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COVID-19 vaccination readiness among nurse faculty and student nurses

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ABSTRACT

Background: Unprecedented efforts are underway to develop COVID-19 vaccines, widely seen as critical to controlling the pandemic. Academic nursing leaders must be proactive in assuring widespread faculty and student vaccination uptake.

Purpose: The purpose of this study was to describe nursing faculty and student nurse factors associated with COVID-19 vaccine readiness.

Methods: Cross-sectional online survey of nursing faculty and student nurses at a university affiliated with an academic medical center was conducted.

Findings: Most full-time faculty (60%) intended to receive the vaccine; but only 45% of adjunct faculty and students reported intending to get vaccinated. The major reasons for not getting vaccinated were vaccine safety and side effects. Collectively, participants reported a low level of knowledge related to vaccine development.

Discussion: As the most trusted profession, nurses will play a decisive role in counseling patients about COVID-19 risks and benefits. Findings suggest that academic nursing leaders need to consider faculty and student vaccine concerns and provide vaccine development education.

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Introduction

On December 31, 2019, China reported a cluster of cases of pneumonia of unknown origin in Wuhan, Hubei Province (Holshue et al., 2020). Soon after, similar cases were reported in other countries, including the first confirmed case in the United States on January 20, 2020 (Holshue et al., 2020). The causative organism of this pneumonia syndrome, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), swiftly unleashed its fury, igniting a global pandemic and unimaginable public health crisis. According to the Johns Hopkins Coronavirus Resource Center (2020), as of November 9, the global confirmed cases of coronavirus disease 2019 (COVID-19, the acute illness due to SARS-CoV-2) exceeds 50.5 million, with over 1.2 million deaths. The US data on confirmed cases and fatalities are one of the worst in the world: over 10 million cases and over 237,000 deaths.

The pandemic continues to cause extraordinary human suffering and socioeconomic hardship, while

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taxing overburdened health care systems and its workforce. Parallel to widespread public health measures to counter the spread of SARS-CoV-2 (e.g., social distancing, face coverings, quarantine, isolation, enhanced sanitation), on May 15, the US Department of Health and Human Services (2020) launched Operation Warp Speed (OWS), a partnership between the government and industry to develop, manufacture and deliver 300 million doses of a safe and effective vaccine to the American people by January 2021 (Slaoui & Hepburn, 2020; US Depatrtment of Public Health, 2020) Health and Human Services.

The OWS goal is laudable, however, vaccine availability does not guarantee uptake. As studies show, vaccination is one of the most effective ways to reduce or eliminate the burden of infectious diseases, but vaccine hesitancy—the delay of acceptance or refusal of vaccines despite availability of vaccine services—remains a barrier to providing effective herd immunity against highly transmissible infectious diseases (Jamison, Quinn, & Freimuth, 2019; Paterson et al., 2016). In addition, the public is often reluctant to receive new vaccines when there are insufficient data to make informed decisions (Opel, Salmon, & Marcuse, 2020). In fact, as efforts to develop and test federally approved vaccines accelerate, a recent study shows the intent of the US public to get a COVID-19 vaccine has fallen from 72% in May 2020 to 51% in September of the same year (Pew Research Center, 2020).

Nurses play a prominent role in the vaccine uptake process. They spend considerable time counseling patients, parents, families, and the public about the benefits, risks and safety of vaccines, as well as administering them (Deem, 2018). Despite potential reluctance and hesitancy of the public to accept any vaccine (e.g., influenza), health care providers (HCP), including nurses, remain the most trusted advisor and influencer of vaccination decisions (Paterson et al., 2016). Additionally, HCPs who are vaccinated themselves—or who intend to be vaccinated—are more likely to recommend vaccination to their patients (Paterson et al., 2016).

