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COVID-19 Vaccination Rates and Influences among United States Nursing Home Administrators and Other Staff

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ABSTRACT

COVID-19 has brought significant challenges to public health messaging and the dissemination of research to the public. Residents and healthcare staff are at increased risk for COVID-19 being in settings such as skilled nursing facilities and are at particularly high risk due to their older adult population and their higher presence of underlying chronic medical conditions. For this study, the National Association of Long-Term Care Administrator Boards provided their contact list of 1.159 currently licensed nursing home administrators in the United States (US) in the spring of 2021. Data from 1,004 completed surveys of US licensed nursing home administrators and their employees measuring COVID-19 vaccination rates and influences. A majority of participants (85.0%) planned to or had already received the vaccine. Common themes surrounding the participants' perceptions of the COVID-19 vaccine included wanting to protect themselves, their families, and co-workers and to stop the spread of the virus, among others.

KEYWORDS: COVID-19 Vaccine Development; Healthcare Workers; Vaccination Influences; Influenza Vaccine Knowledge.

KEY PRACTITIONER MESSAGE

1. Protection of self, family, and others, including residents, positively influenced healthcare practitioners to consider getting the vaccine.
2. Healthcare administrators better understand how educational information provided to their staff can help spread evidence-based knowledge surrounding topics such as the development of the COVID-19 vaccine.
3. Education containing factual information while appealing to staff's desire to safeguard themselves and others May improve vaccine rates among nursing home administrators and other staff.

INTRODUCTION

COVID-19 has brought significant challenges to public health messaging and the dissemination of research to the public. Residents and long-term care (LTC) staff are at increased risk for COVID-19. Skilled nursing facilities are at high risk due to their older adult population and their higher presence of underlying chronic medical conditions. Due to their increased risks, LTC facilities were one of the first to be considered to receive the COVID-19 vaccination (Gharpure et al., 2021). Healthy healthcare workers are required to have a healthy healthcare system (Kwok et al., 2021).

Vaccination hesitancy is the reluctance or refusal to be vaccinated. This is a leading global health threat (Van Dussen et al., 2024). Understanding these reluctances, the prevalence of vaccination hesitancy, the motivational roots of this hesitancy, and the most promising incentives to help this issue need to be identified. Studies have found vaccination hesitancy to be most correlated with mistrust of vaccine benefits. In addition, many worry about the unforeseen effects of vaccines and pharmaceutical companies' commercial profiteering and would, as a result, prefer natural immunity. Evidence of rigorous testing and vaccine safety is necessary to reduce vaccine hesitancy; it cannot be perceived as rushed or premature (Taylor et al., 2020). Furthermore, inadequate information about vaccine safety, side effects, and administration was circulated at the time of the survey. Skepticism about clinical trials and vaccine approval processes also exists. Repeating surveys suggest that such hesitancy is persisting (Gharpure et al., 2021).

Vaccine hesitancy is a concept that applies to new vaccines. Influenza vaccination patterns in particular are similar in hesitancy patterns to what has been observed with the COVID-19 vaccine. For example, during the 2017-2018 influenza season, vaccination coverage was lower among LTC staff than among other healthcare workers (Gharpure et al., 2021). As of August 2021, only 62% of the United States skilled nursing facility workforce was vaccinated (CMS, 2021). Hesitancy to receive the vaccination was due to skepticism about vaccine effectiveness as well as perceived low-risk virus transmission from themselves to others. To combat this lack of awareness and understanding of the vaccine-influenced poor uptake, healthcare employees must increase efforts to promote benefits (Canning et al., 2005). A better understanding of vaccine hesitancy is needed to help vaccine campaigns move forward (Berry et al., 2021).

Low-vaccinated staff members are a large concern (Gharpure et al., 2021). Vaccine confidence is the perceived benefit and safety of vaccines and trust in health professionals (Karlsson et al., 2019). Studies like the one done by Karlsson et al. (2019) showed

that perceived benefit had a higher association with getting and recommending the vaccine over trust in health professionals. Additional studies show that the relationship between trust in coworkers and organizations relate is significant (Tan & Lim, 2009). Many individuals at the time reported getting information about the COVID-19 vaccine from their friends and social media (Berry et al., 2021). Their largest concerns involved how rapidly vaccines were developed and concerns with side effects, including infertility or pregnancy-related concerns (Berry et al., 2021). The study by Berry et al. (2021) found that sharing positive emotions and stories may be more effective in increasing positive attitudes towards the vaccine than data itself.

