Original Article

# Acceptance of Covid-19 vaccine among nursing students of Mosul University, Iraq

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**Objective:** To assess acceptance of vaccination against Coronavirus by nursing students of Mosul City.
**Methodology:** This quantitative cross-sectional study collected data by using questionnaires from 215 students of College of Nursing, University of Mosul, Iraq from September 20 to December 20, 2021. All respondents were 18 – 30 years old.
**Results:** Age of students was 20 to 26 years, (mean 22.34 ± 1.76). Almost two-thirds of respondents (70%) agreed that the nursing student should be vaccinated against Covid 19.
**Conclusion:** The acceptability rate was significantly high among females. Higher acceptability of COVID-19 vaccination among nursing students was related with their age group and stage of study.
**Keywords:** Acceptance, nursing students, COVID-19.

## INTRODUCTION

Coronavirus illness (Covid), which 1st appeared in Wuhan, China, in Dec_2019, has now spread worldwide.[1] This virus targets the immunological and respiratory systems of people.[2] On February 24, 2020, Iraq announced its first confirmed instances, while Mosul announced its first incident on March 22, 2020. Mosul as capital, the province of Nineveh is Iraq's third most populated city and second most populous province. The Number of cases in Iraq has surpassed many thousands with many deaths.[3-5] Millions of people have been affected worldwide.[6,7]

During the battle between the so-called Islamic State in Iraq and Iraqi troops in Mosul, nine out of thirteen public hospitals were destroyed, resulting in a 70% reduction in health-care infrastructure and hospital wards. The rehabilitation of healthcare facilities has been extremely slow, and there will still be less than 1,000 beds available for a population of more than 3.5 million people. This is half of the globally acknowledged minimal threshold for providing disaster health services.[8] The pandemic has had a medical, economic, and social impact on people's lives, it must be curtailed as soon as possible with a safe, licensed, and effective vaccine.[9] Unfortunately, as a developing country, we lack adequate information from health-care practitioners, as well as efficient patient care.[10]

Nations and states all across the world have spent vast sums of money to vaccinate their populations. People, on the other hand, react to vaccination with varying degrees of rejection and acceptance, particularly in underdeveloped countries a variety of factors influence vaccination acceptance.[11] Only a few sttudies have been published that highlight this acceptance.[12] Vaccination is met with some skepticism in Iraqi societies, as it is in others. The aim of this study was to determine the acceptance of Covid-19 vaccine in Mosul City. Knowing where we are in the midst of such a critical pandemic can help the government and relevant entities devise the optimal Covid-19 immunization strategy.

## METHODOLOGY

The current research was conducted at College of Nursing, University of Mosul, Iraqfrom September 20 to December 20, 2021. A quantitative cross-sectional design was used, and data were collected by using a questionnaire. The information was gathered as developed by Mohamed et al.[13] All respondents were 18 – 30 years old.

The Google Form was used to deliver the questionnaire to the nursing students. The poll was distributed to students via social media, including a Facebook group and Telegram group for nursing students. For both the Arabic and English versions of the questionnaire, reliability was assessed on 20 respondents before.

The questionnaire was divided into three sections: Section A, which covers demographics and Covid-19 status, Section B, which covers vaccine acceptance, and Section C, which covers vaccine information sources. Participants were given three options for section B (Acceptance): Yes, No, or Don't know. The part about the relationship between demographic characteristics and COVID-19 vaccination acceptance was divided into five categories: "highly agree, agree, neutral, disagree, and severely disagree".

**Statistical Analysis:** SPSS version 26 was used to analyze the data. Frequencies and percentages are examples of descriptive statistics. Significant differences between students who would acceptance of vaccine were assessed. $p < 0.05$ was considered significant.

## RESULTS

The study had 215 students. Age of students was 20 to 26 years, (mean 22.34 ± 1.76).

The majority of response was female approximately (62.76%). Concerning stage of the study was high percent of the participants was in 3rd stage about (35.81%) and 82.79% were single (Table 1).

