

Assessment the Psychological Mindsets and Effectiveness of COVID-19 Vaccines, Occurrence and Severity of Covid-19 Infection among Vaccinated People in Iraq

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Abstract

Background: The World Health Organization had declared the release of COVID-19 vaccines in September 2020 and after. mRNA vaccine “Pfizer Biotech” and the adenoviral vector vaccine CoV-19 (AstraZeneca-Oxford) were granted emergency use. Researchers found that effectiveness of AstraZeneca and Pfizer vaccine is (70% and 95%) respectively. While the inactivated SARS-CoV-2 vaccine (Sinopharm) is safe, effective (effectiveness more than 50%) as WHO's declared. Sinopharm was the first vaccine that had been administered to Iraqi population. Only 2% of population had been vaccinated despite the efficacy and acceptability of it. Several studies conducted in different countries to assess the effectiveness of Covid-19 vaccines and its safety.

Aim: This study done to assess the frequency of post vaccination infection with COVID-19 and accompanying signs and symptoms in different vaccine companies that are available in Iraq (Sinopharm, AstraZeneca-Oxford and Pfizer- BioNTech).

Patients and methods: The study is a cross-sectional study conducted from 11th November 2021 to 15th March 2022 that included 500 Iraqi persons vaccinated with COVID-19 vaccine with either Pfizer, AstraZeneca or Sinopharm, Patients were chosen by Convenient sampling from different Iraqi governorate. All data management and analysis done by manual statistical methods.

Results: From total 500 patients participated in the study with full doses vaccination (2 doses as recommended) there were (25%) person get covid-19 infection. Majority of infection occurred after 6 months of 2nd dose. Majority of postvaccination infections with Pfizer vaccine were with mild to moderate symptoms without need hospitalizations in comparison to (5.56%), (3.13%) hospitalizations rate and severe infection post AstraZeneca and Sinopharm vaccines respectively.

Conclusion: Full vaccination of two doses of (Pfizer, AstraZeneca, Sinopharm) are highly effective in decrease the severity of COVID-19 infection signs and symptoms, decrease rate of hospitalizations. High efficacy of Pfizer vaccine than AstraZeneca and Sinopharm vaccines .

Keywords: COVID-19, vaccinations, clinical severity.

Introduction:

Coronavirus disease 2019 (COVID-19) had spread rapidly, with a sharp increase in the number of infected people worldwide. Till 8th of August in 2021, COVID-19 had killed more than four millions people and more than two hundred millions of people were infected^[1]. Needs to safe and effective vaccines should be urgent to vaccinate populations and to restore people's daily activity into the original^[2]. According to global statistics, as of August 2, 2021, there are 326 vaccines, 103 of which are in clinical trials, and 19 vaccines have been put into normal use, including 8 inactivated vaccines and 5 protein subunit vaccines, 2 RNA vaccines, and 4 non-replicating viral vector vaccines^[3]. At that time data reported 27.3% of the world population has received at least one dose of a COVID-19 vaccine, and 13.8% is fully vaccinated^[4]. Rapid herd immunity by vaccination is needed to block the mutation and prevent the emergence of variants that can completely escape the immune surveillance^(5,6).

Many systematic reviews evaluated the effectiveness and safety of the three main vaccines on the market, the inactivated virus vaccines (sinopharm), RNA vaccines (Pfizer) and viral vector vaccines (astrazeneca) based on random clinical trials^(7,8,9,10,11). In general, RNA vaccines are the most effective, followed by viral vector vaccines and inactivated virus vaccines^(8,9,10,11). The current safety of COVID-19 vaccines is acceptable for mass vaccination, but long-term monitoring of vaccine safety is needed, especially in older people who had underlying conditions^(7,8,9,10,11). Sinopharm vaccines had the lowest frequency of adverse effects^(7,8).

According to the Protocol for Prevention and Control of COVID-19 (Eighth Version), cases are classified by clinical symptoms as asymptomatic, mild, moderate, serious, or severe. We categorized cases into one of two outcomes: pneumonia, which includes moderate, serious, and severe cases; and serious COVID-19, which included only serious and severe cases. In the present study, we aimed to evaluate the effectiveness, occurrence and severity of COVID-19 infection among vaccinated people in Iraq.

Subjects and methods

This study is a cross-sectional study that had conducted from 11th November 2021 to 15th March 2022. Sample was chosen by Convenient sampling and it included 500 Iraqi persons vaccinated with either Pfizer, AstraZeneca, Sinopharm COVID-19 vaccine.

