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Perceptions of Nursing Students' Regarding Coronavirus Vaccination Acceptance: A Mixed Methods Study

By

Sameerah Mohammed Saeed
University of Baghdad/ College of Nursing
Email: samera.mohammed1202b@conursing.uobaghdad.edu.iq

Mohammed Baqer Al-Jubouri
Bab Al-Mua'adham, Baghdad, Iraq
Email: maaljubouri@conursing.uobaghdad.edu.iq

Abstract

Background: The first COVID-19 vaccine was authorized in the United States in December 2020. It is recognized that vaccination is a preventive and effective measure for limiting the coronavirus pandemic. Nursing students' perspectives on vaccine acceptance may be critical for COVID-19 pandemic prevention as future professionals. The study has focused on perceptions of nursing students regarding coronavirus vaccine acceptance.Design: This study was conducted using a sequential explanatory mixed-methods design with two phases. Methods: A convenience sample method was applied in phase one, and 255 nursing school students between February 14 and February 24, 2022, from six universities in Iraq participated. The findings were used in phase two to refine in-depth interview questions that would allow for a deeper investigation of student perceptions. Fifteen participants were questioned one-on-one using personal interviews. Using an inductive method of theme analysis, the dataset was coded, classified, and thematizedResults: Out of 255 students, the results of the quantitative phase revealed that 123 (48.2%), 120 (47.1%), and 12 (4.7%) of them had, respectively, unsound, somewhat sound, and sound perceptions of coronavirus vaccines. Based on the students' perceptions, the main themes from the qualitative phase emerged and include: (persuasion, preservation, accountability, efficacy doubts, and apprehension). Conclusions: Most student nurses have unsound perceptions about COVID-19 vaccinations. Findings showed that nursing students need to take vaccination issues into account and educate others about vaccine production. The development of suitable solutions and interdisciplinary educational programs in the post-pandemic phase may depend on understanding perceptions and encouraging health engagement and awareness.

Keywords: Covid-19; Coronavirus Vaccines; Nursing students; Vaccination

Introduction

Following the coronavirus (CoV) pandemic, numerous organizations began developing vaccines in order to reduce infection (Duc Ha, 2020). Therefore, in December 2020, the World Health Organization (WHO) authorized BNT162b2 (Comirnaty® COVID-19 Messenger Ribonucleic Acid (mRNA) vaccine; BioNTech/Pfizer) as the first COVID-19 vaccine for use in emergency situations. Ever since, vaccines backed by governments have been applied in a variety of nations, and the COVID-19 vaccine has become widely accessible worldwide (WHO, 2020). As a result, the quick vaccination of a significant number of people and the development of herd immunity will limit the spread of the pandemic and increase the possibility that it will be eradicated (Lurie et al., 2020). Kreps et al. (2020) assert that the universal acceptance of the vaccination for COVID-19 depends critically on the vaccine's

efficacy and safety. In 2019, the WHO classified "vaccine hesitancy" as a danger to world health in which a person refuses to get vaccinated despite the fact that there is a vaccine available (WHO, 2019). Several variables, including risk perceptions, trust, and the belief that vaccination is important, can influence vaccination hesitancy (Dubé et al., 2013).

Healthcare professionals' refusal to receive the COVID-19 vaccine is particularly concerning because it has an impact on the public's perception (Gagneux-Brunon et al., 2021; Nzaji et al., 2020). Sallam (2021) added that not just members of the medical community worry about getting vaccinated. Many medical students, particularly nursing students, are also hesitant about COVID-19 vaccinations (Manning et al., 2021). Achieving a high rate of COVID-19 vaccine acceptance is crucial due to the significant role nursing college students will play as future healthcare professionals. As a starting step, it is important to evaluate worries, barriers, and expectations of nursing students regarding vaccination acceptance (Patelarou et al., 2021).