There is emerging evidence about nurse readiness to receive a COVID-19 vaccine. An Israeli study conducted in March 2020, found that HCPs not caring for COVID-19 positive patients trusted a COVID-19 vaccine less than the general public, with nurses more hesitant to obtain a vaccine than physicians (Dror et al., 2020). A survey of the Association of Hong Kong Nursing Staff members found that 40% of nurses (n = 806) intended to receive COVID-19 vaccination (Wanget al., 2020). In the United States, the American Nurses Foundation (ANF) conducted a survey in October 2020, with nearly 13,000 nurses responding (American Nurses Foundation 2020). When asked if they would voluntarily be vaccinated against COVID-19, nurses' responses were almost evenly split with approximately one-third saying "yes" (34%), one-third, "no" (36%) and one-third (31%) unsure. Nearly half (44%) said they are not comfortable having conversations with their patients about COVID-19 vaccines, yet 65% said that they have provided direct care to patients with a known or suspected case of COVID-19. In order for COVID-19 vaccination programs to be successful, vaccine readiness of nurses, HCPs and the general public must be carefully determined before a vaccine becomes available (Schaffer DeRoo, Pudalov, & Fu, 2020).

Achieving high vaccination coverage of HCPs early on not only ensures an adequate workforce to treat infected patients, but also allows HCPs to share their positive vaccination experiences with patients (Pudalov, & Fu, 2020) Frontline HCPs, including student nurses, will play a central role in reassuring patients and the public that COVID-19 vaccines are safe and effective. Nurse faculty will also play an important role in preparing students to be competent and comfortable in answering COVID-19 vaccine questions, and in preparing their school or college's COVID-19 vaccination program. To our knowledge, there are no published data on the perspectives of nursing faculty and nursing students on vaccine readiness. The purpose of this study is to describe nurse faculty and student nurse readiness to receive a COVID-19 vaccine, once available. Ultimately, our goal is to use these data to inform the academic nursing community on the importance of developing proactive strategies to promote the uptake of COVID-19 vaccination among faculty and students, not only to protect themselves, but also to reduce transmission of the disease to their families and in their community.

Methods

Sampled and Setting

After receiving Institutional Review Board approval, we conducted a cross-sectional survey of currently enrolled students, full-time teaching faculty and adjunct clinical faculty at an urban University College of Nursing in the northeast region of the United States. The college offers a continuum of fully accredited nursing degree programs, from baccalaureate through doctoral levels and is affiliated with a large academic medical center.

Survey Development

We used Qualtrics CoreXM software to design a 24-item survey to collect data on: (1) Demographics; (2) Intentions regarding receipt of the COVID-19 vaccine when it becomes available and reasons for those intentions; (3) Perceived impact of COVID-19 on self, family, community, and vulnerable populations; (4) Beliefs and knowledge of COVID-19 impact and transmission; (5) Adherence to recommended infection prevention and control guidelines for COVID-19; and (6) Confidence in the scientific community, development of a safe vaccine and safety in the clinical workplace. Survey development was informed by extant literature on vaccine readiness. We also added an open-ended question, asking respondents to share their thoughts about their willingness to receive a COVID-19 vaccine when it becomes available. The faculty survey was

Table 1 – Respondent Demographics (*N* = 1212)

	Students (*N* = 1,029)		FT Faculty (*N* = 78)		Adjuncts (*N* = 105)	
	N	%	N	%	N	%
Age						
30 and less	710	69.1	0	0	4	3.8
31–40	220	21.4	15	20.8	45	42.9
41–50	68	6.6	15	20.8	22	21.0
51–60	22	2.1	25	34.7	17	16.2
60 and greater	2	0.2	11	15.3	14	13.3
Prefer not to disclose	5	0.5	6	8.3	3	2.9
Gender						
Male	115	11.3	4	5.1	13	12.4
Female	896	87.7	72	92.3	89	84.8
Nonbinary	4	0.4	0	0	0	0
Prefer not to disclose	7	0.7	2	2.6	3	2.9
Program area						
Undergraduate	486	47.3	41	52.6	74	70.5
Graduate	423	41.2	26	33.3	27	25.7
DNP	108	10.5	6	7.7	2	1.9
Other	10	1.0	5	6.4	2	1.9
Type of interaction with students						
Teaching online	–	–	65	83.3	42	40.0
Teaching in person	–	–	47	60.3	20	19.0
In person clinical instruction	–	–	16	20.5	81	77.1
In person simulation instruction	–	–	34	43.6	25	23.8
Online simulation instruction	–	–	26	33.3	18	17.1
Currently providing direct patient care outside of faculty or student role						
Yes	615	59.8	25	32.1	74	70.5
Colleagues/peers acquired COVID-19 as a result of caring for patients						
Yes	390	37.9	19	24.4	45	42.9
No	433	42.1	36	46.2	38	36.2
Don't know	205	19.9	23	29.5	22	21.0

piloted with five faculty members and revisions were made to improve clarity. The surveys are available upon request.