Data collected by using especial designed questionnaire. Data collected online. It data presentation and analysis done by manual statistical methods. Data was represented by suitable tables and figures which was designated by computer programs.

Ethical and approval consideration:- Ethical approval was obtained by committee member in Tikrit medical college, also Permission was taken from responders to fill the information which is kept secure.

Results:

There were 372(75%) vaccinated not infected persons, while 128(25%) of vaccinated people get infection after full vaccination. Figure 1 shows higher frequency of vaccination with Pfizer vaccine (74.4%), while AstraZeneca vaccine(13.6%) and Sinopharm vaccine(12%).

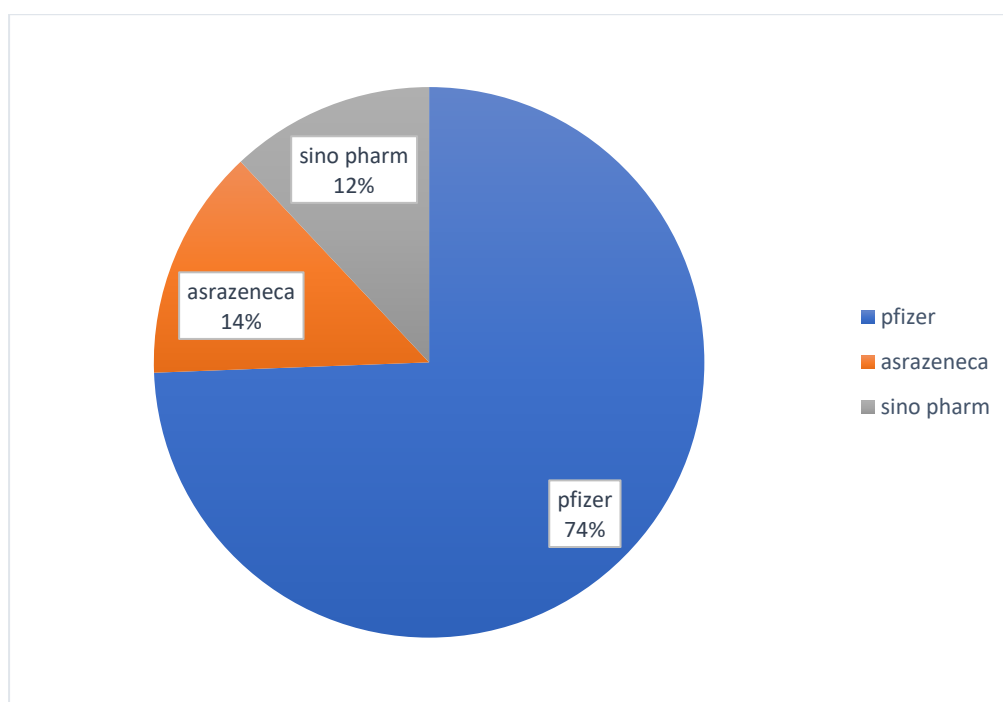


Figure (1) The frequency of Covid-19 vaccination according to type of vaccine

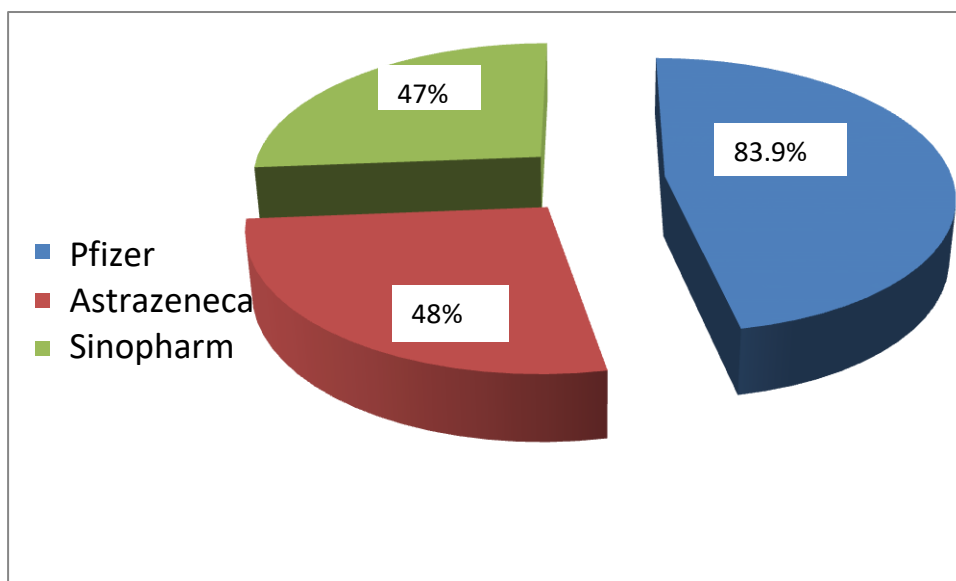


Figure 2: Effectiveness of vaccines among non-infected persons.

