https://doi.org/10.37723/jumdc.v16i1.941

J. Univ. Med. Dent. Coll.2025;Vol.16(1):1000-1006
ISSN (Print) 2221-7827, ISSN (Online) 2310-5542
https://www.jumdc.com

Original Article

Open Access

Survey of the side effects of most commonly administered covid-19 vaccines in population of Lahore

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ABSTRACT

BACKGROUND & OBJECTIVE: In December 2019, a virus, COVID-19, was identified in China, causing respiratory symptoms. Due to its contagious nature, it spread worldwide, and in 2020, the WHO declared the pandemic. The most effective way to deal with this situation was to develop vaccines, so various vaccines were developed in a short period of time. This causes the spread of various myths and misconceptions about its safety and side effects. The main objective of our study is to observe the side effects of various Covid vaccines.

METHODOLOGY: A cross-sectional survey of 727 vaccinated individuals of age above 12 years from Lahore selected via convenient sampling was done between Oct 2022 to March 2023 by filling out the Google form and taking verbal interviews from Primary Health Care teaching center Nainsukh, Sadat Clinic Harbanspura and online questionnaire after gaining IRB approval number FMH-16/05/2022-IRB-1054).

RESULTS: The majority of the respondents received the Sinovac vaccine, followed by Sinopharm AstraZeneca/Oxford and Pfizer-BioNTech. People receiving mRNA have more side effects than people receiving other vaccines. A wide range of symptoms was observed. 64.8% of them report pain at the injection site (p=0.00), while 57% report fever (P=0.00). Most of the symptoms range from mild to moderate intensity, and a minimal number of people require treatment for them.

CONCLUSION: Covid vaccine is generally safe and has mild to moderate intensity side effects.

KEYWORDS: Covid-19 Vaccines, MRNA Vaccine, Side Effects of Covid-19 vaccines, , Sinopharm Vaccine, Sinovac vaccine.

INTRODUCTION

In December 2019, an unknown pneumonia-like condition was identified in Wuhan, China, and reported to WHO [1,2]. In January 2020, its causative organism, Noval coronavirus, was discovered. Due to its contagious nature, it spread widely and halted the world [3] in different countries, and WHO declared a pandemic in March 2020 [4,5].

Like the previous outbreaks, the best way to deal with this pandemic was to develop a vaccine [6]. Generally, a vaccine requires 5 to 10 years to be declared safe for use in the human population [7].

The increasing death rate and spread of COVID-19 infection demanded prompt action. Many approaches to developing the Covid vaccine were started simultaneously, and different vaccines were developed in a much shorter time period of 8 to 10 months [8,9]. To accomplish this, different phases of vaccine development were merged together [2]. WHO Emergency Use Listing (EUL) and United States Food and Drug (FDA) Emergency Use Approval (EUA) was established to provide an urgent, safe, and effective vaccine against COVID-19, and the first FDA's EUA was issued for the Pfizer-BioNTech vaccine in December 2020 [2].

This rapid development of vaccines raised concerns about their safety all over the world. In the USA, one-third of the population was reluctant to be vaccinated [10]. Also low COVID-19 vaccine acceptance among adolescents and youths population in sub-Saharan Africa was also found , with the lowest in Southern Africa (24.2%)as compared to West Africa (42.2%)while unconfirmed information sources was the main contributing factor of hesitancy [11]. A study in Jordan explored that 52.9% of the participants suffered hesitancy and anxiety before vaccination, but after getting it, 95.5% of participants advised others to get vaccinated,, while 67% believed in its long term safety [12]. Pfizer has

How to cite this: *Arif KA , Sheraz M, Hassan ZU, Sana K , Anjum U, Saigol NU. Survey of the side effects of most commonly administered covid-19 vaccines in population of Lahore. Journal of University Medical & Dental College. 2025;16(1):1000-1006.*

fewer side effects, while Moderna is easier to store due to lower temperature sensitivity [13].