Data Collection

The survey was launched on August 10, 2020 and closed on September 14, 2020. We utilized Dillman's technique for survey recruitment including an initial invitation letter, weekly reminders and a final chance letter (Dillman, 1978).

Data Analysis

Summary statistics were computed to describe the sample and bivariate analysis, including χ^2, and were used to examine predictors of intention to get vaccinated. The responses to open-ended question were organized into topical categories and categories were ranked based on frequency identified. Verbatim responses are described.

Findings

Description of Sample Characteristics

A total of 78 full-time faculty, 105 adjunct clinical faculty and 1,029 students completed the survey (response rates of 94%, 33%, and 70%, respectively). The demographic characteristics of participants are shown in Table 1. The majority of students were 40 years of age or younger (90%); full-time faculty and clinical adjunct faculty tended to be older. Most participants were female although there were more males among students (11%) and clinical adjuncts (12%) as compared to full-time faculty (5%). The majority of the students were White or Caucasian (73.6%); followed by Asian/Pacific Islanders (10.1%), Black or African American (7.7%), or more than one race (4.2%). There are very few non-White or Caucasian faculty. In order to maintain confidentiality, we intentionally did not include a faculty question about race.

When asked whether they currently provide direct patient care outside of their faculty or student role, the majority of clinical adjuncts (71%) and students (60%) but only a third of the full-time faculty (32%) answered in the affirmative.

Perceived Risk, Knowledge, and Confidence Around COVID-19

The reported perceived risk, knowledge and confidence around COVID-19 epidemiology, transmission and vaccine among students, full-time faculty and clinical adjuncts is presented in Table 2. About half of students (53%) and adjunct faculty (47%) believe that if they contract COVID-19, the impact on their health

Table 2 – Reported Perceived Risk, Knowledge, and Confidence Around COVID-19 Epidemiology, Transmission, and Vaccine

	Students (*N* = 1,029)		FT Faculty (*N* = 78)		Adjuncts (*N* = 105)	
	N	%	*N*	%	*N*	%
My own risk for contracting COVID-19 by caring for COVID-19 patients is:						
Extremely low/low	323	31.8	25	35.2	35	33.7
Moderate	442	43.5	19	26.8	42	40.4
High/extremely high	219	21.6	9	12.7	19	18.3
Don't know	20	2.0	4	5.6	3	2.9
Not applicable	11	1.1	14	19.7	5	4.8
If I contracted COVID-19, the impact on my own health would be:						
Minimal/mild	539	52.5	20	27.4	49	47.1
Moderate	319	31.1	27	37.0	28	26.9
Severe/extremely severe	88	8.6	16	21.9	10	9.6
Don't know	76	7.4	10	13.7	15	14.4
Not applicable	5	0.5	0	0	2	1.9
If I contracted COVID-19, the risk of transmitting to other close to me (e.g., family or friends) is:						
Extremely low/low	151	14.7	7	9.6	11	10.6
Moderate	313	30.5	20	27.4	33	31.7
High/extremely high	540	52.6	45	61.6	58	55.8
Don't know	20	1.9	0	0	2	1.9
Not applicable	3	0.3	1	1.4	0	0
My knowledge of SARS-CoV-2 and COVID-19 disease is:						
Extremely low/low	49	4.8	4	5.5	1	1.0
Moderate	461	44.8	27	37.0	41	39.4
High/extremely high	519	50.4	42	57.5	62	59.6
My knowledge of COVID-19 transmission and PPE is:						
Extremely low/low	13	1.3	0	0	0	0
Moderate	140	13.6	8	11.0	7	6.7
High/extremely high	875	85.1	65	89.0	97	93.3
My knowledge of COVID-19 vaccine development is:						
Extremely low/low	428	41.6	15	20.5	31	29.5
Moderate	468	45.5	39	53.4	59	56.2
High/extremely high	133	12.9	19	26.0	15	14.3
Confidence level in scientific community's understanding of COVID-19 epidemiology:						
Not at all confident	65	6.3	5	6.8	6	5.7
Slightly/somewhat confident	492	47.9	24	32.9	40	38.1
Fairly/completely confident	470	45.8	44	60.3	59	56.2
Confidence level in development of a safe COVID-19:						
Not at all confident	149	14.5	6	8.2	12	11.4
Slightly/somewhat confident	594	57.9	35	47.9	55	52.4
Fairly/completely confident	283	27.6	32	43.8	38	36.2
Confidence level that your clinical workplace and/or clinical rotation site(s) can ensure your safety:						
Not at all confident	39	3.9	4	6.6	2	2.0
Slightly/somewhat confident	296	29.2	22	36.1	32	32.7
Fairly/completely confident	677	66.9	35	57.4	64	65.3
Health care organizations should require COVID-19 vaccination as condition of employment/clinical engagement:						
Strongly disagree/disagree	342	33.3	15	20.5	35	33.3
Undecided	323	31.5	20	27.4	29	27.6
Agree/strongly agree	362	35.2	38	52.1	41	39.0