Importance of the Study

Vaccines serve as a very important public health intervention and the best way to control and protect against viral infection (Amanat & Krammer, 2020; Chan et al., 2015). However, there have been a number of misunderstandings and vaccination critics since the COVID-19 vaccine development began, some of whom may even be medical professionals (Manning et al., 2021; Mejia et al., 2021; Sallam, 2021). Additionally, the public is typically reluctant to adopt new vaccines when there is insufficient information available to make informed decisions (Opel et al., 2020). The findings of the available vaccine studies demonstrate that vaccination hesitancy affects a sizable percentage of students studying for medical degrees (Manning et al., 2021; Sallam, 2021). Because they are educated, receptive to new ideas, and expected to act quickly in the face of public health issues, university students are seen as an insightful population to study their opinions on new vaccines (Barello et al., 2020). In past pandemics, health practitioners, particularly nurses, had a significant impact on vaccination acceptance (Deem, 2018). When nursing students enter the health sector and provide patient care after graduation, Manning et al. (2021) assert that it is crucial for nurses to comprehend the importance of vaccination as well as the fact that their challenges and concerns are taken into account. In order to develop interventions to alter vaccination practices, it is crucial to understand how nursing students, who will work as professionals in the future, see coronavirus vaccinations. People could have a wide range of opinions regarding vaccines that influence their behaviour rather than merely having positive or negative perceptions of them (Mejia et al., 2021). Ultimately, this study aims to assess the nursing students' perceptions about the acceptance of the COVID-19 vaccines. This emphasizes how crucial it is for students to receive COVID-19 vaccinations, which can protect them and limit the spread of infection to their families and communities. The researchers' main hypothesis was that nursing students would perceive the COVID-19 vaccination positively

Methods of the study

Study Design

This study was conducted using a mixed-methods sequential explanatory design.

Population and Sampling

The study population included undergraduate nursing students in all colleges of nursing in Iraq. A convenience sampling method was applied in quantitative phase, and 255 nursing

school students from six universities in Iraq participated. In the qualitative phase in-depth interview questions were asked and 15 undergraduate nursing students participated.

Inclusion/Exclusion Criteria. Nursing students that fit the following inclusion criteria made up the participants: Students studying undergraduate nursing in the morning from all grade levels, including both genders and students of all ages. Night shift nursing students were not allowed.

Sample Size

Between 8000 and 9000 students are thought to be enrolled in Iraqi nursing colleges. The required sample size is 246 student nurses based on a confidence level of 90% and a margin of error of 5%. A total of 255 respondents were gathered for this study.

Setting

The settings of this study were six nursing colleges at six different universities in Iraq (Universities of Baghdad, Karbala, Babylon, Al-Kufa, Al-Qadisiyah, and Al-Muthanna).

Ethical Considerations

On October 14, 2021, the University of Baghdad's College of Nursing approved the IRB for the project. All participants were made aware of the study's details. The guarantee of participant confidentiality was stated in the cover letter. Participation was voluntary, therefore students were free to refuse or withdraw from the study at any moment. All responses took place in a secure, enclosed setting, and all data was kept confidential.

Instrumentation

The questionnaire consisted of questions on demographic information included age and gender and the VAC-COVID-19 scale were used for quantitative data collection for this study.Mejia et al. (2021) developed the VAC-COVID-19 scale to assess perceptions of COVID-19 vaccine acceptability. The VAC-COVID-19 scale is designed to evaluate and assess people's positive and negative perceptions toward COVID-19 vaccines. The scale was split into two sections. The first group had seven items, including reasons for not receiving a vaccination, and the second had four items, including reasons for receiving a vaccination. The study participants filled out an 11-item measure. There were five Likert-type responses for each item: "strongly disagree," "disagree," "neither disagree nor agree," "agree," and "strongly agree." The coronavirus vaccine perception cut-off point is computed by subtracting the minimum score of "11" from the maximum score of "55." The range is "44," which is divided by three to yield three tertiles. Participants with scores between "11" and "25" would be classified as having unsound perception, participants with scores between "26" and "40" would be classified as having somewhat sound perception, and participants with scores between "41" and "55" would be classified as having sound perception. Cronbach's coefficient was used to establish the scale's reliability by Mejia et al. (2021), and it was found to be greater than 0.8, indicating that the VAC-COVID-19 scale is reliable.