German health care workers identified that mRNA-based (Pfizer-BioNTech and Moderna) vaccines were associated with more local side effects (e.g., injection site pain), while the viral vector-based vaccines showed a higher prevalence of systemic side effects (e.g., headache/fatigue) but irrespective of the selection of the vaccine vast majority (84.9%) of the side effects resolved within 1–3 days [14]. In Saudi Arabia it is also found out that side effects following Covid 19 vaccine were mild in nature and mostly reported after Pfizer (53.6%), followed by AstraZeneca (45%) and Moderna (1.3%). Only 10 ICU admissions occurred, reinforcing vaccine safety and encouraging mass vaccination [15].

Sinopharm vaccine side effects were mild after the first and second doses, even in immunocompromised patients with liver and kidney transplants [16]. While in Poland, the incidence of side effects was higher after AstraZeneca as compared to the Pfizer-BioNTech vaccine [17] Out of 896 Pakistani young adults Sinopharm was received by 64.8% and CoronaVac by 35.2% Side effects were slightly more common after CoronaVac, and women and younger individuals had a reported more side effects as compaired to elderly and males [18].

Another study done in the southern area of the Pakistani population shows that generally, COVID-19 vaccines have milder symptoms [19]. Further studies were required on the Pakistani population to explore their potential side effects to increase the acceptance of COVID-19 vaccines. To fill this gap, we conducted this study on 752 vaccinated individuals and studied the side effects of various COVID-19 vaccines in the Lahore, Pakistan, population.

METHODOLOGY

Ethical approval was obtained from the Institutional Review Board of Fatima Memorial Hospital (IRB number FMH-16/05/2022-IRB-1054). This study was a part of a larger research project where side effects and perceptions related to most commonly administered COVID-19 vaccines were explored through a survey. Data was collected via convenience sampling from Nain Sukh, the primary health care center of Fatima Memorial Hospital Lahore, Sadaat Clinic Harbanspura Lahore, and an online questionnaire.

The sample size was 727, calculated using an online calculator. We used a non-probability convenient sampling method. The survey was conducted between October 2022 and March 2023 among the population of Lahore, Pakistan, who received one or more of the various COVID-19 vaccines. Informed consent (both written and verbal) was obtained from all study participants before they participated in the survey.

Responses were collected through face-to-face interviews and online questionnaires. The questionnaire was designed in English for this purpose and was translated into Urdu verbally for the ease of participants who could not read or write English. The researcher documented the responses. The vaccinated population of Lahore aged 12 years and above was included in the survey. Individuals aged less than 12 years, pregnant females, individuals with a disability who could not communicate even with support, and COVID-19-vaccinated individuals who were unsure of which vaccine they received were excluded from the survey.

Data was analyzed using SPSS 26. We applied chi-square analysis to the statistical analysis. The participants who were unable to read or write were categorized as 'uneducated'. Those who studied until grade five were categorized as having 'primary education,' those who had studied until 8th grade as 'middle education,' and those who had been to college as 'intermediate education.' Those who acquired university qualifications were classified as 'highly educated.' For uneducated people, we fill out the form by verbally asking them questions: The frequency of side effects is categorized as follows: 'Very common' side effects are 10% or higher, 'common' side effects are 1-10%,' uncommon' side effects are 0.1 – 1%,' rare' side effects are 0.01-0.1%, while 'very rare' side effects are less than 0.01%.

In this study, Moderna and Pfizer-BioNTech were grouped under the heading of 'mRNA vaccines', AstraZeneca and Sputnik-V were grouped under the heading of 'genetically modified vaccines', whereas 'inactivated virus vaccines' include Sinopharm, Sinovac, and CanSino.

RESULTS

Total 727 vaccinated people were interviewed whose demographic details can be seen in Table-I.

Table-I: Demographics.

Variables	Catergories	Frequency n(%)
Gender	Male	241(33)
	Female	486(67)
Age	12-17	16(2.2)
	18-29	269(37)
	30-39	175(24)
	40-49	150(20)
	50-59	67(9.2)
	60 &> 60 yrs	50(7)
Education	Uneducated	124(17)
	Primary education	40(5.5)
	Middle & Sec education	90(12.3)
	Higher education	473(65)
Health care personnel	Yes	220(30)
	No	507(70)

Table-II: Side Effects of various covid-19 vaccines.