would be minimal or mild, whereas only a few (8% and 9%, respectively) stated they believed the impact would be severe or extremely severe. In contrast, over 20% of full-time faculty believe the impact of COVID-19 on their health would be severe and less than one-third (27%) stated it would be minimal or mild. However, over half of respondents across all three categories believed that, if they contracted COVID-19, the risk of transmitting the virus to others close to them (e.g., family or friends) would be high or extremely high. When asked to rate their knowledge, respondents across all three categories, reported highest levels of knowledge regarding COVID-19 transmission/PPE (>85% reported high or extremely high levels of knowledge). Conversely, participants reported low levels of knowledge regarding COVID-19 vaccine development with only 13% of students, 26% of full-time faculty and 14% of adjunct faculty scoring their knowledge in this area as high or extremely high.

Respondents reported moderate levels of confidence in the scientific community's understanding of COVID-19 epidemiology with only 28% of students, 44% of full-time faculty, and 36% of adjunct faculty reporting that they were fairly or completely confident in this area. Reported

Table 3 – Factors Associated With Reported Plans for COVID-19 Vaccination

	Intention to Get Vaccinated						
	Yes (N = 561)		No (N = 248)		Don't Know (N = 401)		
	N	%	N	%	N	%	p Value
Respondent role							
Student	465	45.3	222	21.6	340	33.1	.021
Faculty	44	60.3	9	12.3	20	27.4	
Adjunct faculty	47	44.8	17	16.2	41	39.0	
Age							
30 and less	328	46.0	143	20.1	242	33.9	.004
31–40	127	45.4	62	22.1	91	32.5	
41–50	44	41.5	28	26.4	34	32.1	
51–60	32	48.5	9	13.6	25	37.9	
60 and greater	24	85.7	1	3.6	3	10.7	
Gender							
Male	79	60.3	24	18.3	28	21.4	.002
Female	474	44.9	214	20.3	368	34.8	
Currently providing direct patient care outside of faculty or student role							
Yes	324	45.4	166	23.2	224	31.4	.016
No	237	47.9	82	16.6	176	35.6	
Colleagues/peers acquired COVID-19 as a result of caring for patients?							
Yes	167	42.8	103	26.4	120	30.8	.030
No	198	45.8	88	20.4	146	33.8	
Don't know	99	48.5	31	15.2	74	36.3	
If I contracted COVID-19, the impact on my own health would be:							
Minimal/mild	267	43.9	137	22.5	204	33.6	.020
Moderate	181	48.4	65	17.4	128	32.4	
Severe/extremely severe	68	58.6	21	18.1	27	23.3	

levels of confidence were higher in terms of their perceptions of their clinical workplace and/or clinical rotation sites being able to ensure their safety (>57% of respondents endorsed the fairly/completely confident option). Half of full-time faculty (52%) and over one-third of students (35%) and adjunct faculty (39%) agreed or strongly agreed with the statement that health care organizations should require COVID-19 vaccination as a condition of employment or clinical engagement.

Participants across all three respondent categories reported high levels of worry regarding the impact of COVID-19 on themselves, their families, their community, and vulnerable populations The majority of participants reported that they worried about the impact of COVID-19 on vulnerable populations frequently or all of the time (83%, 78%, and 76%, respectively). There were no statistically significant differences in reported levels of worry across the three respondent categories ($p > .05$).

