargavi	64	Female	Pinarayi, Kannur	Thyroid cancer cured	Yes	Nil	07/09/21	Pinarayi, government vaccine	Government	Covishield	1	Hand pain Shevering Headache
61.	Niranjana	18	Female	Mahe, Kannur	Nil	Nil	Nil	17/08/21	Palloor, government	Government	Covishield	2	Mild fever Handpain
62.	Ramani	80	Female	Kadirur, Kannur	Thyroid Bp	Nil	Nil	14/08/21	Wayanad, government vaccine	Government	Covishield	1	Headache
63.	Sheeba	45	Female	Mahe, Kannur	Nil	Nil	Nil	20/07/21	Palloor, government vaccine	Government	Covishield	2	Headache
64.	Nivedhya	18	Female	Mahe, kannur	Nil	Nil	Nil	03/09/21	Pandakkal, government vaccine	Government	Covishield	2	Bodypain Shevering Headache
65.	Nikitha	30	Female	Mahe, Kannur	Nil	Nil	Nil	30/08/21	Pandakkal, government vaccine	Government	Covishield	2	Nil
66.	Praseetha	40	Female	Mahe, Kannur	Nil	Nil	Nil	15/06/21	Pandakkal, government vaccine	Government	Covishield	1	Nil
67.	Seena	55	Female	Mahe, Kannur	Nil	Nil	Nil	03/07/21	Vadakara, government vaccine	Government	Covishield	2	Nil
68.	Anand	34	Male	Mahe, Kannur	Nil	Nil	Nil	15/06/21	Pandakkal, government vaccine	Government	Covishield	1	High temperature Headache Body pain
69.	Reshmi	47	Female	Thalassery, Kannur	Nil	Nil	Nil	23/08/21	Thalassery, government vaccine	Government	Covishield	1	Tiredness
70.	Theertha	21	Female	Mahe, kannur	Nil	Nil	Nil	17/06/21	Mahe, government vaccine	Government	Covishield	1	Headache Tiredness
71.	Karthiyayani	62	Female	Mahe, kannur	Diabetes Bp cholestrol	Yes	Nil	24/04/21	Palloor, government vaccine	Government	Covishield	2	Fever
72.	Labisha	35	Female	Mahe, Kannur	Nil	Nil	Nil	17/06/21	Mahe, government vaccine	Government	Covishield	1	Fever Bodypain
73.	Arvind	20	Male	Thalassery, Kannur	Nil	Nil	Nil	23/08/21	Thalassery, government vaccine	Government	Covishield	1	Nil
74.	Anasooya	41	Female	Dharmadam, Kannur	Nil	Nil	Nil	08/06/21	Muzhapilang ad, government vaccine	Government	Covishield	1	Fever Bodypain
75.	Prasenna	71	Female	Dharmadam, Kannur	Diabetes Thyroid Bp	Yes	Nil	24/07/21	Muzhapilang ad, government vaccine	Government	Covishield	1	Nil
76.	Dileep kumar	53	Male	Panniyan nur,	Nil	Nil	Nil	31/06/21	Panniyanur, government	Government	Covishield	1	Mild headache