Symptom	Side Effect n(%	AstraZeeneca/ Oxford n(%)	Pfizer-BioNTech n(%)	Sinovac n(%)	Moderna n(%)	SputnikV n(%)	CanSino n(%)	Sinopharm n(%)
Fatigue	Yes	12 (12.8)	57 (60.6)	120 (45.3)	24 (50)	9 (64.3)	8 (80)	86 (42.6)
	No	82 (87.2)	37 (39.4)	145 (54.7)	24 (50)	5 (35.7)	2 (20)	116 (57.4)
Sleep	Yes	7 (7.4)	17 (18.1)	45 (17)	9 (18.8)	3 (21.4)	3 (30)	31 (15.3)
	No	87 (92.6)	77 (81.9)	220 (83)	39 (81.3)	11(78.6)	7 (70)	171 (84.7)
Fever	Yes	24 (25.5)	43 (45.7)	72 (27.2)	33 (68.8)	9 (64.3)	6 (60)	64 (31.7)
	No	70(74.5)	51(54.3)	193(72.8)	15(31.3)	5(35.7)	440)	138 (68.3)
Headache	Yes	16 (17)	32 (34)	54 (20.4)	18 (37.5)	4 (28.6)	5 (50)	42 (20.8)
	No	78 (83)	62 (66)	211 (79.6)	30 (62.5)	10(71.4)	5 (50)	160 (79.2)
Blurred vision	Yes	2 (2.1)	12 (12.8)	28 (10.6)	8 (16.7)	2 (14.3)	2 (20)	24 (12)
	No	92 (97.9)	82 (87.2)	237 (89.4)	40 (83.3)	12(85.7)	8 (80)	178 (88.1)
Pain at injection site	Yes	12 (12.8)	63 (67)	91 (34.3)	29 (60.4)	8 (57)	6 (60)	90 (44.6)
	No	82 (87.2)	31 (33)	174 (65.7)	19 (39.6)	6 (42.9)	4 (40)	112 (55.4)
Joint pains	Yes	4 (4.3)	18 (19)	20 (7.5)	13 (27)	4 (28.6)	5 (50)	19 (9.4)
	No	90 (95.7)	76 (80.9)	245 (92.5)	35 (72.9)	10 (71.4)	5 (50)	183 (90.6)
Edema	Yes	1 (0.01)	6 (6.4)	17 (6.4)	4 (8.3)	0 (0)	1 (10)	10 (5)
	No	93 (98.9)	88 (93.6)	248 (93.6)	44 (91.7)	14 (100)	9 (90)	192 (95)
Myalgia	Yes	4(4.3)	37(39.4)	46(17.4)	17(35.4)	7(50)	6(60)	42 (20.8)
	No	90 (95.7)	57 (60.6)	219 (82.6)	31 (64.6)	7 (50)	4 (40)	160 (79.2)
Nausea	Yes	5 (5.3)	13 (13.8)	21 (8)	7 (14.6)	1 (7.1)	4 (40)	12 (6)
	No	89 (94.7)	81 (86.2)	244 (92.1)	41 (85.4)	13 (92.9)	6 (60)	190 (94.1)
Abdominal pain	Yes	2 (2.1)	12 (12.8)	16 (6)	3 (6.3)	0 (0)	2 (20)	8 (4)
	No	92 (97.9)	82 (87.2)	249 (94)	45 (93.8)	14 (100)	8 (80)	194 (96)
Diarrhea	Yes	2 (2.1)	10 (10.6)	11 (4.2)	3 (6.3)	0 (0)	4 (40)	9 (4.5)
	No	92 (97.9)	84 (89.4)	254 (95.8)	45 (93.8)	14 (100)	6 (60)	193 (95.5)
Vomiting	Yes	2 (2.1)	4 (4.3)	5 (2)	6 (12)	0 (0)	2 (20)	3 (1.5)
	No	92 (97.9)	90 (95.7)	260 (98.1)	42 (87.5)	14 (100)	8 (80)	199 (98.5)
Bruises	Yes	2 (2.1)	10 (10.6)	6(2.3)	0 (0)	0 (0)	2 (20)	4 (2)
	No	92 (97.9)	84 (89.4)	259 (97.7)	48 (100)	14 (100)	8 (80)	198 (89)
Gum bleeding	Yes	1 (1.1)	7 (7.4)	12 (4.5%)	2 (4.2%)	0 (0)	1 (10)	9 (4.5)
	No	93 (98.9)	87 (92.6)	253 (95.5)	46 (95.8)	14 (100)	9 (90)	193 (95.5)
Nose bleed	Yes	0 (0)	4 (4.3)	4 (1.5)	0 (0)	0 (0)	1 (10)	6 (3)
	No	94(100)	94(100)	261(98.5)	48(100)	14(100)	9(90)	196 (97)
Shivering	Yes	2 (2)	15 (16)	14 (5.3)	8 (16.7)	4 (28.6)	3 (30)	10 (5)
	No	92 (97.9)	79 (84)	251 (94.7)	40 (83.3)	10 (71.4)	7 (70)	192 (95)
Itching	Yes	1 (0.01)	10 (10.6)	10 (3.8)	2 (4.2)	1 (7.1)	2 (20)	9 (4.5)
	No	93 (98.9)	84 (89.4)	255 (96.2)	46 (95.8)	13 (92.9)	8 (80)	193 (95.5)
Sweating	Yes	5 (5.3)	6 (6.4)	16 (6)	5 (10.4)	1 (7.1)	1 (10)	10 (5)
	No	89 (94.7)	88 (93.6)	249 (94)	43 (89.6)	13 (92.9)	9 (90)	192 (95)
Tingling	Yes	4 (4.3)	13 (13.8)	18 (6.8)	5 (10.4)	2 (14.3)	5 (50)	22 (10.9)
	No	90 (95.7)	81 (86.2)	247 (93.2)	43 (89.6)	12 (85.7)	5 (50)	180 (89.1)
Dizziness	Yes	3 (3.2)	13 (13.8)	23 (8.7)	5 (10.4)	3 (21.4)	5 (50)	27 (13.4)
	No	91 (96.8)	81 (86.2)	242 (91.3)	43 (89.6)	11 (78.6)	5 (50)	175 (86.6)
Blocked nose	Yes	4 (4.3)	15 (16)	10 (3.8)	8 (16.7)	2 (14.3)	4 (40)	13 (6.4)
	No	90 (95.7)	79 (84)	255 (96.2)	40 (83.3)	12 (85.7)	6 (60)	89 (93.6)
Runny nose	Yes	0 (0)	8 (8.5)	9 (3.4)	4 (8.3)	1 (7.1)	3 (30)	8 (4)
	No	94 (100)	86 (91.5)	256 (96.6)	44 (91.7)	13 (92.9)	7 (70)	194 (96)
Wheezing	Yes	1 (1.1)	12 (12.8)	4 (1.5)	0 (0)	0 (0)	3 (30)	14 (6.9)
	No	93 (98.9)	82 (87.2)	261 (98.5)	48 (100)	14 (100)	7 (70)	188 (93.1)