Reported Intention Related to COVID-19 Vaccinations

When asked whether they were planning to get the COVID-19 vaccination when it becomes available, 45% of students and adjunct faculty and 60% of full-time faculty reported that they were planning to get vaccinated (Table 3). Participants reported intentions to get vaccinated varied by age, gender, whether they currently care for patients outside of their faculty–student role, whether their colleagues acquired COVID-19 as a result of caring for patients and perceived impact on their own health ($p < .05$).

The respondents' reasons for their willingness or lack of willingness to get COVID-19 vaccination are reported in Table 4. The most frequently reported reasons for planning to get vaccinated included: desire to protect family, self, patients, and community and the belief that it would be the best way to avoid getting seriously ill from COVID-19. With the exception of the desire to protect self, these frequently reported reasons for vaccination varied significantly by respondent type ($p < .05$). The most frequently reported reasons for planning not to get vaccinated included: the belief that the vaccine will be developed too quickly to be safe and a concern about the side effects of the vaccine. These concerns were more commonly reported by students and adjunct clinical faculty as compared to full-time faculty ($p < .05$).

Qualitative Comments

One hundred and fifty-three students, 13 faculty and 13 clinical adjuncts provided open-ended responses that were organized into topical categories. Categories were ranked by frequency the topic was addressed by respondents' comments: safety concerns, opposition to

Table 4 – Respondents' Reasons for Willingness and Lack of Willingness to Get COVID-19 Vaccination Once Available

	Students(*N* = 1,029)		FT Faculty(*N* = 78)		Adjuncts(*N* = 105)		
	N	%	*N*	%	*N*	%	*p* Value
Reasons for intended willingness to receive vaccination							
I want to protect my family	708	68.9	64	82.1	72	68.6	.075
I want to protect myself	673	65.5	64	82.1	75	71.4	.012
I want to protect my patients	669	65.1	43	55.1	64	61.0	.014
I want to protect my community	646	62.9	62	79.5	70	66.7	.018
It would allow me to feel safe around other people	476	46.3	42	53.8	45	42.9	.077
Life won't be back to normal until most people are vaccinated	434	42.3	37	47.4	44	41.9	.076
It would be the best way to avoid getting seriously ill from COVID-19	427	41.6	47	60.3	49	46.7	.002
I have a chronic condition, such as asthma or diabetes, so it is important that I receive a COVID-19 vaccine	94	9.2	13	16.7	7	6.7	.116
Reasons for lack of intended willingness to receive the vaccine							
The vaccine will likely be developed too quickly to be safe	581	56.6	28	35.9	52	49.5	.003
I would be concerned about side effects of the vaccine	550	53.6	29	37.2	48	45.7	.019
I don't trust the COVID-19 vaccine development process	280	27.3	19	24.4	20	19.0	.539
I'm in a low-risk group for getting seriously ill from COVID-19	136	13.2	5	6.4	6	5.7	.050
I would be concerned about getting infected with COVID-19 from the vaccine	73	7.1	5	6.4	6	5.7	.883
I've had a COVID-19 infection, so I likely have antibodies to the disease	32	3.1	1	1.3	2	1.9	.731
The COVID-19 outbreak is not as serious as some people say it is	27	2.6	2	2.6	0	0	.396
I don't think vaccines work well	21	2.0	3	3.8	0	0	.267
I am allergic to vaccines	10	1.0	3	3.8	1	1.0	.113
I don't like needles	8	0.8	0	0	0	0	.698

mandatory vaccine, vaccine willingness, desire for more information, desire to use protective measures, and cost/equity. While some responses fit into two or more of these categories, the majority of responses from all respondent types were related to safety concerns about acceleration of vaccine development. One student noted, "*Vaccines are typically designed and tested over a long period of time. With all of the government involvement in the current vaccine process, there may be steps that are rushed or are pushed forward despite safety concerns in order to get some vaccine out to the public. Requiring people to get this vaccine in the early stages of its development is something I do not support. I will not be receiving the vaccine right away but will continue to social distance and wear masks.*" Similarly, an adjunct faculty lamented, "*There will not be enough clinical trials with data over several years to fully understand the side effects of the vaccine. Take the HPV vaccine for example, some individuals had side effects that were not reported in the initial trials. These individuals still live with the side effects of the vaccine. The polio vaccine took 10 years to fully develop into what we have today. Science and technology have advanced but we still need time to determine the side effects, if any and if the side effects are permanent or temporary. There are enough other measures in place, and if people adhere to them, these measures will contain the virus. Requiring health care workers to get the first vaccine is risky without long-term clinical trials.*"