In the spring of 2021, when this study was conducted, Pfizer-BioNTech and Moderna vaccines were the two companies whose vaccines were available for public distribution (Food and Drug Administration-FDA, 2021; Moderna Receives Full U.S. FDA Approval for COVID-19 Vaccine Spikevax, 2022; Van Dussen et al., 2024). At the time, vaccine acceptance depends on several factors, including public trust and confidence in the safety and efficacy of vaccines and immunization, the health system, healthcare professionals, and the wider vaccine research community (Berry et al., 2021).

This research study investigated the COVID-19 vaccination rates and influences among nursing home administrators and other staff in the United States. The results of this study are part of a more extensive study to investigate the attitudes and beliefs of nursing home administrators and other staff toward the COVID-19 vaccine (Van Dussen et al., 2024).

METHOD

A survey was constructed in Alchemer about COVID-19 vaccine attitudes and beliefs among nursing home administrators and other staff (Canning et al., 2005; Gharpure et al., 2021; Kimura et al., 2007; La Torre et al., 2017; Norris et al., 2017). Authors were granted permission to use The National Association of Long-Term Care Administrator Board's (NAB) official e-mail list of all Licensed Nursing Home Administrators (LNHA) within their purview.

Snowball sampling was utilized in this study, so a response rate cannot be calculated. Alchemer was used to send the initial email message and two follow-up messages to the list of 27.419 emails between March 12 and May 9, 2021. There were 11.097 invalid emails, which narrowed the total emails sent to potential participants to 26.222. These emails contained an introduction explaining the purpose, a survey link, and an attached participant recruitment flyer. The flyer contained study information, the link to the study, and a QR code for potential participants to link directly to the survey. LNHA's were asked to

forward the email and/or link to all their employees. The Youngstown State University Institutional Review Board (IRB) approved this study (#2021-73). All participants were required to provide informed consent electronically as part of the survey introduction before they could continue with the survey. To participate in the survey, participants were required to be at least 18 years old (7 were disqualified due to age). Of the responses, there were 155 partial responses and 1.004 complete responses. Incomplete responses were not used in the final sample size of 1.004.

The information for this study was gathered using surveys sent and completed by eligible participants. The survey consisted of a number of questions, including multiple choice, fill in the blank, and select all that apply (see Appendix). An analysis of the questions with open-ended answers was performed. Statistical analysis was conducted to gather demographic and background information, including job title and facility type, vaccination rates, and barriers. Various questions were asked regarding the participant's views and history with the COVID-19 vaccine. These questions included whether they were offered or received the vaccine and additional questions on their decisions and viewpoints regarding the vaccine. IBM SPSS Statistics (version 29.0) was used to analyze the data. A frequency distribution analysis was performed on the responses to the survey questions. An analysis of demographics was done on the sample to examine gender, race, and ethnicity, as well as the respondent's highest level of education obtained, marital status, and income levels. Cross-tabulations were performed next to examine vaccination rates and influences by job position held, levels of care, types of organization, and work status.

RESULTS

Most participants in the survey were Caucasian (87.0%) females (69.7%), with a median age of 51 years and a range of 18 to 84 years. The majority (68.1%) were married. Just under half of participants, at 45.9%, were graduates from a college or university, with 68.2% making over $90.000 per year working in LTC facilities (76.8%). The geographic locations varied, with people responding from Pennsylvania (n=108; 10.8%); New York (n=97; 9.7%); Texas (n=68; 6.8%); and Ohio (n=61; 6.1%), among many other states. Half of all participants (51.8%) were licensed nursing home administrators and working for similarly split profit (52.9%) and non-profit (47.1%) facilities.

