ORIGINAL ARTICLE

Assessment of The Immediate Side Effects of Covid-19 Vaccination Among The People of Pakistan

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ABSTRACT

The Covid-19 pandemic has wreaked havoc throughout the world, with 150 million cases to date and over 3 million lives claimed worldwide

Objectives: To assess the immediate side effects of Covid-19 vaccination among the people of Pakistan

Study Design: Randomized, descriptive cross-sectional study

Methodology: Present study was carried out using an online questionnaire by enrolling 17040 subjects. Inclusion/Exclusion criteria: All citizens of Pakistan over the age of 12, who were eligible for the COVID-19 vaccination were enrolled.

Statistical analysis: Data was analyzed by SPSS software, version 25 in terms of frequencies and percentages.

Results: In present study, results showed that 76% subjects were vaccinated. Among them 64% received Sinopharm, 30% Sinovac, 0.7% Pfizer, 0.5% Astrazeneca, 2.8% Moderna, 0.8% Cansino, 0.3% PakVac and 0.1% Sputnik V. Most participants (66%) suffered no symptoms post vaccination. Only 15% developed fever, 7% dizziness, 5% vomiting, 4% pain at injection site, 2% headache and 1% fatigue. After vaccination, 1% had a re-infection and 99% so far have not caught Covid-19. Among all participants, 87% found the vaccine safe, 7% were neutral and 5% found it unsafe.

Conclusion: We concluded that most Pakistanis have received the Chinese vaccine i.e. Sinopharm. Majority individuals have experienced either no to mild or few moderate type of adverse effects following immunization irrespective of the age and gender that can be easily managed at home.

Key Words: COVID-19, Vaccination, Awareness and Adverse Effects.

INTRODUCTION

Coronaviruses (CoVs)- single stranded RNA viruses belonging to the family Coronaviridae, are not new to the world.[1] But it came into the limelight when severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) causing illness cases started emerging exponentially in Wuhan, China at the end of 2019.[2] Within no time, it spread globally. And The World Health Organization (WHO) on March 11, 2020, declared the SARS-CoV-2 outbreak; a global pandemic and named it as Coronavirus infectious disease 2019 (Covid-19). Since then, the world has vehemently worked to develop treatments and vaccines against SARS-CoV-2 at an unprecedented speed.[3] Work had already begun in January 2020 with the deciphering of SARS-CoV-2genome[4] but widespread of disease forced WHO to announce the emergency use of first Covid vaccine Pfizer on 31st Dec, 2020.[5] Countries are using various local and international vaccines according to their feasibility and affordability.[6,7] Approximately 13% of Pakistani population has been fully vaccinated with age bar for vaccine inoculation is 12 years now.[8,9]

World has faced challenges like scale-up manufacturing, cold-chain logistics, low vaccine acceptance and acute adverse effects.[4] Adverse drug reactions (ADRs) are common consequences of the use of medicines, even including vaccines and range from mild to severe, potentially life-threatening.[10] Statistics have shown that the benefits of vaccination outweigh the risks as it prevents approximately 2-3 million deaths from infectious diseases annually.[10] In coming months, alarming figures of such-like post vaccine suspected cases started pouring in from various countries of Europe involving the CVS, GIT, CNS and blood coagulation.[11-13] So such concerns about COVID-19 vaccines have eclipsed the opinions about their benefits and thus influenced the decision to accept or reject the vaccination. This is particularly relevant for those who have experienced adverse effects in the past or are more likely to be affected.

In Pakistan, around 6-7 thousand cases of mild to moderate natured adverse effects following immunization (AEFI) have been reported till date.[9] Keeping in view the current concerns, data collection about adverse effects post Covid-19 vaccines will help us making a consensus and final decision of Pakistani public to get jabbed. As the data regarding AEFI in Pakistan is still limited and not enough studies have been carried out to chalk out the different set of AEFI experienced among various age groups in various parts of the country amid Covid-19 crisis. So, in this study, data from people of all provinces, belonging to different socioeconomic classes, aged 12 and above have been taken into consideration.