Respondents offered strong opinions on whether organizations should mandate the vaccine as a condition of employment. One adjunct faculty stated, "*Don't force it. The pushback will outweigh the benefit on this one. Let people decide for themselves as healthcare professionals.*" Similarly, a faculty member asserted, "*Forcing a foreign substance into anyone is morally wrong. I have freedom of choice, and it is my body, my choice. Make me wear a mask instead, and I will.*" In stark contrast, a student noted, "*It should be a criminal offense to refuse the vaccine for reasons other than medical, religious, or cultural.*" Another student expressed willingness to get the vaccine, however, is not in favor of making it mandatory. "*I would get it. But I think it may be unfair to make healthcare workers (a large population) get the vaccine as soon as it comes out without knowing much about it. They were already guinea pigs in this thing (that were not treated very well either) and now they will be required, at risk of losing their job, to be guinea pigs again? Don't make it a requirement until the vaccine is 110% proven effective, without complications, and not made too much in*

haste." This comment highlights the desire for more information and education about the vaccine.

Discussion

This study examined intentions of student nurses, full-time faculty and clinical adjunct faculty to receive a COVID-19 vaccine, once available. Our findings indicate that only 60% of full-time faculty and 45% of clinical adjunct faculty and students expressed readiness to receive a COVID-19 vaccine. When compared to the reported 34% level of vaccine readiness found in the ANF survey (conducted within a month of our survey), we found higher levels (yet still unacceptably low) of readiness among the three groups. Compared to the ANF study and the Pew Research Center study (Pew Research Center, 2020) our full-time faculty had higher readiness. The most frequently reported reasons for not being willing to receive the vaccine in our study were the belief that the vaccine will be developed too quickly to be safe and a concern about vaccine side effects. Qualitative data from open-ended comments support these findings with many respondents expressing safety concerns related to the rapid acceleration of the vaccine development process and potential unknown side effects and the concerns about safety. Safety concerns about vaccine development have been reported in other studies as well (Dror et al., 2020; Malik, McFadden, Elharake, & Omer, 2020; Neuamann-Bogme et al., 2020). In the United States, the growing vaccine reluctance is not surprising given the rhetoric surrounding vaccine development (e.g., Operation Warp Speed, race to a vaccine, and of the pharmaceutical companies—who will be first) and concerns of whether the US Food and Drug Administration (FDA) will follow well-established vaccine approval decision-making processes (Schwartz, 2020).

None the less, these findings are worrisome for several important reasons. First, the reported levels of vaccine acceptance may be lower than what is needed to achieve herd immunity (Sanche, Linm, Romero-Severson, Hengartener, & Ke, 2020). Second, as frontline health care personnel, students and faculty are essential in sustaining a safe, ongoing COVID-19 response. Third, as the most trusted profession, nurses play a critical role in influencing vaccine readiness of patients and the general public. Given the close contact with high-risk patients and the influence that HCPs have on patients' medical decision-making, vaccination of HCPs is key in infection prevention and control (Talbot et al., 2005). A high vaccination readiness rate among nurses is key to ensuring that nurses serve as role models for vaccination in both their professional and personal roles.

In a survey of HCPs conducted by Bhagavathula et al. (2020), the researchers found a gap in science-based understanding of COVID-19. In our study, the majority of respondents reported having high levels of knowledge regarding COVID-19 transmission and use of personal protective equipment; however, the reported knowledge of the vaccine development process was low, indicating an important target for an educational intervention. The ANF study reported a similar finding and identified an urgent need to provide nurses evidence-based education on the vaccine development process. Subsequently, the American Nurses Association launched a webinar for nurses on October 26, 2020 titled, *The State of COVID-19 Vaccine Development: What You Need to Know*. According to the New York Times Coronavirus Vaccine Tracker, as of November 9, 2020, 11 COVID-19 vaccine candidates were in phase 3 clinical trials (New York Times, 2020) National professional nursing organizations should have the forbearance to monitor the results of these trials and provide timely information regarding the safety and efficacy of COVID-19 vaccines to the nursing community and the general public, especially given that vaccine approval by the FDA is possible by the end of the year (Schwartz, 2020). In fact, on November 9, drug maker Pfizer and German partner BioNTech announced that an early analysis of its vaccine trial suggests that the vaccine was more than 90% effective in preventing disease, and plans to ask the FDA for emergency authorization of the two-dose vaccine by end of November 2020. The American Academy of Nursing has long supported the use of vaccines to reduce incidence of disease, particularly for vulnerable populations. A policy statement supporting COVID-19 vaccination uptake and nurses vital role in reassuring, educating, and encouraging the general public regarding the safety and efficacy of the vaccine, would be extremely valuable.

