



# Acceptance Rate of COVID-19 Vaccines and its Related Determinants

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## Abstract

Vaccination is one of the 21st century's greatest achievements in public health. However, its acceptance varies depending on the circumstances and variations in human behavior over time and geography. The rate of vaccination uptake is a key factor in how well the population can develop herd immunity against infection. Reduced the acceptance of the COVID-19 vaccination will restrict worldwide efforts to end the epidemic and its effects. Understanding people's beliefs, their motivations for getting vaccinated, and the things that cause particular populations to reject the vaccination are crucial for addressing vaccine hesitancy. The low level of public acceptance of COVID-19 vaccinations is most likely a result of misconceptions. The main obstacles to mass immunization campaigns are worry over severe post-vaccination side effects and incorrect information about the COVID-19 vaccination.

**Keywords:** COVID-19, vaccine acceptance

## Full-length article

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## 1. Introduction

The COVID-19 pandemic is regarded as a global problem for all nations to control its spread. The World Health Organization along with various research groups and clinical experts throughout the world are spearheading efforts for prevention, diagnosis, and treatment. There are no particular COVID-19 antiviral drugs available. Humans' compliance with social distance and prolonged face-masking is also not guaranteed. Therefore, developing an effective vaccine is the best strategy for containing and gradually preventing this pandemic [1]. Since the COVID-19 pandemic's beginning, there have been urgent requests for the creation of safe and effective vaccinations, as mass immunization is the best strategy for combating viral illness [2]. As a result, the collaboration between researchers, industry, and financial authorities enabled the COVID-19 vaccines to be licensed and made available for use on a global scale. Because of the rumours that circulated about this lightning-fast, incredible success regarding these vaccinations and the virus itself, the global hesitation to receive the COVID-19 vaccine increased [3].

Many studies have noted that Arabs are significantly more hesitant to get the COVID-19 vaccination, and these rates were comparatively greater than Mohamed et al., 2023

the global rate [4, 5]. The biggest obstacles to mass immunization efforts are misinformation regarding COVID-19 vaccinations and worry about severe post-vaccination side effects [6, 7, 8]. After initial infection or vaccination, this may lead to a delay in vaccination and diminishing immunity against SARS-CoV-2 over time [9]. As a result, it may increase the overall extent of the COVID-19 pandemic in the area. On the other hand, the vaccination acceptance rate was substantially correlated with having adequate knowledge of the vaccines and their adverse effects [10]. However, hesitation and acceptance rates for the COVID-19 vaccine may differ depending on a variety of elements, including the subjective nature and sociodemographic characteristics [11].

## 2. Acceptance rate of COVID-19 Vaccine

The average vaccine acceptability recorded globally in March 2020 was 86%; by July 2020, it had fallen to 54%. While this rate rose to 72% in September [12]. In the general population, the average rate of vaccination hesitancy was 21% globally in April 2020, rose to 36% in July 2020, and then fell to 16% in October 2020 [3]. According to a global survey on the willingness to receive the COVID-19 vaccine, acceptance rates were 89% in

China, 85% in Brazil, 82% in South Africa, 80% in South Korea, 76% in Mexico, 75% in India, the USA, 74% in Spain, 72% in Ecuador, 71% in the UK, 69% in Canada, 65% in Nigeria, 59% in France, 56% in Poland and 55% in Russia [13].

According to a survey conducted across Europe, COVID-19 vaccines were accepted by 62% of French people, 70% of German people, 73% of Dutch people, 74% of Italians (excluding the Lombardy region), 75% of Portuguese people, and 79% of British people [12]. In the Middle East, the United Arab Emirates had a 55% acceptability rate for vaccines [14]. According to a Saudi Arabian survey, 64.7% of people in Saudi Arabia accepted vaccinations [15]. Kuwait has a 53.1% acceptance rate for vaccinations [16]. Addressing vaccine reluctance would be necessary before implementing a successful and comprehensive mass immunization campaign. It's critical to comprehend people's attitudes, the reasons for receiving vaccinations, and the elements that predispose particular populations to vaccine hesitancy in order to manage vaccine hesitancy [3].