The most commonly held positions among the participants were licensed nursing home administrators (51.8%) and administrative/clerical (21.9%). Other commonly listed positions by the participants included registered nurses (RN; 6.6%) and state-tested nurse aides (STNA)/home health aide/certified nursing aide/nurse aide (4.1%). The

survey also asked the participants to list the level(s) of care they provide. The sample included several levels of care, with the largest being long-term care (27.8%), skilled nursing (23.1%), rehabilitation (17.3%), assisted living (13.0%), and hospice (9.7%). Most participants (92.7%) were full-time employees.

Over half (54.8%) of these participants were concerned about the side effects the vaccine may cause. Less than half (43.7%) of the participants expressed other concerns, such as the lack of trust in the vaccine due to the fact that no long-term studies were being conducted. Even if these concerns were eliminated, 73.8% of participants said they would still not receive the vaccine.

When asked about the participants largest influences on their perceptions of the COVID-19 vaccine, there were multiple common themes. These themes included wanting to protect their family, themselves, and co-workers. In addition, they wanted to stop the spread of the virus. The dissemination of the science behind the development of the COVID-19 vaccination influenced perceptions. The speed of the vaccine's development and rollout did give some participants pause. Others were concerned about the government's role and conspiracies about the role of government in creating and disseminating the vaccine. Lastly, many were influenced by their own experiences, whether they had contracted the COVID-19 virus themselves or known somebody else who had.

Other questions were asked about the availability and receiving of the COVID-19 vaccine. A majority (98.5%) reported being offered the COVID-19 vaccine. Of those offered the vaccine, 85% had either received or were scheduled to receive the vaccine, leaving 15% not planning to receive the vaccine.

DISCUSSION

Vaccine hesitancy towards the influenza vaccine has been studied over the last few decades across the world (Canning et al., 2005; Gharpure et al., 2021; Kimura et al., 2007; La Torre et al., 2017; Norris et al., 2017). This paper expands upon current understandings of influenza vaccine hesitancy and applies it to COVID-19 vaccine hesitancy.

The route from development to administration of the influenza vaccine resulted in a similar pattern of hesitancy, spreading of misinformation, and skepticism, as was observed with the COVID-19 vaccine. The global pandemic occurred during an era where social media outlets were a place where many people obtained their sources of information, which both encouraged and sought to disprove rumors surrounding the source of the coronavirus itself as well as all of the coverage surrounding the development and distribution of the COVID-19 vaccine.

The developmental process of the influenza vaccine

compared to that of the COVID-19 vaccine is similar (Canning et al., 2005). A majority (70.7%) of participants in the study indicated that they receive the flu shot every year (Van Dussen et al., 2024). Better understanding the influences regarding why or why not healthcare workers choose to or do not receive vaccines is necessary to assist in increasing overall vaccination rates. This study's findings of nursing home administrators and other staff's concern about the speed of the COVID-19 vaccine's development and distribution support research from two studies conducted at the beginning of the pandemic (Gharpure et al., 2021; Taylor et al., 2020). Most (92.0%) participants indicated receiving educational information about the vaccine from their employer. However, it does not seem this strategy influenced beliefs or counteracted misinformation about the vaccine, especially through social media, since responses in this survey indicated a lack of knowledge about the vaccine's creation (Van Dussen et al., 2024). Likewise, participants were concerned about the speed of vaccine development, yet the pro-vaccine attitude demonstrated in this sample indicates that the benefits outweighed the risks in this sample, and that is ultimately what influenced the participants to get vaccinated (Berry et al., 2021; Van Dussen et al., 2024). Additionally, another concern that was identified in the literature was observed by three participants here, with fertility- or pregnancy-related responses being mentioned as barriers to receiving the COVID-19 vaccine in this study (Berry et al., 2021). The sample in this study showed that a majority of the respondents (85.0%) had responded "yes" to having received the vaccine (scheduled but not received, in progress, or completed) at the time the survey was completed (Van Dussen et al., 2024). Results also showed that protecting oneself, family, and others, including residents, positively influenced people to consider getting the vaccine. They indicated wanting to stop the spread of the virus, which is ultimately what led most participants to get vaccinated. Education containing factual information while appealing to staff's desire to safeguard themselves and others may improve vaccine rates among nursing home administrators and other staff.