Two bilingual faculty members performed a forward translation of the study tool and a backward translation with other of bilingual faculty members. This translation was carried out independently and blindly.

Mixed Methods Procedures and Data Collection

In which quantitative data is collected and analyzed first, followed by qualitative data. The researcher produced a link to the study questionnaire on Google Form and contacted the participants using the social networking site Telegram to distribute the link with groups that

brought together students in the colleges. Students received the link between February 14, 2022, and February 24, 2022. An Arabic-language version of the questionnaire was used to collect the data. Following the collection and analysis of quantitative data, semi-structured interviews were conducted between May 9 and May 17, 2022, utilizing five questions to explain the results of the quantitative data in order to reach the qualitative part's objectives and kept on till there was data saturation (Miles et al., 2014). In phase two, the quantitative results were used to refine in-depth interview questions that would allow for a more in-depth analysis of student perceptions. Personal interviews were used to interview each of the fifteen participants individually. Each interview lasted 10–20 minutes. The dataset was coded, categorized, and thematized using an inductive method of theme analysis.

Trustworthiness

In this study, various techniques were employed to evaluate the findings' reliability, credibility, transferability, and conformability. By including a variety of significant informants in the investigation, the data was triangulated. To ensure this was the case, the author reviewed and validated the study protocols, compared the audio data to the transcripts, and then evaluated and interpreted the findings.

Data Analysis

In the first phase, SPSS version 26.0, was used to analyze the data. Age and gender-related demographic information were examined using descriptive statistics to characterize the sample. Continuous variables' means and standard deviations were given. Categorical variables were represented using frequency and percentages. To ascertain which of the features were associated with COVID-19 vaccinations, the structural equation modelling, correlation analysis, and independent-sample t-test were performed. In the second phase, the data were analysed utilizing the thematic analysis methods and semi-instructed interview section. The data analysis procedure consisted of three primary steps: First Cycle Coding, Second Cycle, and analytical notes. The codes were grouped together to establish relevant categories and themes. Concepts from themes were taken and presented in narratives, and direct quotes were used to demonstrate the interpretations.

Results

According to the descriptive analysis, students were 20.95 ± 1.91 years old on average. In terms of gender, there were significantly more females (n = 202; 79.2%) than males (n = 53; 20.8%). The study's results indicated that less than half (n = 123; 48.2%) had an unsound perception of the coronavirus vaccine, followed by those with a somewhat sound perception and those who had sound perception. The age of the students and their perceptions about the coronavirus vaccine had an inverse correlation that was statistically significant (r = -.130; p = 0.05). On the other hand, there was no statistically significant difference between the gender groups of students and their perception of the coronavirus vaccine (F=.002; P value =.982). Additional findings that do not present in the official scale regarding COVID-19 vaccine acceptance, were suggested by the students' interviews. Five themes for vaccination acceptance were emerged, that are present with their selected quotes. Themes that emerged throughout the interviews will be used to describe the interview findings.

Persuasion

According to the findings of the interviews, students who are vaccinated or who have a strong desire to get vaccinated have a different point of view than students who are hesitant

about getting vaccinated on vaccination as a social norm and a public health issue. Some participant that was accepted to get the vaccine quoted ("When the vaccine made available, life became open, life returned to normal, so everything is positive in the first place."). Participants that hesitated about getting the vaccine stated, "Those who were vaccinated were likewise afflicted, so what's the point? I mean, antibodies enter your body and may minimize your symptoms, but there were people who were infected and died, as well as others who were vaccinated and died, so it has no influence on society."), another quote; ("If the vaccine is administered as a result of a specific infection, such as corona, rather than delta or omicron, it suggests that the vaccine has no effect, and I am not convinced.").