### 3. Predictors of COVID-19 Vaccine Acceptance

#### 3.1. Age

According to a study done in Saudi Arabia, people over the age of 40 showed increased acceptability of the COVID-19 vaccine [15]. Other studies showed that the acceptability of the participants increased with age [17, 18, 19]. A study done in Kuwait revealed that respondents between the ages of 21 and 24 had the highest acceptability (74.3%) [16].

#### 3.2. Gender

According to a study done in Saudi Arabia, male participants were more likely than female participants to accept the COVID-19 vaccine [20]. According to a different study, women are less likely than men to accept the COVID-19 vaccine [3].

#### 3.3. Occupation

Priority was given to medical personnel when receiving the COVID-19 vaccination shot. While a greater incidence of vaccination acceptance was observed among health care workers in Israel (78% among doctors and 61% among nurses) [21]. A study carried out on nurses in China found that about 40% of respondents planned to adopt the COVID-19 vaccine [22]. Medical practitioners in France showed similar levels of vaccination intent. When the COVID-19 vaccine became available, approximately 77% of the respondents wanted to receive it [23].

#### 3.4. Parenthood

Parents and childcares were included in the population sample in a study that found 65% of respondents intended to get immunized [24]. In the United Kingdom, a similar population sample showed a comparably lower vaccine acceptance rate of 56% [25]. It's critical to gain the support of parents, especially mothers, for the COVID-19 vaccination. It may be challenging to vaccinate children due to parental resistance to vaccines.

#### 3.5. Social Factors

We found that people's decisions to get the vaccine or not were influenced by three social elements, including communication and social media, government agencies, experts, and reliable organizations like the WHO, CDC, or FDA. Higher levels of scientific trust were connected to a 73% raise in likelihood of immunization and a 79 percent rise in likelihood of encouraging others to get immunized [26]. According to Malik and his coworkers' research [27], participants who had the highest levels of confidence in medical professionals (75%) and the CDC (64%) were more probable to acquire the COVID-19 vaccine. According to Kreps et al. [28] the FDA, CDC, and WHO's guidelines to promote the use of the COVID-19 vaccine have been shown to increase immunization rates more than recommendations from government officials.

