

# PHARMACEUTICAL SCIENCES

## ANALYSIS OF COVID-19 VACCINE SIDE EFFECTS

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**Introductions.** WHO declared a pandemic of coronavirus disease in March 2020. A number of preventive measures have been developed to prevent the spread of infection, but vaccination is considered to be the most effective to date. Vaccination varies from country to country, but in most countries the rate is unsatisfactory. Among the factors that limit vaccination, a separate group includes factors related to the vaccines themselves, namely the possibility of side effects.

The aim of this study is to identify side effects after COVID-19 vaccination, to assess their severity.

**Materials and methods.** We interviewed 178 people who were COVID-19 vaccinated. There were 68.54% (122) female and 31.46% (56) male. The average age of vaccinated people was  $45.58 \pm 12.63$  years. According to marital status, 78.65% (140) were married, 7.86% (14) were unmarried and 13.48% (24) were divorced. 44.94% (80) had higher education, 34.84% (62) had special secondary education and 20.22% (36) had secondary education. According to social status, people were distributed as follows: 71.91% (128) of people work permanently, 12.36% (22) work from time to time, 5.62% (10) of the unemployed, and 8.99% of pensioners (16) and disabled – 1.12% (2). All people answered questions about the type of used vaccine,

the development of side effects after vaccination and their severity.

**Results and discussion.** The vast majority of people (44.95%) are vaccinated with the “Covishield” (AstraZeneca); 25.84% vaccinated with “Comirnaty” (Pfizer BioNTech); 21.34% with the “CoronaVac” (Sinovac Biotech) and 7.86% with the “Moderna” (Moderna). Among the factors influenced the choice of vaccine, 79.78% of respondents said that they were vaccinated with the vaccine available in the vaccination office, 11.24% followed the doctor's recommendations on the choice of COVID-19 vaccine, and 8, 98% listened to the recommendations of familiares. 50.56% of people had side effects upon vaccination. The vast majority of patients had several manifestations of adverse reactions. But the leading positions were occupied by pain at the injection site (77.77%); increase in temperature (71.1%); severe weakness, fatigue (53.33%); and headache (35.55%). Despite the rather diverse manifestations, side effects in more than half of the respondents had a low level of manifestations (51.11%), the average degree of manifestations had 31.1% of people and a high degree of manifestations of side effects was observed in 17.79% of people.

The most common side effects were observed after vaccination with "Comirnaty" in 36 (40%) of respondents; after vaccination with "CoronaVac" were in 26 (28.88%) cases; after vaccination with "Covishield" were in 20 (22.22%) cases; after vaccination with "Moderna" were in 8 (8.9%) cases.

**Conclusions.** The nature of the side effects described by vaccinated individuals is fully consistent with the list of possible side effects provided in the instructions for use of these vaccines. About 70% of the side effects were pain at the injection site and fever and a low incidence, which may not be a known reason for refusing vaccination. The low incidence of side effects following “Covishield” and “Moderna” vaccines may be primarily due to the fact that fewer respondents were vaccinated with these vaccines. But the vaccine "Comirnaty" in this study showed almost twice the number of side effects due to the fact that this vaccine was vaccinated almost twice as many people. But the reliability of these data needs to be verified in larger representative groups.