Preservation

Many students perceived about the importance of get vaccination and how apply protective procedures to control the infection. As quoted from one student ("I received the vaccination in order to protect myself and prevent infection."). Among vaccine-specific issues, Students who had no intention of getting the vaccine stated that the vaccine presently posed more risks than benefits, as quoted from a student ("I am familiar with individuals who received the vaccine and then became infected with corona; these individuals suffered a lot and even had to go to the hospital.").

Accountability

According to the information gathered from the interviews, the participants indicated that they understood the importance of human connection and were aware of their position as nursing students in the community. Upon being questioned about whether their behavior as nursing students will change how the general public feels about COVID-19 safety precautions like vaccinations, one participant stated, ("As a student, if I adhere to the vaccine and inform individuals about it, it would undoubtedly have an impact on the community. The first thing is that the community will look and claim that it has been vaccinated and nothing happened when I vaccinated myself and my family.").

Efficacy Doubts

Students who were hesitant to receive the COVID-19 vaccine most commonly quoted concerns about the communication and media environment, the efficacy of the vaccine, and the reliability of information sources. One of them stated, ("In fact, at first, I had no intention of getting vaccinated because there were rumors that it might result in infertility or other issues."), another stated, ("The vaccine recipients contracted the disease once more. What's the purpose? In other words, they introduce antibodies into your body and it might decrease your symptoms, but considering that both diseased and vaccinated people have perished, society is unaffected.").

Apprehension

During the interviews, some students expressed their displeasure at being forced to take the vaccine. One of them said, ("I have been vaccinated, but not in the way I prefer. I cannot attend college unless I am vaccinated."), also, another participant stated their perception of the opinions of others ("Someone has a justification for not receiving a vaccination. They claim: "I am concerned because they think that people who receive vaccines will eventually pass away." They hold such misconceptions about vaccinations.").

Discussion

The perceptions of nursing students towards the acceptance of COVID-19 vaccines during the pandemic were assessed in this study. The study questions were looked at and

estimated through statistical analysis of quantitative data and thematic analysis of qualitative findings. The results of this study show that the students' average age was 20.95 ±1.91 years, as determined by the descriptive analysis. Given that admission to Iraqi colleges often occurs between the ages of 18 and 22, the most recent findings may shed light on the natural numbers and proportions of students (Aljuboori et al., 2020). The results of the present study indicate that there was a statistically significant inverse correlation between students' age and their perceptions of the coronavirus vaccines. According to earlier studies, being young was associated with a reduced willingness to get vaccines (Al-Mohaithef & Padhi, 2020; Coe et al., 2022; Detoc et al., 2020; Kreps et al., 2020; Reiter et al., 2020). A cross-sectional study of university students in Italy, with a mean age of 23.6 years, indicated that 86.1% were willing to get the COVID-19 vaccine (Barello et al., 2020). The readiness of community adults in Ontario to receive the COVID-19 vaccine did not differ by age, and neither vaccination intentions nor actual uptake were influenced by age. Additionally, they discovered that older people had a lower perception of the COVID-19 vaccine's safety (Syan et al., 2021).

In terms of gender, participants were split between 79.2% women and 20.8% men. This ratio is due to the Iraqi Ministry of Higher Education and Scientific Research's central acceptance plan, which sets female acceptance at 75% and male acceptance at 25%, indicating a significant increase in the proportion of female students (Al-Zeyadi and Mohammed, 2019). The current study also found that there was no statistically significant gender difference in how students perceived their acceptance of the coronavirus vaccine. Contrarily, a cross-sectional study of nursing students in seven European nations (Greece, Albania, Cyprus, Spain, Italy, Czech Republic, and Kosovo) with a mean age of 21.6 years and the majority of the participants being female, reported that men are more likely than women to intend to get a vaccine (Patelarou et al., 2021). Data from Rosso et al. (2020) showed that women exhibited concerns about vaccine safety, a lack of confidence in the veracity and objectivity of the information provided by healthcare specialists, and lower acceptance rates than men did.