Table to be continue..

Shortness of breath	Yes	1 (1.1)	11 (11.7)	14 (5.3)	2 (4.2)	1 (7.1)	3 (30)	11 (5.4)
	No	93 (98.9)	83 (88.3)	251 (94.7)	46 (95.8)	13 (92.9)	7 (70)	191 (94.6)
Chest pain	Yes	2 (2.1)	13 (13.8)	10 (3.8)	1 (2.1)	0 (0)	2 (20)	14 (6.9)
	No	92 (97.9)	81 (86.2)	255 (96.2)	47 (97.9)	14 (100)	8 (80)	188 (93.1)
Excessive sleep	Yes	6 (6.4)	23 (24.5)	35 (13.2)	15 (31.3)	3 (21.4)	5 (50)	42 (20.8)
	No	88 (93.6)	71 (75.5)	230 (86.8)	33 (68.8)	11 (78.6)	5 (50)	160 (79.2)
Increased heart rate	Yes	4 (4.3)	16 (17)	22 (8.3)	3 (6.3)	1 (7.1)	2 (20)	15 (7.4)
	No	90 (95.7)	78 (83)	243 (91.7)	45 (93.8)	13 (92.9)	8 (80)	187 (92.6)
Increased BP	Yes	2 (2.1)	6 (6.4)	10 (3.8)	4 (8.3)	1 (7.1)	2 (20)	10 (5)
	No	92 (97.9)	88 (93.6)	255 (96.2)	44 (91.7)	13 (92.9)	8 (80)	192 (95)
Decreased BP	Yes	1 (1.1)	5 (5.3)	12 (4.5)	4 (8.3)	0 (0)	2 (20)	11 (5.4)
	No	93 (98.9)	89 (94.7)	253 (95.5)	44 (91.7)	14 (100)	8 (80)	191 (94.6)
Sore throat	Yes	2 (2.1)	10 (10.6)	17 (6.4)	9 (18.8)	2 (14.3)	5 (50)	22 (10.9)
	No	92 (97.9)	84 (89.4)	248 (93.6)	39 (81.3)	12 (85.7)	5 (50)	180 (89.1)
Cough	Yes	3 (3.2)	10 (10.6)	13 (4.9)	4 (8.3)	2 (14.3)	4 (40)	14 (6.9)
	No	91 (96.8)	84 (89.4)	252 (95.1)	44 (91.7)	12 (85.7)	6 (60)	188 (93.15)