**Table 1: Socio-demographic features of students (N = 215).**

| Characteristic | Number | Percentage | Mean ± SD |
|---|---|---|---|
| **Age** | | | |
| < 20 | 54 | 25.11% | Mean (22.34) SD (1.76) |
| 20 – 22 | 112 | 52.09% | |
| 23 – 25 | 45 | 20.93% | |
| 26 or more | 4 | 1.86% | |
| **Gender** | | | |
| Male | 80 | 37.20% | |
| Female | 135 | 62.79% | |
| **Smoking** | | | |
| Yes | 44 | 20.47% | |
| No | 171 | 79.53% | |
| **Stage** | | | |
| First Stage | 45 | 20.93% | |
| 2 Stage | 58 | 26.97% | |
| 3 stage | 77 | 35.81% | |
| 4 stage | 35 | 16.27% | |
| **Marital status** | | | |
| Single | 178 | 82.79% | |
| Married | 33 | 15.34% | |
| Widowed | 4 | 1.86% | |

The Ministry of Health in Iraq and social media platforms such as Facebook, Telegram, and YouTube were the primary sources of information about the pandemic, with 87.90 percent and 79.53 percent, respectively, followed by the WHO press release with 50.69 percent, and news outlets, family and friends, and other sources with 33.43 percent, 15.34 percent, and 2.25 percent, respectively (Table 2).

**Table 2: Sources of information regarding vaccine (n = 215).**

| Source | Number | % |
|---|---|---|
| Ministry of Health and environment | 189 | 87.90% |
| Social media | 171 | 79.53% |
| WHO | 109 | 50.69% |
| News | 91 | 33.43% |
| Family and friends | 33 | 15.34% |
| Other | 7 | 2.25% |

Effectiveness and suggestion from doctor were the factors influencing vaccine acceptance (Table 3).
Acceptance to the COVID-19 vaccine was substantially associated with moderate age group, study stage, and not being married (Table 4).
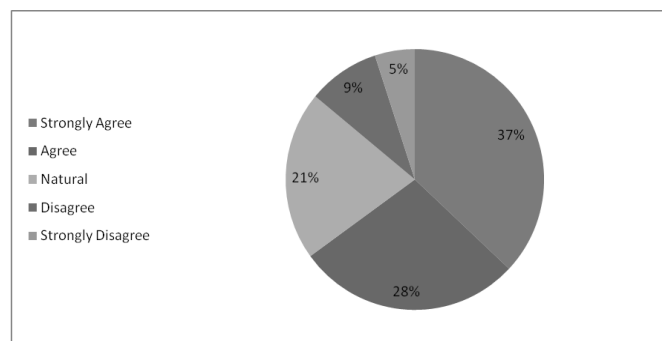


**Fig. 1: Acceptance towards COVID-19 vaccine (N = 215).**

**Table 3: Acceptance of Covid-19 vaccination (N = 215).**

| Item | | Number | % |
|---|---|---|---|
| 1. In your perspective, should the state provide free COVID-19 vaccine to elevated groups? | YES | 181 | 84.18% |
| | NO | 9 | 4.18% |
| | Don't know | 11 | 5.11% |
| | Other | 13 | 6.04% |
| 2. What factors influenced your choice to acquire the COVID-19 vaccine? | Effectiveness | 177 | 82.32% |
| | Doctors' or the Ministry of Health's advice. | 156 | 72.55% |
| | The number of COVID-19 positive cases | 146 | 67.90% |
| | Negative consequences | 113 | 52.55% |
| | The number of people who have died as a result of COVID-19. | 154 | 71.62% |
| 3. The main reason for accepting the corona virus vaccine? This question provides for a variety of responses. | Condition of health | 143 | 66.51% |
| | Vaccination kind | 73 | 33.95% |
| | Vaccine doses counted | 63 | 29.30% |
| | The vaccine's producing country | 41 | 19.06% |
| | A recommendation from a friend or family member | 23 | 10.69% |
| | Others | 8 | 3.72% |

