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Psychological Consequences of COVID-19 Vaccination

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Dear Editor

Today, the process of vaccinating and immunizing people around the world against diseases is one of the greatest achievements of public health. Immunization programs have led to a significant reduction in mortality and the prevalence of infectious diseases, including the eradication of the polio virus worldwide (1). To successfully reduce the prevalence of and treat vaccine-preventable diseases, immunization programs must be integrated with the global vaccination process. Not only does this provide direct protection for vaccinated people, but the over 70% rate of the vaccination program also provides indirect protection for others. However, public vaccination cannot be guaranteed even after public access to safe vaccines. This is because individuals are hesitant to get vaccinated or not (2). Previous research has shown that adaptation to vaccines is variable and contradictory, and achieving public acceptance requires extensive training regarding the safety and efficacy of different vaccines (3).

During the outbreak of COVID-19, after the clinical trial of several vaccines was confirmed, some people were skeptical about getting vaccinated and participating in the nationwide vaccination process. But, over time, and with the positive effects of the vaccine on reducing the number of hospitalizations and deaths from COVID-19, many people became more positive and accepting of the WHO-approved vaccines (4). Chemically, et al (5) examined the Moderna vaccine's effectiveness on alpha and beta COVID-19 variants. Studies have shown that the second dose of the vaccine was more effective than the first dose. According to the results, the efficacy of the vaccine against the alpha variant was 88% after the first dose and 100% after the second dose. Also, the efficacy of the vaccine against the beta variant was 61% after the first dose and 96.4% after the second dose.

In another study, Bernal et al (6) the initial effect of AstraZeneca and Pfizer / BioNTech vaccines on the elderly with COVID-19 in hospitals was investigated. The results demonstrated that the safety and efficacy of the vaccine for ages 80 and older after 13 and 34 days were 70% and 89%, respectively. At the age of 70, the efficacy of the Pfizer/BioNTech vaccine was 61% after 34 days. The safety of the AstraZeneca vaccine was reported to be 60% and 73% after 20 and 35 days, respectively. In addition to protection against the virus, the elderly who were vaccinated with Pfizer/BioNTech were 43% less likely to be hospitalized and 51% were less likely to die. In contrast, there was a 37% decrease regarding the hospitalization of older adults vaccinated with AstraZeneca. Therefore, these two vaccines reduce the risk of hospitalization by nearly 80%. Therefore,

these two vaccines strengthen the immune system and reduce the risk of hospitalization by nearly 80%. Wilcox et al (7) in a study investigated the role of the influenza vaccine in reducing hospitalization during the outbreak of COVID-19. This retrospective cohort study was performed on 6921 people. Studies indicate that 38% of these people received the flu vaccine in 2019. The hospitalization rate of those who received the vaccine was so low that they had a 24% reduced risk of dying.

All these studies have been conducted over the past year to encourage people worldwide to participate in the vaccination process. This was to show the many benefits that vaccination can bring (7). The success of the global vaccination process depends in part on people's perceptions of the benefits and risks of the vaccine, as well as the extent of their trust in their government and country. Researchers believe that refusing or delaying vaccination is due to the lack of knowledge and awareness regarding the safety of the vaccination process (6). Shekhar et al. (3) studied the level of public acceptance of the COVID-19 vaccine. As a result, 36% of people wanted to get the COVID-19 vaccine very quickly; 56% were skeptical despite access to the vaccine and waited for more results; only 8% of people did not accept the vaccine. There was a significant positive correlation between age, education, and income and the acceptance level of the COVID-19 vaccine. Developing an appropriate level of immunity, efficacy against coronary heart disease, and possible side effects were the most common concerns after vaccination. Bono et al. (4) examined factors influencing public acceptance of the COVID-19 vaccine. Studies have revealed that the acceptance rates for vaccines which provided 90% and 95% immunity were respectively 76.4% and 88.8%. Only Brazil had the lowest acceptance rate of the COVID-19 vaccine among the surveyed countries. Age, income, and high education were among the factors that increased people's acceptance of the COVID-19 vaccine. Fear of life-threatening complications (42.2%) and uncertainty about the effectiveness of the vaccine (15.1%) caused hesitation and resistance to the COVID-19 vaccination.

After several months of vaccination in many countries around the world, stadiums, schools, universities, businesses, and amusement parks are reopened. This can lead to the improve individuals' mental and physical health (8). People have a higher confidence level when they have received the first and second doses of the COVID-19 vaccine. This, in turn, reduces their risk of hospitalization and death from COVID-19 (9). Rest assured that vaccination does not create complete immunity, and further considerations and social distancing must be observed. Since the United States was one of the first countries in the world to produce and inject vaccines, many age groups and high-risk occupations were vaccinated over time. In this regard, the consequences of injection of the COVID-19 vaccine on the psychological health of individuals can be investigated. Perez-Arce et al. (10) examined the association between the COVID-19 vaccine and psychological distress. It included 8,003 American adults, most of whom were educated and hospitalized for the vaccination. Studies have also indicated that depression was significantly reduced in people who received at least one dose of the vaccine. It was also found that the risk of mild and severe depression was reduced by 4% and 15%, respectively. In terms of gender differences, women showed a greater reduction in depression and anxiety than men. In another study, Koltai et al. (11) addressed the psychological effects of the COVID-19 vaccine. The study included 5,792 American participants. It demonstrated that vaccination was associated with a reduction in psychological distress. It was also associated with an 8.44% and 0.53% reduction in coronary heart disease and death. Reduced hospitalization and infection by COVID-19 led to less stress and anxiety.

Overall, all vaccines challenge the immune system and increase inflammatory markers within a few hours of vaccination (12). Studies conducted in the last 3 years have shown that the COVID-19 vaccine has improved mental health, quality of life, hope for future, optimism, social relationships, and the immune system of many people in the world.

But, attention should be paid to the fact that, in people with allergies, this may cause unusual reactions. Therefore, the individual's medical record should be reviewed before starting a nationwide vaccination. Given the many consequences of getting the COVID-19 vaccine in physical, social, economic, cultural, and psychological dimensions, it is necessary to take measures to make the general public more aware of the benefits of the vaccine.

Conflict of interest

The authors declared no conflict of interest.

Authors' contribution

F.B.SH. conceived of the presented idea. F.B.SH. and Z.S. wrote the manuscript with support from F.B.SH.

Keywords
COVID-19, Vaccine, Depression, Anxiety, Stress

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