				Kannur					vaccine				
77.	Thankalakshmi	75	Female	Panniyannur, Kannur	Nil	Nil	Nil	25/04/21	Panniyannur, government vaccine	Government	Covishield	1	Handpain
78.	Nalini	68	Female	Panniyannur, Kannur	Nil	Nil	Nil	25/04/21	Panniyannur, government vaccine	Government	Covishield	1	Nil
79.	Suresh babu	45	Male	Thalassery, Kannur	Diabetes	Nil	03/09/21	13/07/21	Kolassery, government vaccine	Government	Covishield	1	Handpain
80.	Sheeja	39	Female	Thalassery, Kannur	Nil	Nil	03/09/21	13/07/21	Kolassery, government vaccine	Government	Covishield	1	Handpain
81.	Leela	71	Female	Panniyannur, Kannur	Nil	Nil	Nil	25/04/21	Panniyannur, government vaccine	Government	Covishield	1	Handpain Bodypain
82.	Dhanya	38	Female	Champad, Kannur	Nil	Nil	Nil	03/07/21	Kannur, Aster Mims	Private	Covishield	1	Headache
83.	Kiran	46	Male	Champad, Kannur	Nil	Nil	Nil	03/07/21	Kodiyeri, government vaccine	Government	Covishield	2	Handpain
84.	Sumitha	44	Female	Kannur	Bp Epilepsy	Yes	24/05/21	16/08/21	Kannur, government vaccine	Government	Covishield	1	Shivering Fever
85.	Nisha	48	Female	Mahe, Kannur	Bp	Yes	Nil	15/07/21	Pandakkal, government vaccine	Government	Covishield	2	Fever
86.	Aparna	24	Female	Pinarayi, Kannur	Nil	Nil	Nil	27/08/21	Thalassery, government vaccine	Government	Covishield	2	Fever
87.	Nalini	64	Female	Thalassery, Kannur	Diabetes	Yes	Nil	12/04/21	IndiraGandhi hospital	private	Covishield	2	Nil
88.	Divakaran	75	Male	Thalassery, Kannur	Diabetes	Yes	Nil	12/04/21	IndiraGandhi Hospital	private	Covishield	2	Nil
89.	Naveena	39	Female	Thalassery, Kannur	Nil	Nil	Nil	18/08/21	Kannur, Aster Mims	Private	Covishield	1	Fever
90.	Govindan kutti	78	Male	Moozhikara, Kannur	Nil	Nil	Nil	28/06/21	Kannur, Aster Mims	Private	Covishield	2	Bodypain
91.	Indira	62	Female	Moozhikara, Kannur	Nil	Nil	Nil	28/06/21	Kannur, Aster Mims	Private	Covishield	2	Nil
92.	Raghavan	85	Male	Champad, Kannur	Nil	Nil	Nil	25/04/21	Kannur, Aster Mims	Private	Covishield	1	Mild headache
93.	Vijaya Lakshmi	62	Female	Mahe, Kannur	Diabetes	Yes	No	23/06/21	Palloor, government vaccine	Government	Covishield	2	Headache
94.	Geetha Rajan	52	Female	Mahe, Kannur	Nil	Nil	Nil	06-07-2021	Peringadi, Kannur	CFLTC	Covishield	2	Slight fever
95.	Rajan R.K	61	Male	Mahe, Kannur	Diabetes, Blood pressure	Yes	Nil	06-07-2021	Peringadi, Kannur	CFLTC	Covishield	2	Nil
96.	Sivadasan A.	48	Male	Peringathur, Kannur	Diabetes	Yes	Nil	16-09-2021	Peringathur, Kannur	PHC	Covishield	2	Nil
97.	DhanyaSivadasan	38	Female	Peringathur, Kannur	Nil	Nil	Nil	21-06-2021	Peringathur, Kannur	PHC	Covishield	1	Tiredness
98.	Vishnu Raj	22	Male	Mahe, Kannur	Nil	Nil	Nil	03-04-2021	Peringadi, Kannur	CFLTC	Covishield	1	Nil
99.	Devi A	69	Female	Mahe, Kannur	arthritis	Yes	Nil	09-07-2021	Peringadi, Kannur	CFLTC	Covishield	2	Nil
100.	Sudharma P.	42	Female	Mahe, Kannur	Nil	Nil	16-01-2021	29-07-2021	Thalassery	Government hospital	Covishield	2	Headache and fever
101.	Vimala	53	Female	Mahe, Kannur	Blood Pressure	Nil	Nil		Punnol, Kannur	PHC	Covishield	2	Nil
102.	Sheeba	39	Female	Mahe, Kannur	Nil	Nil	Nil	22-08-2021	Punnol, Kannur	PHC	Covishield	2	Nil
103.	Akhila R K	23	Female	Mahe, Kannur	Nil	Nil	Nil	27-06-2021	Punnol, Kannur	PHC	Covishield	1	Nil
104.	Jayalakshmi R K	20	Female	Mahe, Kannur	Nil	Nil	Nil	27-06-2021	Punnol, Kannur	PHC	Covishield	1	Slight headache
105.	Drishya R K	20	Female	Mahe, Kannur	Nil	Nil	Nil	27-06-2021	Punnol, Kannur	PHC	Covishield	1	Nil
106.	Avinash R K	25	Male	Mahe, Kannur	Nil	Nil	19-02-2021	27-06-2021	Punnol, Kannur	PHC	Covishield	1	Nil
107.	VJaylakshmi	35	Female	Mahe, Kannur	Nil	Nil	Nil	27-06-2021	Punnol, Kannur	PHC	Covishield	1	Nil
108.	Shamna	25	Female	Mahe, Kannur	Nil	Nil	18-08-2021	09-07-2021	Peringadi, Kannur	CFLTC	Covishield	1	Nil
109.	Saneesh R K	31	Male	Mahe, Kannur	Nil	Nil	18-08-2021	09-07-2021	Peringadi, Kannur	CFLTC	Covishield	1	Vomiting and nausea
110.	Chandramathi	57	Female	Mahe, Kannur	Nil	Nil	Nil	09-07-2021	Peringadi, Kannur	CFLTC	Covishield	1	Nil
111.	Udayakumar	52	Male	Mahe, Kannur	Nil	Nil	Nil	1)10-07-2021	Peringadi, Kannur	CFLTC	Covishield	1	Headache
112.	Chithran R K	58	Male	Mahe, Kannur	Nil	Nil	22-03-	10-07-2021	Peringadi, Kannur	CFLTC	Covishield	1	Tiredness and