Limitations and Directions for Future Research

The authors were not able to reach all nursing home administrators (due to undeliverable e-mail addresses) and other staff directly, so the focus was on asking the LNHAs to distribute the surveys to all employees. The survey used snowball sampling to reach other professions and is cross-sectional. We asked for help from the licensed administrators to circulate the surveys; thus, randomization was impossible. Therefore, limitations of this study were the inequity and potential for bias in participants

regarding positions held by LTC employees. Most participants were employed in administrative positions. This does not reflect the typical distribution of positions in LTC. An explanation for this limitation is that those who received the e-mails were administrators, and they may have chosen to respond to the survey themselves but not pass it along to their staff.

The survey lacked certain inquiries to assess the participants' cost and benefits; however, when this survey was completed, asking about cost was not a priority because it was so early in the pandemic and for vaccine development. Acquiring this knowledge among participants in future studies will mitigate the likelihood of vaccine hesitancy, which could serve as a significant strategy for government intervention. Another limitation identified is that when the survey was developed, there weren't as many vaccine options as now.

By the time the different types of vaccines were released, the survey had already been sent out. Future research should inquire about the participants' views on different COVID-19 vaccines.

Further research is needed to determine ways to remove barriers for nursing home administrators and other staff to receive the COVID-19 vaccine. Strategies to combat misinformation and research on these programs' effectiveness are needed. Qualitative research could help illuminate reasons for mistrust and ways to teach workers about biases. Similarly, it would assist in identifying new quality sources inherent in social media and ways to rebuild trust in vaccines and vaccination programs. Examples of programs include educational programs, including campaigns targeting nursing home administrators and other staff about the vaccine and vaccination incentive programs.

One example of an educational program that was implemented effectively included a program with structured 30-minute information sessions conducted for healthcare professionals who worked with geriatric populations, where the participants demonstrated significant increases in willingness to receive the COVID-19 vaccine, knowledge about the development of the vaccine, and an ability to educate others about the vaccine (Girard et al., 2022). However, each type of program will require subsequent research about the effectiveness of these approaches.

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APPENDIX

Survey Questions

Demographic Information

1. Sex
2. Age
3. Ethnicity
4. Highest level of education completed
5. Marital status
6. What was your household income last year?
7. What levels of care does your place of employment provide?
8. Type of organization
9. City/State of Employer
10. Position
11. Years employed in long term care
12. Are you employed full time, part time, or as needed?
13. Do you work in multiple facilities for the same company? If yes, How many?
14. Do you work for different companies? If yes, How many?

Importance

15. How important do you think the COVID-19 vaccine is?
16. How confident are you that the COVID-19 vaccine decreases the spread of COVID-19?
17. How confident are you that the COVID-19 vaccine prevents people from getting COVID-19?
18. Please indicate your level of agreement about the COVID-19 vaccine with the following statements:
    - ☐ The benefits of the vaccine are greater than the risks for you.
    - ☐ The benefits of the vaccine are greater than the risks for residents/consumers.
    - ☐ The vaccine will prevent me from getting COVID-19.
    - ☐ The vaccine will prevent the residents/consumers from getting COVID-19.
19. Do you trust the COVID-19 vaccine? ☐ If yes ☐ If no, why not?

Experiences

20. Have you been offered the COVID-19 vaccine?
    If yes,
    - Have you received the COVID-19 vaccine?
    - What influenced you to receive the COVID-19 vaccine?
    - What is the one thing that influenced you most to get the COVID-19 vaccine?

    If no,
    - Do you plan to get the COVID-19 vaccine?
    - What are your barriers to getting the COVID-19 vaccine?
21. If your barriers from the above question could be solved, would you get the vaccine? If no, why not?

Sources of Information

22. Were you given any education information about the COVID-19 vaccine from your employer?
23. What are your other sources of information about the COVID-19 vaccine?

Conclusion

24. How often do you get an annual flu vaccine?
25. How likely are you to get the COVID-19 vaccine if your co-workers do?
26. How likely are you to get the COVID-19 vaccine if your members of management do?
27. What is the one thing that influences your opinion about the COVID-19 vaccine (Negative or Positive)?