Table-III: Symptoms experienced by individuals.

Symptom	Response	Type of vaccine			P-value
		mRNA vaccine 142 n(%)	Genetically modified virus vaccine 108 n(%)	Inactivated virus vaccine 477 n(%)	
Fatigue	Yes	81 (57)	21 (19.4)	214 (44.9)	≤0.001
	No	61 (43)	87 (80.6)	263 (55.1)	
Sleep	Yes	26 (18.3)	10 (9.3)	79 (16.6)	0.114
	No	116 (81.7)	98 (90.7)	398 (83.4)	
Fever	Yes	76 (53.5)	33 (30.6)	142 (30)	≤0.001
	No	66 (46.5)	75 (69.4)	335 (70.2)	
Headache	Yes	50 (35.2)	20 (18.5)	101 (21.2)	≤0.001
	No	92 (64.8)	88 (81.5)	376 (78.8)	
Blurred vision	Yes	20 (14.1)	4 (3.7)	54 (11.3)	0.025
	No	122 (85.9)	104 (96.3)	423 (88.7)	
Pain at injection site	Yes	92 (64.8)	20 (18.5)	187 (39.2)	≤0.001
	No	50 (35.2)	88 (81.5)	290 (60.8)	
Joint pains	Yes	31 (22)	8 (7.4)	44 (9.2)	≤0.001
	No	111(78.2)	100 (92.6)	433 (90.8)	
Edema	Yes	10 (7.0)	1 (0.93)	28 (5.9)	0.074
	No	132 (93)	107 (99.07)	449 (94.1)	
Myalgia	Yes	54 (38)	11 (10.2)	94 (19.7)	≤0.001
	No	88 (62)	97 (89.8)	383 (80.3)	
Nausea	Yes	20 (14)	6 (5.6)	37 (8)	0.029
	No	122 (85.8)	102 (94.4)	440 (92.2)	
Abdominal pain	Yes	15 (10.6)	2 (1.85)	26 (5.5)	0.012
	No	127 (89.4)	106(98.15)	451(94.5)	
Diarrhea	Yes	13 (9.2)	2 (1.85)	24 (5)	0.034
	No	129 (90.8)	106(98.15)	453 (95)	
Vomiting	Yes	10 (7)	2 (1.85)	10 (2)	0.008
	No	132 (93)	106(98.15)	467 (97.9)	
Bruises	Yes	10 (7)	2 (1.85)	12 (2.5)	0.020
	No	132 (93)	106(98.15)	465(97.5)	
Gum bleeding	Yes	9 (6.3)	1 (0.93)	22 (4.4)	0.110
	No	133 (93.7)	107 (99.07)	455 (95.4)	

Table to be Continue..