OBJECTIVES

To assess the immediate side effects of Covid-19 vaccination among the people of Pakistan.

METHODOLOGY

The survey web link was distributed all across Pakistan, via social media platforms (like WhatsApp and Facebook) and

informed written consent was taken from all the participants prior to participating in this research. Identities of the participants were kept anonymous and confidentiality was maintained. There was no breach of professional ethics at all. Inclusion/Exclusion criteria: All citizens of Pakistan above the age of 12 years, who were eligible for the COVID-19 vaccination were enrolled in the study. Those who were not eligible for getting the vaccination were excluded.

Total number of responses obtained was 17040, however only 16475 individuals consented to participate and provided complete responses. As a result, the final analysis of this study contained only the complete answers pertaining to the post-COVID-19 immunization effects. The questionnaire was composed of 3 main sections. The first section inquired about the participants' demographics and their vaccination status (i.e., vaccinated/unvaccinated), the second section questioned whether they had any symptoms or adverse effects after getting vaccinated (either after a single dosage or both), third section contained other relevant questions regarding their post vaccination experience.

Statistical Analysis: After the data collection, the data was entered into Statistical Package for Social Sciences (SPSS) version 25.0 for analysis in terms of frequencies and percentages.

RESULTS

In this study, 17040 people with mixed socioeconomic statuses from all across Pakistan participated with their general parameters as shown in table-1.

Table-1: Demographics & Co-Morbidities

Age group (yrs)	Frequency	Percentage (%)
10-19	3215	18
20-29	10699	63
30-39	1462	08
40-49	865	05
50-59	538	03
60-69	178	2.9
70-79	64	0.1
Gender	Frequency	Percentage (%)
Male	6084	35.7
Female	10956	64.3
Province	Frequency	Percentage (%)
Federal	1037	6.09
Punjab	4642	27.2
Sindh	9808	57.5
Baluchistan	127	0.74
KPK	1308	7.67
Gilgit-Bldistan	47	0.27
Azad Jammu Kashmir	71	0.41
Previous Co-morbidities	Frequency	Percentage (%)
None	10905	64
Tuberculosis	341	02
Hypertention	1704	10
Diabetes mellitus	1534	9
Heart disease	852	5
Asthma	852	5
Allergies	341	2
Hepatitis	341	2
HIV/AIDS	170	1
Socio-Economic Class	Frequency	Percentage (%)
Upper Class	580	3.40

Upper Middle Class	9462	55.5
Lower Middle Class	4183	24.5
Lower Class	347	2.03
Prefer Not to tell	2468	14.4
Previous COVID infection	Frequency	Percentage (%)
1-3 months ago	671	3.9
4-6 months ago	354	2.1
6-12 months ago	16015	94
Knowledge regarding Vaccination	15336	90

Around 76% of the total participants are vaccinated, among them, 95% suffered those symptoms within one day, 4.8% within the first week, 0.2% within the first month and no adverse effects were observed any later than that. Most of the vaccinated participants suffered no symptoms post vaccination. Only 4% had pain at the injection site while 5% had vomiting, 2% experienced headaches, 7% had dizziness, and 1% had fatigue while the fever rate was 15% as shown in table -2.

Table-2: Symptoms after COVID Vaccination and attitude towards COVID Vaccination

Vaccination status	Frequency	Percentage (%)
Had COVID Vaccination	12951	76
Symptoms within	Frequency	Percentage (%)
1 day	16188	95
1 week	818	4.8
1 month	34	0.2
Symptoms	Frequency	Percentage (%)
None	11246	66
Vomiting	852	05
Headache	341	02
Pain at the site of infection	682	04
Dizziness	1193	07
Fatigue	170	01
Fever	2556	15
Post Vaccination COVID	171	01
Awareness regarding vaccination center in city	16318	95.76
Vaccination	Frequency	Percentage (%)
Safe	14824	87
Neutral	1309	7.7
Unsafe	907	5.3
Encourage Others For COVID Vaccination	16528	97

Results showed that mean and standard error of mean for adverse effects following the first and second doses of Covid-19 immunization were 0.32 ± 0.015 for the first dosage and 0.33 ± 0.008 for the second dose, respectively as shown in table-3.