The study showed that just 4.7% of students had a sound perception of the coronavirus vaccine, while 48.2% of the students had an unsound perception, and the others had a somewhat sound perception. The researcher anticipated that nursing students could have a more positive view of the vaccination. A possible interpretation of that is that they might be more aware of the benefits of vaccinations and comprehend their importance due to their upcoming careers as healthcare practitioners. This results aware public health officials to take more targeted actions to improve this population's view of vaccinations. This result is consistent with other results from a recent cross-sectional study of nursing students, which indicated that 45% of students intended to get the vaccine but were hesitant because of the concern about the safety and negative effects of vaccinations (Manning et al., 2021). When young people have COVID-19, they are usually in good condition and only experience minor symptoms, which has a big impact on how quickly the disease spreads. Because they see vaccination as having a minimal danger, it is feasible that they would tend to reject it (Ding et al., 2020). Polish undergraduate nursing students' readiness to receive the COVID-19 vaccines was assessed in a cross-sectional online survey study by Gotlib et al. (2021), and it was discovered that those students who expressed a willingness to receive the vaccinations had significantly higher levels of trust in the safety and efficacy of the COVID-19 vaccinations than those who did not express a willingness or who refused to receive the vaccinations. This study indicates there is a positive and negative views of accepting coronavirus vaccines. The results of a questionnaire that revealed that students' impressions of certain themes were either positively or negatively influenced by the acceptability of coronavirus vaccinations were supplemented by findings from key informant interviews. The health belief model (Becker, 1974; Rosenstock, 1974b)

suggests that perceptions regarding the COVID-19 vaccine's health advantages may have been a significant factor in predicting vaccination, with the conviction that the vaccine will protect others against COVID-19 infection being the strongest predictor. Significant factors included both positive and negative perceptions.

Limitations

The research limitation is that this is not a representative sample of all nursing colleges in Iraq. However, the questionnaire was filled out by nursing students from six colleges of nursing at six universities. A larger sample size would have allowed for more representative findings to be produced. Because this study only included nursing students, it cannot be generalized to include students pursuing other professions.

Conclusions

The way nursing students perceive vaccinations during the COVID-19 pandemic may give insight into how to limit the spread of the disease. Most nursing students had a negative perception of coronavirus vaccines. The need for targeted health education campaigns to increase positive perceptions. In order to create suitable reactions and multidisciplinary educational programs in the post-pandemic period, it may be helpful to understand the students' perceptions.

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Table 1 *Students' sociodemographic characteristics (N = 255)*

Variable	Category	N	%
	Age	Mean (SD): 20.95 ± 1.91	
Gender	Male	53	20.8
	Female	202	79.2
	Total	*255*	*100*

N: Number, %: Percentage, SD: Standard deviation

Table 2 *Students' perception of coronavirus vaccine (N = 255)*

	Perception of coronavirus vaccine					
	Unsound (11-25)		Somewhat sound (26-40)		Sound (41-55)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Overall perception	123	48.2	120	47.1	12	4.7

Table 3 *Correlation between students' age and perception of coronavirus vaccine*

Variables	Students' Age	Students' perception of coronavirus vaccine
Students' Age	-	.115
Students' perception of coronavirus vaccine	-.130	-

Table 4 *Difference in students' perception of coronavirus vaccine between gender groups*

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Students' perception of coronavirus vaccine	Equal variances assumed	.002	.962	.023	253	.982	.02307	1.02335	-1.99230	2.03845
	Equal variances not assumed			.02381.577		.982	.02307	1.02181	-2.00979	2.05594

df: Degree of freedom; F: Frequency Statistics; Sig.: Significance; Std. Error: Standard Error; t: T-Test

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