#### 3.6. Pre-existing medical condition

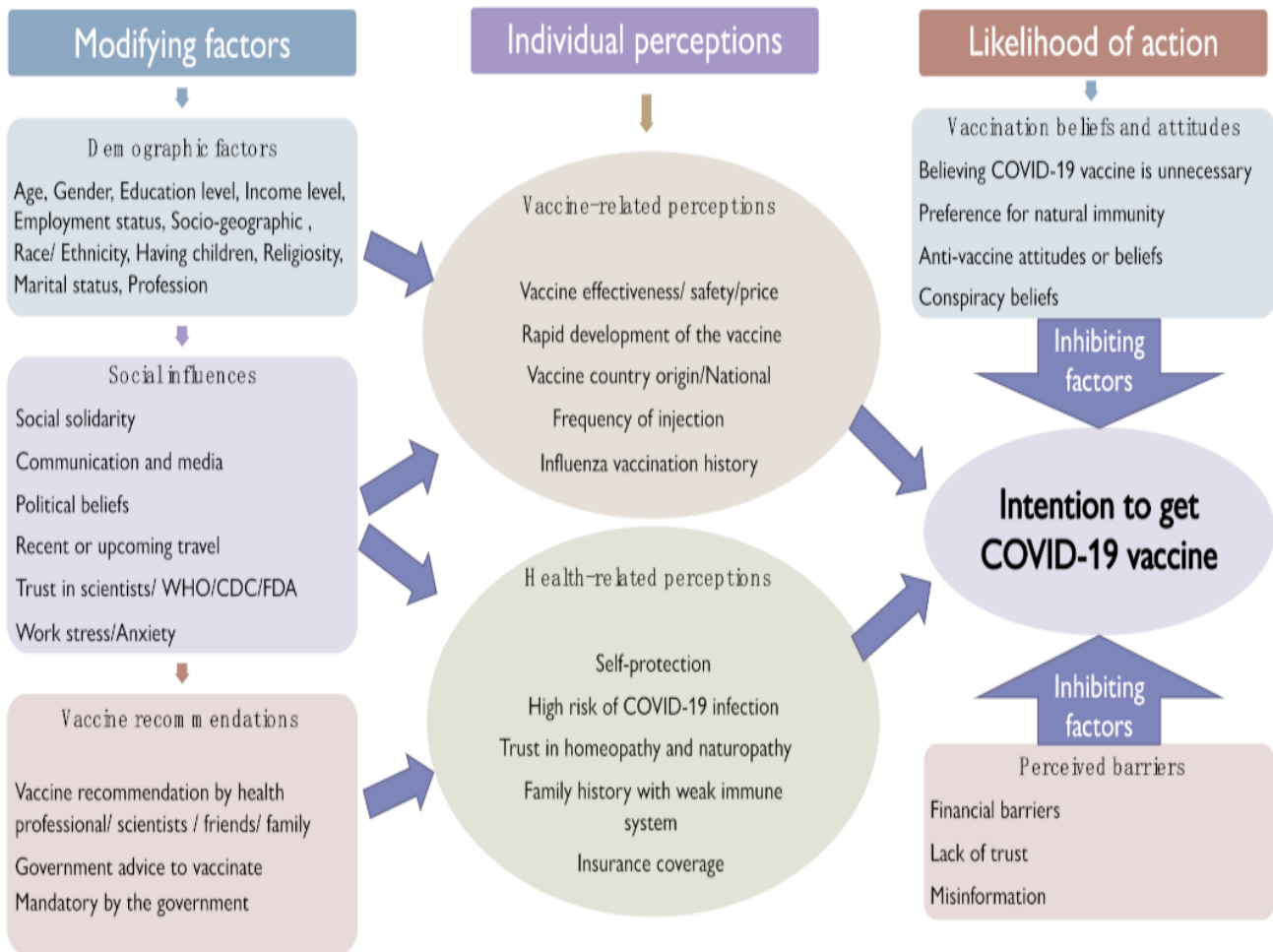
Participants who already had a medical condition were more accepting of the COVID-19 vaccinations [18]. According to a survey conducted in Turkey, 29% of rheumatic patients accepted vaccinations [29]. Patients with systemic autoimmune rheumatic illness reported vaccine acceptance at a rate of 54%, according to a second interview-based study carried out in India between March 2021 and April 2021. The study evaluated the age and educational factors that influence vaccination uptake [30]. Another survey carried out on older adults and a sample of those with chronic respiratory disease revealed a higher rate of vaccine acceptance of 86% [19].

#### 3.7. Higher perception of COVID-19 risks

According to a number of studies, acceptance of the vaccine is positively correlated with increased risk perceptions of COVID-19 [31, 32, 33]. The three distinct factors that had the greatest influence on individuals' perceptions of risk were being in contact with a person who has had COVID-19, having prior medical illnesses, and being older. Interactions with people who had COVID-19 increased participants' risk perceptions of the disease's severity and infectiousness [28]. Both the short-term and long-term impacts of the virus may have been personally experienced by participants during a previous infection. Participants were more willing to accept the vaccination and other measures designed to battle COVID-19, such as staying indoors and mask use, as a result of developing a higher perceived risk of COVID-19 due to their increased awareness of the seriousness of the disease [34]. According to a cross-sectional survey of UK adults, people were more motivated to get the COVID-19 vaccine because they were afraid of serious side effects and [19].

#### 3.8. Vaccine efficacy and benefits perception

Benefits and effectiveness of vaccines Perception and confidence in vaccine efficacy were linked to an increase in COVID-19 vaccination acceptance [35]. The acceptance of the COVID-19 vaccination was largely determined by confidence in its efficacy [8]. According to a cross-sectional study done in China, people who believed getting the COVID-19 vaccination was an effective method of preventing and controlling the disease had an elevated level of vaccine acceptance (OR: 1.56, 95% CI: 1.08-2.25) [22].



**Figure 1:** Factors that affect uptake and resistance to the COVID-19 vaccine

**4. Barriers to COVID-19 vaccination**

**4.1. Personal relationships**

One's view and attitude towards accepting the COVID-19 immunization were discovered to be influenced by recommendations from family and friends. It may be difficult to get vaccinated if a person trusts in information or respects the opinions of loved ones who are hesitant to get the COVID-19 vaccine [36].