Table-3: Standard Error of Mean for Adverse Effects Following Vaccination

Side effects after first dose of vaccination	Category	Mean	SEM
	Yes	4.41	4.23
	No	4.94	4.26
Side effects after 2nd dose	Yes	14.81	8.14
	No	14.87	9.10

There was a substantial difference in adverse effects between the first and second doses of vaccination (T value of ≤ 0.001), as shown in table-4.

Table-4: Difference n Adverse Effects Between Both Doses of Vaccination

Groups	Mean ± SEM	t-value
Side effects after first dose of vaccination	0.32±0.015	0.407
Side effects after 2nd dose	0.32±0.015	

DISCUSSION

Adverse effects following immunization (AEFI) are not rare and are a proof that the immune system is responding.[14] However, most people experience little or no adverse effects.[15] Symptoms following vaccination may vary in severity but are harmless.[16] The mortality rate of covid-19 is much less than many other communicable diseases but its implications on social setup is astounding.[17,18] This study was started in such a scenario of mixed opinions of people of all strata regarding Covid-19, vaccine and AEFI.

Random sampling size of 17040 revealed that approximately half of the people so far have contracted Covid-19 since its infiltration in Pakistan in Feb-Mar 2020. More than half are vaccinated, pre-dominantly with Sinopharm and only a minor number developed AEFI and those too were of mild nature.[19-22] Symptoms like headache, lightheadedness, myalgia, legs pain, joints pain, fever with or without chills, sore throat, flu-like symptoms, decreased sleep quality, and brain fogging are the spectrum of adverse effects experienced globally and nationally.[21] Usually the UK, USA and Russian made vaccines like Astrazeneca, Pfizer, Moderna and Sputnik V respectively have produced more noticeable adverse effects than the Chinese vaccines[22]. There were no correlations between age or gender and the duration of the adverse effects for all the vaccines. These findings are in accordance with the findings from the study of Al Khameset. all. Some unusual and rare AEFI like Bell's palsy[23], delirium[24], anaphylaxis[25], blood clots[26] have been reported globally but our study has not shown any of the before-mentioned AEFI. The cases of re-infection among vaccinated are also rare.These findings are in line with the study of S. Siddique, S. Abbas& A.Tariq.et.all 2021[27]. Our sample had mostly involved the upper middle class educated strata (63%) and this study has further shown that majority of the people are in favor of vaccines despite the global reluctance. As Pakistan has received greatest doses of the Chinese vaccine Sinopharm and it has shown minimum adverse effects globally. Thus the public acceptance towards vaccination is more in Pakistan than the rest of the global statistics. Another alarming health-related information gathered from the study is the pre-dominance of hypertension and diabetes in our general public.

Limitations: Our study had limitations like financial constraints, lack of resources and lacked the evaluation of ability and strategy formation in everyday life.

CONCLUSION

We concluded that most Pakistanis have received the Chinese vaccine i.e. Sinopharm. Majority individuals have experienced either no to mild or few moderate type of adverse effects following immunization irrespective of the age and gender that can be easily managed at home. The results of this study were also consistent with the data received globally. However, general attitude and notion of Pakistani nation was positive towards the government's vaccination drive.

Authors' Contribution: IEF&HA: Conceptualized the study, analyzed the data, and formulated the initial draft.
NI&DA: Contributed to the histomorphological evaluation.

AS&MA: Contributed to the analysis of data and proofread the draft.

AK: Contributed to data collection.

TL: Contributed to the proofreading the manuscript for intellectual content.

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