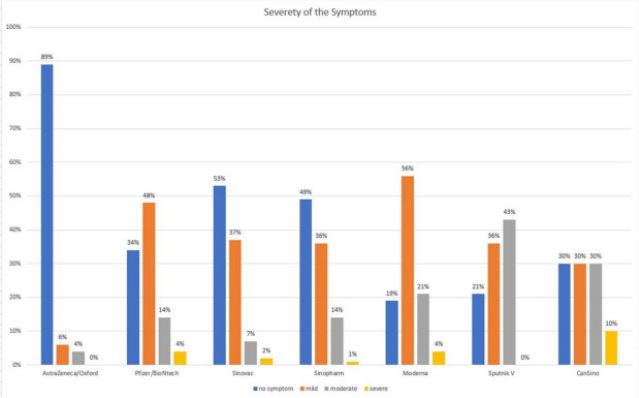
Nose bleed	Yes	4 (3)	0 (0)	11 (2.3)	0.245
	No	138 (97.2)	108 (100)	466 (97.7)	
Shivering	Yes	23 (16.2)	6 (5.6)	27 (5.7)	≤0.001
	No	119 (83.8)	102 (94.4)	450 (94.3)	
Itching	Yes	12 (8.5)	2 (1.85)	21 (4.4)	0.042
	No	130 (91.5)	106(98.15)	456 (95.6)	
Sweating	Yes	11 (7.75)	6 (5.6)	27 (6)	0.640
	No	131 (92.25)	102 (94.4)	450 (94.3)	
Tingling	Yes	18 (12.7)	6 (5.6)	45 (9.4)	0.163
	No	124 (87.3)	102 (94.4)	432 (90.6)	
Dizziness	Yes	18 (13)	5 (5.6)	55 (11.5)	0.146
	No	124 (87.3)	102 (94.4)	422 (88.5)	
Blocked nose	Yes	23 (16.2)	6 (5.6)	27 (6)	≤0.001
	No	119 (83.8)	102 (94.4)	450 (94.3)	
Runny nose	Yes	12 (8.5)	1 (0.93)	20 (4.2)	0.015
	No	130 (91.5)	107 (99.07)	457 (95.8)	
Weakness of limbs	Yes	28(20)	11(10.2)	50 (10.5)	0.010
	No	114 (80.3)	97 (89.8)	427 (89.5)	
Hair fall	Yes	30 (21)	4 (4)	55 (11.5)	≤0.001
	No	112 (78.9)	104 (96.3)	422 (88.5)	
Wheezing	Yes	12 (8.5)	1 (0.93)	21 (4.4)	0.018
	No	130 (91.5)	107 (99.07)	456 (95.6)	
Shortness of breath	Yes	13 (9.2)	2 (1.85)	28 (6)	0.053
	No	129 (90.8)	106(98.15)	449 (94.1)	
Chest pain	Yes	14 (10)	2 (1.85)	26 (5.5)	0.024
	No	128 (90.1)	106(98.15)	451 (94.5)	
Excessive sleep	Yes	38 (27)	9 (8.3)	82 (17.2)	≤0.001
	No	104 (73.2)	99 (91.7)	395(82.8)	
Increased heart rate	Yes	19 (13.4)	5 (4.6)	39 (8.2)	0.042
	No	123 (86.6)	103 (95.4)	438 (91.8)	
Increased BP	Yes	10 (7)	3 (2.77)	22 (4.6)	0.278
	No	132 (93)	105 (97.2)	455 (95.4)	
Decreased BP	Yes	9 (6.3)	1 (0.93)	25 (5.2)	0.107
	No	133 (93.7)	107 (99.07)	452 (94.8)	
Sore throat	Yes	19(13.4)	4 (3.70)	44 (9.2)	0.03
	No	123 (86.6)	104 (96.3)	433 (90.8)	
Cough	Yes	14(9.9)	5 (4.6)	31 (6.5)	0.23
	No	128 (90.1)	103 (95.4)	446 (93.5)	
Thrombocytopenia	Yes	2 (1.4)	73 (67.6)	11 (2.3)	≤0.001
	No	140 (98.6)	35 (32.4)	466 (97.7)	
Thrombotic event	Yes	1 (0.7)	69 (63.9)	12 (2.5.)	≤0.001
	No	141 (99.3)	39 (36.1)	465 (97.5)	

The majority of the respondents received the Sinovac vaccine 35.2% (n=265), followed by Sinopharm 27% (n=202) , while 12.5% (n=94) received the AstraZeneca/ Oxford vaccine. The same number of respondents, i.e. 12.5% (n=94), received Pfizer-BioNTech, 6.4% (n=48) received Moderna, 2 % (n=14) received Sputnik V, and 1.3% (n=10) received CanSino vaccine.