**4.2. Organizational and institutional elements**

Lack of confidence in or mistrust in government agencies and health organizations, such as the WHO and the CDC, may prevent someone from accepting the COVID-19 vaccination [37, 38]. Similar to this, one would be less likely to receive the COVID-19 vaccines if they had poor trust or mistrust for pharmaceutical companies and healthcare providers [39,40]. Not wanting to get the COVID-19 vaccine has been attributed to not having a doctor's recommendation [41]. Additionally, people's hesitation was influenced by the vaccines' rapid development [42], the country that developed them [43], and the perception of incomplete or unclear data [44]. The suspicion about vaccines was more likely to rise among people who had confidence in nontraditional sources of data

and accessed content on blog posts and social networking websites [36].

**4.3. Public policy and the community component**

The widespread acceptance of vaccination may be affected by low spread throughout the community (e.g., the low percentage of suspected or confirmed cases in the region) [40]. Politics has affected how people feel about vaccinations. People were more unwilling to accept vaccinations if they believed political pressure had affected the advancement of vaccinations [39, 45].

**4.4. Side effects and vaccine efficacy**

Concerns regarding vaccine safety and adverse effects were an important obstacle to vaccination decisions, particularly for rapidly developed vaccinations that might not be fully evaluated in real life [17, 20, 22]. Another study identified some concerns regarding COVID-19 vaccines, including that there had been no research on long-term adverse effects and that the vaccine might be harmful for some populations, like pregnant women, those who have pre-existing conditions like multiple sclerosis, and those who have several types of allergies [12]. The participants' knowledge of the short-term durability of vaccine protection and the percentage of their friends who had received

vaccinations also had an impact on their perceptions of vaccine efficacy and adverse effects [46].

Reiter et al., (2020) revealed that the individuals who were ready to receive COVID-19 vaccines were unlikely to say that the possibility of vaccine side effects affected their decision to get vaccinated. (53% vs. 69%,  $p < 0.05$ ) [35]. Additionally, those who believed that COVID-19 vaccines have health hazards were less expected to accept receiving the vaccines (28.9%) than those who thought vaccines do not have health concerns (82.5%) [16].

#### 4.5. Lower risk perceptions

Many studies have identified lower risk perceptions as an obstacle to vaccination. Participants in the studies that were included declared that, in their opinion, the risks associated with vaccinations exceed the dangers of getting COVID-19 [35, 47, 48]. A reduced likelihood of vaccination acceptance was associated with this lowered assessment of disease severity [49]. Participants from the United States were more likely to be hesitant about getting immunized and less likely to think they may contract COVID-19, according to Fisher's study. Participants' decreased risk perception of COVID-19 was mostly a result of two misconceptions: the severity of COVID-19 was overstated by governments and other health authorities, and participants believed that they were well, and that COVID-19 would be dealt with by their natural immunity [17].

Being in good health has been shown to be an obstacle to vaccination in previous studies. vaccine doubters might not think they need to get vaccinated because they think their innate immunity will keep them safe [25, 48]. Individuals who thought that COVID-19 vaccines were only required for people who were susceptible to severe illness, or those who did not believe that they were a part of this category, had lower vaccination intentions [50].

#### 5. Conclusion

In order to achieve herd immunity, which depends on the efficacy of the vaccinations and the population's willingness to take them, vaccine hesitancy is a significant obstacle in the battle against COVID-19. Our review article gave a broad overview of the several elements, concepts, and constructs connected to people's wailings about getting the COVID-19 vaccine. According to the literature, age, sex, parenthood, occupation, Social Factors, pre-existing medical conditions, and perceptions of vaccine benefits are the main determinants of vaccine acceptance, while personal relationships, Organizational and institutional elements, public policy and the community component, lower risk perceptions, concerns regarding side effects, and reduced vaccine efficacy are the greatest barriers to COVID-19 vaccine acceptance.

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#### 7. Conflicts of Interest

The authors declare no conflict of interest.

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