The study revealed that the efficacy of Pfizer vaccine (83.9%) in comparison to AstraZeneca (48%), Sinopharm vaccines (47%), figure 2.

Table (1) the frequency of Covid-19 infection among vaccinated people with different types of vaccines

Type of vaccine \ Side effect	Pfizer	AstraZeneca	Sino pharm
After 1 st dose	16(4.3%)	8(11.7%)	4 (6.7%)
After 2 nd dose	18(4.8%)	12 (17.6%)	8(13.3%)
After 6 month of 2 nd dose	26(7%)	16(23.5%)	20 (33.3%)
Total	60	36	32

Post vaccination infection occurred among 128 patients out of 500 vaccinated persons in study sample. This table shows high frequency with AstraZeneca vaccine (52.8%), it was (11.7% after 1st dose, 17.6% after 2nd dose, 23.5% after 6 month of 2nd dose). (53.3%) infection with Sinopharm vaccine (6.7% after 1st dose, 13.3% after 2nd dose, 33.3% after 6 month of 2nd dose) in comparison to Pfizer vaccine where (16.1%) get infection (4.3% after 1st dose, 4.8% after 2nd dose, 7% after 6 month of 2nd dose).

Table (2) the frequency of Covid-19 infection among vaccinated people in relation to age group

State of infection \ Age group	Infected people	Non Infected people	Total
18 -	40 (12.2%)	288(87.8%)	328
25 -	28 (43.8%)	36 (56.2%)	64
35 -	32(89%)	4 (11%)	36
50 -	24 (54.5%)	20 (45.5%)	44

65 -	8 (25%)	24 (75%)	32
≥80	0 (0%)	0 (0%)	0
Total	128	372	500

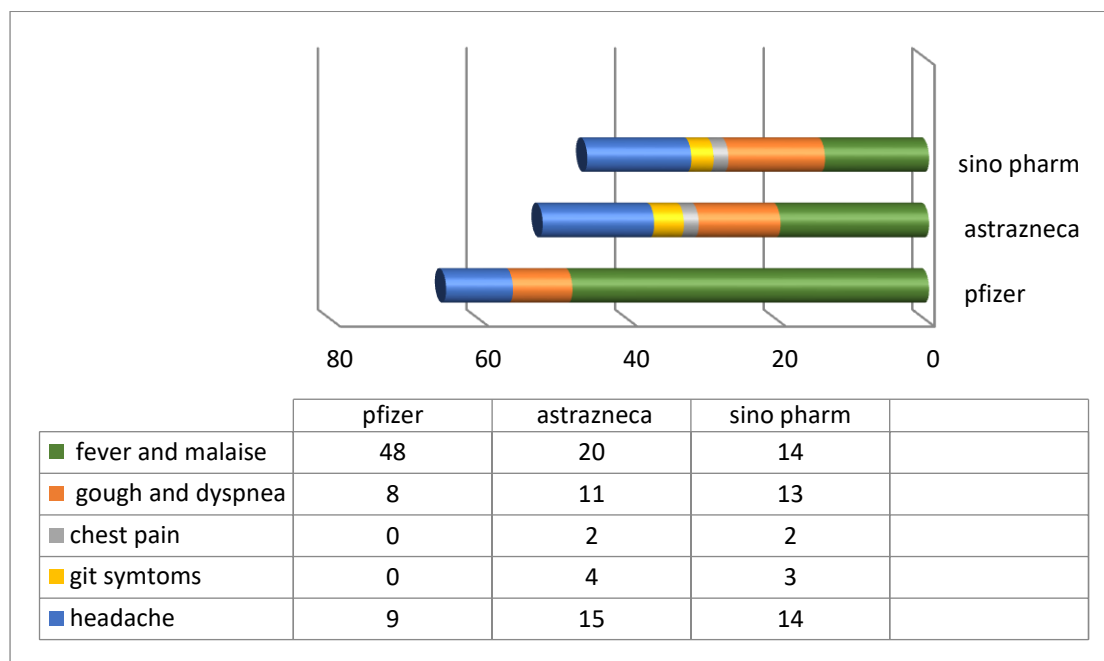
This table show that majority of post vaccination infection (89%) occurred in age group between (35-50). But less infection rate between (18-25) age group(12.2%)