				nur			2021		Kannur				fever
113.	Seeba Lakshmanan	42	Female	Mahe,Kan nur	Nil	Nil	Nil	23-05-2021	Punnol, Kannur	PHC	Covishield	2	Nil

• PHC – Primary healthy clinic ,

CFLTC - Covid first line treatment centre

RESULT AND DISCUSSION

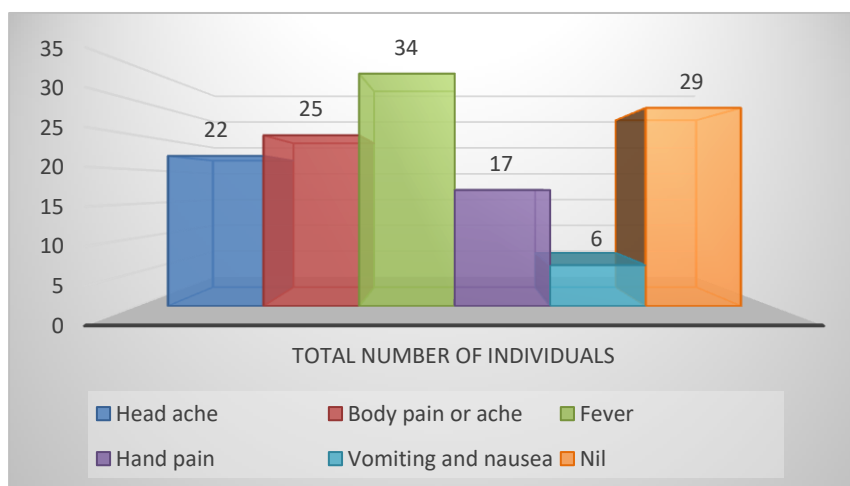
The collected data specifies that most of the individuals had a combination of immunoresponse such as head ache and fever, head ache, fever and hand pain, hand pain and body pain along with shivering (World health organization, 2021, John R., Tejjaro & Donna L. Farber 2021, Simran Preet Kaur & Vandana Gupta, 2020). Nearly twenty-two individuals are having head ache, twenty four individuals are having body pain, thirtyfour are having fever, seventeen individuals with hand pain and six people are having vomiting sensation and nausea (table no.2). Out of all the calculated data twenty nine people have not shown any type of immunoresponse or reaction post vaccination by covishield (table no.1). All individuals with covaxin are

creating immunoresponse as fever and body pain only. Among the different types of vaccines in India, twenty five individuals out of one hundred and thirteen surveyed people have been given Covaxin and rest of the eighty eight individuals have been vaccinated with Covishield. Also, head ache and hand pain is observed only in the individuals vaccinated with Covishield and other immunoresponses are commonly seen in individuals given with both Covishield and Covaxin. Graphical representation of data highlights the most occurring immunoreponse as fever followed by body pain, head ache, hand pain, vomiting and nausea (graph 1). Present study is conducted with a limited number of individuals and probably may fluctuate with increased survey.

Table 2: Cumulative data for types of immunoresponses observed via survey

Sr.no	Immunoresponse observed	Total number of individuals	Type of vaccine
	Head ache	22	Covishield
	Body ache	25	Covaxin and Covishield
	Fever	34	Covaxin and Covishield
	Hand pain	17	Covishield
	Vomiting and nausea	06	Covaxin and Covishield
	Nil	29	None

Graph 1: Immunoresponses observed to the number of individuals reacting for both vaccine Covisheild and covaxin



CONCLUSION

The present research work details about the immunoresponses majorly fever and body pain experienced by the individual post COVID-19 vaccination. There are certain individuals showing no signs or reactions to both vaccines, Covisheild and Covaxin. Also, this is noted that before vaccination previous medical history of the individuals is not studied or checked. This may lead to administering a vaccine with allergic content and cause a critical impact on human life.

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Conflict of Interest

The author declares no conflict of interest.

Author Contribution

All authors contributed equally to establishing the topic of the research and design experiment.

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