Previous research shows that misinformation around COVID-19 plays an important role in how the general public and HCPs perceive and receive knowledge (Cuan-Baltazar et al., 2020; Tasnim, Hossain, & Mazumder, 2020) and can lead to inappropriate infection control and treatment (McCloskey & Heymann 2020; Selvaraj, Lee, Harrell, Ivanov, & Allegranzi, 2018). Reassuringly, we found very low levels of misinformation and misconceptions about COVID-19 among our faculty and students. Very few full-time faculty, clinical adjunct, and students reported agreement with the statement that the COVID-19 outbreak is not as serious as some people say it is and that they were worried about contracting COVID-19 from the vaccine itself. We found that the majority of participants reported that they worried about the impact of COVID-19 on vulnerable populations. Previous research shows that the belief in the social benefits of vaccination (i.e., the belief that getting vaccinated will protect not only yourself but those in your community), weigh heavily into the decision to get vaccinated (Betsch, Bohm, & Korn, 2013; Bohm, Meier, GroB, Korn, & Betsch, 2019).

Our findings also suggest that nursing students, clinical adjunct faculty and full-time faculty vary in their agreement that health care organizations should require COVID-19 vaccination as a condition of employment or

clinical engagement, with more students and clinical adjuncts opposed to a requirement for mandatory vaccination. Evidence suggests that individuals may be willing to support mandatory vaccination policies, but this support is sensitive to adverse events associated with the vaccine (Bohm et al., 2019). This came through clearly in the open-ended responses to our surveys with multiple respondents stating that they hope the University would not institute mandatory vaccination programs until the safety of the vaccine is established. Given the high levels of anxiety around the speedy development of the vaccine, mandatory vaccination policies may not be appropriate and instead vaccination programs should focus on educational campaigns that emphasize vaccine safety and social benefits of vaccination especially in terms of providing safety to vulnerable populations.

Findings should be considered in light of the study limitations. Our sample was limited to nursing students, full-time faculty, and clinical adjunct faculty from one large, urban academic medical center, thus, limiting generalizability of findings to other educational settings. In addition, there were increased reports in the media during the study period regarding the COVID-19 vaccination and several reports of paused trials due to safety concerns. These media reports may have influenced how participants responded to the survey. Despite these limitations, our work is novel as this is the first study to examine perspectives of nursing faculty and nursing students on COVID-19 vaccine readiness.

In summary, our findings suggest that nursing students and adjunct clinical faculty are less willing to receive the COVID-19 vaccine compared with full-time faculty highlighting the key role of full-time faculty in providing education on the importance of the COVID-19 vaccine. The main concerns reported revolve around the speed with which the vaccine is being developed generating concerns about safety and side effects of the vaccine. Armed with an understanding of student and faculty concerns about the safety of the vaccine, nurse leaders can develop vaccination programs that include evidence on the side effects and efficacy of the COVID-19 vaccine. As nursing faculty play a key role in educating and serving as a role model to their students, and as nursing students enter the profession and care for their patients, there is a great need to ensure that nurses understand the need for vaccination and that their fears and concerns are addressed.

Credit Statement

Mary Lou Manning, PhD, CRNP, CIC, FAAN*: Conceptualization, methodology, formal analysis, investigation, writing original draft, review and editing, supervision, Angela M. Gerolamo PhD, APRN, BC*: Conceptualization, methodology, formal analysis, investigation, writing original draft, review and editing, Marie Ann Marino, EdD, RN, FAAN: Methodology, writing-review and editing, Mary E. Hanson-Zalot, EdD, MSN, RN, AOCN, CNE: Methodology, writing-review and editing, Monika Pogorzelska-Maziarz, PhD, MPH, CIC*: Conceptualization, methodology, formal analysis, investigation, data curation, writing original draft, review and editing, visualization, supervision.
*equal effort.

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