Table (3) The frequency of Covid_19 infection among vaccinated people in relation to gender

gender		Male	Female	Total
Infection state		No		
Infected people	After 1st dose	16(8.7%)	12(3.8%)	28
	After 2nd dose	20(10.8%)	16 (5%)	36
	After 6th month of 2nd dose	28 (15.2%)	36 (11.39%)	64
Non infected		120 (64.22%)	252(79.8%)	372
Total		184	316	500

This table show infection rate (34.8%) among post vaccinated males in comparison to (20.2%) infection rate among post vaccinated females. Infection particularly occurred after 6 months of 2nd dose.

Figure (2) Signs and symptoms of covid-19 infection among vaccinated people



This figure showed the frequency of different signs and symptoms among post vaccinated infected people, fever and malaise were the more frequent complain (48, 20, 14) among patients vaccinated with Pfizer, AstraZeneca and Sinopharm respectively.

Table (4) ways of symptoms resolution after COVID-19 infection among vaccinated people

Type of vaccine Ways of symptoms resolution	Pfizer	AstraZeneca	Sino pharm
Without taking of drugs	26(43.3%)	14(38.8%)	14(43.7%)
Medications at home	34(56.7%)	20(55.5%)	17(53.1%)
Admission to hospital	0(0%)	2(5.56%)	1(3.13%)
Total	60	36	32

The results found that higher percentage of infected patients need medications (drugs prescribed by specialists) at home 34(56.7%) with Pfizer , 20(55.5%) with AstraZeneca, 17(53.1%) with Sino pharm vaccine need medications at home.

Discussion:

COVID-19 vaccines aimed to control the pandemic, still no ideal vaccine. In this study, the overall vaccinated people (500 vaccinated person), most of them vaccinated with Pfizer vaccine about (74.4%).

There were 75% vaccine effectiveness that prevent new covid-19 infection. High percentage of the infection were with AstraZeneca vaccine 52.8% (47.2% vaccine effectiveness). This Findings are Compared to finding of results of clinical trails of three vaccines that found efficacy of AstraZeneca and Pfizer vaccine is 70% and

95% respectively [12,13]. The results of a mass vaccination of CoronaVaccine in Brazil and Turkey were 50.7% and 91.3% [14]. While in Israel is only 39% [15].

After 1st vaccines dose there were 4.3%, 6.7%, 11.7% infection among people vaccinated with pfizer, Sinopharm and AstraZeneca vaccines respectively. While after 2nd dose were 17.6%,13.3%,4.5% with pfizer, Sinopharm and AstraZeneca vaccines respectively this agree with study done in India in 2021 by Vaishya, Raju. The majority of infected people after 1st and 2nd dose were lets the protective measures after just getting the vaccine and this may be important reason to these infection rate just after vaccine intake. However, majority of infection post vaccination are reported in people After 6 months of 2nd vaccine dose this agree with study done in 2021 in UK byCristina Menni . This may indicate the decrease in the acquired immunity against vaccines that may guide us to take new booster dose to fully vaccinated people to improve their immunity and prevent new infection.

The highest rate of infected people were between (35-50) age group where lowest infection rate reported among (18-25) age group higher infection rate (34.8%) among Post vaccinated Males In comparison to (20.2%) infection rate among post vaccinated Females. With majority of these infection occurred after 6th month of 2nd dose this agree with study done in 2020 by Yauhen Statsenko and other inUnited Arab Emirates .

Majority of infected people after Pfizer vaccination were with mild to moderate symptoms that either resolved spontaneously or after intake of supporting treatment at home with no hospitalizations, no death. While (5.56%),(3.13%) hospitalizations rate and severe infection with severe symptoms reported with AstraZeneca and Sino pharm vaccines respectively.

Conclusions

Full vaccination of two doses of (Pfizer, AstraZeneca, Sinopharm) are highly effective across all age groups in preventing symptomatic and asymptomatic infections and related hospitalizations, severe disease, and death. With high efficacy of Pfizer vaccine (83.9%) . These findings suggest that COVID-19 vaccination can help to control the pandemic.

Recommendations

1. Encourage people to get full doses of vaccines and educate them about safety and effectiveness, values of vaccination of protection from this pandemic.
2. Encourage people to take the booster dose (3rd dose) to improve immunity against COVID-19 new infection.

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