**Table 4: Effect of demographic parameters and COVID-19 vaccine uptake (N = 215).**

| Variable | | Strongly Disagree | Disagree | Natural | Agree | Strongly Agree | p-value |
|---|---|---|---|---|---|---|---|
| Age group | < 20 | 2 (3.7%) | 4 (7.4%) | 10 (18.51%) | 12 (22.22%) | 26 (48.14%) | < 0.002* |
| | 20 – 22 | 1 (0.89%) | 3 (2.67%) | 11 (9.82%) | 41 (36.6%) | 56 (50%) | |
| | 23 – 25 | 2 (4.44%) | 2 (4.44%) | 4 (8.88%) | 11 (24.44%) | 26 (57.77%) | |
| | 26 or more | 0 (0) | 0 (0) | 0 (0) | 1 (25%) | 3 (75) | |
| Gender | Male | 2 (2.5%) | 3 (3.75%) | 11 (13.75%) | 19 (23.75%) | 45 (56.25%) | 0.32 |
| | Female | 4 (2.96%) | 6 (4.44%) | 15 (6.97%) | 40 (29.62%) | 70 (51.85%) | |
| Smoking | Yes | 0 (0) | 1 (2.31%) | 4 (9.09%) | 10 (22.72%) | 29 (65.90%) | 0.21 |
| | No | 2 (1.16%) | 6 (3.50%) | 20 (11.69%) | 52 (30.4%) | 91 (53.21%) | |
| Stage | First Stage | 0 (0) | 0 (0) | 3 (6.66%) | 12 (26.66%) | 30 (66.66%) | < 0.001* |
| | 2 Stage | 1 (1.72%) | 1 (1.72%) | 7 (12.06%) | 11 (18.96%) | 38 (65.51%) | |
| | 3 stage | 2 (2.59%) | 2 (2.59%) | 7 (9.09%) | 22 (28.57%) | 44 (57.14%) | |
| | 4 stage | 1 (2.85%) | 4 (11.42%) | 8 (22.85%) | 10 (28.57%) | 12 (34.28%) | |
| Marital status | Single | 2 (1.12%) | 4 (2.24%) | 14 (7.86%) | 60 (33.7%) | 98 (55.05%) | 0.321 |
| | Married | 1 (3.03%) | 3 (9.09%) | 3 (9.09%) | 7 (21.21%) | 19 (57.57%) | |
| | Widowed | 0 (0) | 0(0) | 0(0) | 1(25%) | 3(75%) | |

## DISCUSSION

Since Pfizer and Moderna reported the success of two quickly developed vaccines, news and articles on vaccinations have been circulating in the mainstream media and on social media. According to this survey, electronic media and social media, particularly the Iraqi Ministry of Health and Environment website, were the most popular resource regarding the Covid-19 vaccine. Only a small percentage of those polled got their information from media, journal articles, or medical websites. Previous research has demonstrated the usage of mass media can have a favorable influence on community health risky behaviors.[13]

Social media, on the other hand, is fast expanding and acquiring a higher level of popularity than traditional media, thanks to recent advancements in informational technology.[14] Excessive information, on either hand, it can lead to media fatigue, deception, and the spread of false information.[15,16]

Table 1 shows that the study participants were 215 students between less than 20 to 26 or more years old. The majority (62.76%) of response was from females. Concerning stage of the study was high percent of the participants was in 3rd stage about35.81%. In terms of other demographics, the majority of the participants were single (82.79%). This study agrees with Shahid et al who reported that 87.6% of the participants were females.[17] This study has disagreement with Naji et al[18] and Mahmoud et al[19] who found that the majority of participants were male and between the ages of 40 and 60. In contrast, Younus et al[20] and Ahmed et al[21] reported that the majority of the sample was female.

Sources of information for Acceptance of the vaccine highest impact rate for the purpose of taking a vaccine was the Ministry of Health and Environment, and then social media (Table 2). The sample selected for a study was educated and followed the news of the Iraqi Ministry of Health, as well as social media such as Facebook, Insta, Telegram and others.

Nearly two-thirds of those polled (70%) said they were willing to get vaccinated (Fig. 1). The primary reasons for nursing students' vaccination acceptance wereas a result of data obtained from the Ministry of Health and social media they had a very high impact on the students, as more than two thirds of the students were directly vaccinated. This study differed from another study in the Iraqi College of Medicine, where results were contrary to our study.[22]

The governments are moving in the right direction, especially when providing the vaccine free of charge to all segments of society, unlike some countries such as Malaysia and Indonesia which charge money for vaccine. The influence of the media and the Ministry of Health, as well as the type of vaccine, and perhaps there was some kind of thinking and fear in the event of vaccination.[23] Students at various Pakistani colleges were informed of the Covid-19, according to another survey and had better acceptance.[24]

## CONCLUSION

The acceptance rate among females was found to be substantially higher in this study. Nursing students with a higher age group and stage of education had better acceptance of the Covid-19 vaccination. This data can help the Ministry of Health plan future attempts to boost immunization rates, potentially leading to herd immunity against the vaccine. Those with a lack of understanding and low acceptance, especially those with a low level of education, should be targeted.

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