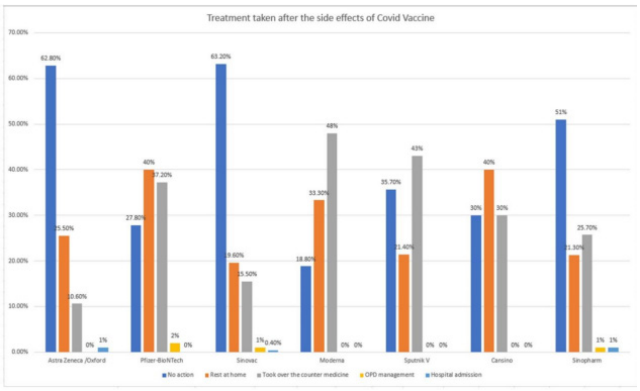
We identified from our study that vaccinated people suffered from a wide range of side effects including very common ones like fatigue 43.4% (n=316), fever 34.5% (n=251), pain at injection site 34% (n=299), headache 23.5% (n=171), myalgias 21.8% (n=159), lethargy 17.6% (n=132), disturbed sleep 15.8% (n=115), reduced power of limbs 12.2% (n=89), hair fall 12.2% (n=89), joint pains 11% (n=83), dizziness 10.8% (n=79), blurred vision 10.4% (n=78), to common side effects like tingling 9.4% (n=69) sore throat.

The symptoms experienced by the vaccinated individuals who received m RNA vaccines vs those experienced by individuals who received inactivated virus vaccines or genetically modified vaccine are documented in the Table-III below.

Severity of the symptoms of various vaccines is summarized in graph-1 given below.



Treatment received for the side effects after various vaccines are summarized in graph-II.



DISCUSSION

In Pakistan, various myths and misconceptions are related to multiple vaccines. As the COVID-19 vaccine was developed in a short period of time, people all over the world were apprehensive about the use of the COVID-19 vaccine due to concerns over the potential side effects. A previous study conducted in Islamabad, Pakistan, explored the side effects of the COVID-19 vaccine in the population of Islamabad, but the limitation of the mentioned study was that the sample size was quite small, only 205, and also, they explored the side effects of the Sinopharm vaccine only. They excluded patients older than age 65 years and younger than 18 years; they also excluded known asthmatics and decompensated diabetes and hypertension. Also, those who had contracted the COVID-19 virus in the last 3 months, so because of so many exclusion criteria, there was concern by the researchers if their study results were applicable to the general population or not [20].

So, we took a larger sample and also included patients older than 65 years as well as those with various co-morbid. We included all varieties of COVID-19 vaccines used in Pakistan and compared their side effects. We discovered that side effects like fever, fatigue, pain at the injection site, headache, aches and pains, lethargy, hair fall, and disturbed sleep were common. Eighty-four patients reported suffering from thrombotic events post-vaccination, but our limitation is that we were only recording patient's accounts with no evidence from any lab reports or hospital admission data.

CONCLUSION

This study showed that most vaccinated individuals suffered mild side effects after receiving the COVID-19 vaccine and did not need any treatment. This study also highlighted that most side effects were significantly more common in mRNA vaccines. Thrombocytopenia and thrombotic events were significantly higher in the case of genetically modified virus vaccines as reported by the recipients, but this was purely the patient's account of the event, which was not verified by any lab reports or hospital records.

ACKNOWLEDGEMENT: Dr. Babra Naveed (Registrar FMH Family Medicine Department) for helping with the literature review, data collection, and data entry. Mrs. Afshan Khanum (Senior Statistician FMH) data analysis.

CONFLICT OF INTEREST: None.

GRANT SUPPORT AND FINANCIAL DISCLOSURE: None.

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Authors' Contribution:

Khudija Amna Arif: Substantial contributions to the conception and design of the work.
Marriam Sheraz : The acquisition of data for the work.
Zia Ul Hassan : Analysis and interpertation of data for the work.
Khushbakht Sana: Drafting the work.
Umaira Anjum : Reviewing it critically for important intellectual content.
Naif Usman Saigol: Final approval of the version to be published.

Submitted for publication: 21-09-2023
Accepted after revision: 14-12-2025