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Research Article

Covid-19 vaccine hesitancy among nurses at the university teaching hospitals' emergency, adult, and women and new born hospitals in Lusaka, Zambia

Abstract

Introduction: Vaccination of health care providers against Corona Virus Disease 2019 ensures an adequate workforce to care for infected patients yet many of them are hesitating to acquire the vaccine. Information contributing to vaccine hesitancy helps hospital management and relevant authorities to set up strategies that can help reduce COVID-19 vaccine hesitancy and resistance among nurses and other health workers.

Purpose: To identify factors associated with Covid-19 vaccination hesitancy among nurses working at UTHs' Emergency, Adult, Women, and New Born Hospitals in Lusaka, Zambia.

Results: Vaccine hesitancy among nurses was found to be at 62.0%. 189 participants had not received that COVID19 vaccine. Results from Chi-square and Fisher's exact test showed decision to get a COVID-19 vaccination was significantly influenced by several factors, including a history of being infected with COVID-19, a history of a family member being infected with COVID-19, the level of knowledge concerning COVID-19, perceived susceptibility , perceived severity, perceived benefits, and perceived barriers. In the multivariable analysis, nurses with adequate knowledge about COVID-19 had over 50% lower odds of getting the vaccine (aOR = 0.50, 95% CI = 0.24, 1.04, P = 0.023) compared to their counterparts. Those who perceived more barriers had over 99% lower odds of getting vaccinated (aOR = 0.01, 95% CI = 0.19, 0.77, P = 0.006) compared to their counterparts. Nurses with family members who were infected with COVID-19 had over 99% lower odds of getting vaccinated (aOR = 0.003, 95% CI = 0.00, 0.02, P = 0.22) compared to their counterparts. It was also revealed that female nurses had higher odds of getting vaccinated by a factor of 1.29 compared to male nurses.

Conclusion: The study highlights substantial vaccine hesitancy among nurses at The University Teaching Hospitals' Emergency, Adult, And Women and New Born Hospitals in Lusaka, Zambia despite their heightened risk of infection. The influence of perceived susceptibility, severity and benefits regarding the vaccine cannot be ignored on the successful adoption and acceptance of the vaccine by the nurses. Therefore this demands for effective communication strategies that not only spotlight personal protection but also the broader societal benefits, aligning with healthcare professionals' collective responsibility in managing and mitigating the impact of the pandemic.

Keywords: nurses, COVID-19, vaccine hesitancy, attitude, knowledge, health belief model

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Abbreviations: CDC, center for disease control and prevention; COVID-19, corona virus disease 2019; HBM, health belief model; HCP, health care practitioner; HCW, health care worker; MOH, ministry of health; NAS, national academics of science; UTH, university teaching hospital; WHO, world health organization

Introduction

Coronavirus disease 2019 (COVID-19) was labeled a Public Health Emergency of International Concern by the World Health Organization (WHO).[1] In response to this, The Centers for Disease Control and Prevention (CDC) and the National Academies of Science (NAS) released a framework for vaccinating the global population, with a focus on those who are at high risk of contracting or spreading the disease, or who have previous medical problems.[2] Many people who have been devastated by the disease's take of lives and livelihoods have, in fact, found new hope in the development of COVID-19 vaccinations.[3] Encouraging the uptake of the present and next COVID-19 vaccinations is essential for maintaining individual health, safeguarding the most susceptible groups, resuming social and economic activities, and maybe attaining immunity-based community health and safety.[4] The Zambian government, through the Ministry of Health, launched the voluntary COVID-19 immunization campaign on April 14, 2021, with a target population of eight million and four thousand persons over the age of eighteen.[5]

Nurses are among the high-risk populations for contracting the disease and transmitting the virus to other health care professionals and patients as make up a big proportion of front-line health-care workers who are likely to come into contact with COVID-19 patients.[6] Nosocomial or hospital acquired infections can occur during this pandemic as nurses can acquire the virus from their patients or transmit the infection to their patients.[7] Given this, the availability of several vaccinations is a significant advancement in protecting health care workers (HCWs).[8] Although HCWs are the intended audience for COVID-19 immunization techniques, a significant percentage of them frequently express reluctance to receive the vaccinations.[9] According to World Health Organization[10] immunization hesitancy,

which is defined as a lack of trust in or fear of vaccines, may impede the development of HCW vaccination. According to Karafilakis et al.[11] health care personnel are vaccine reluctant, despite the fact that they are frequently referred to as the most trustworthy source of vaccination-related information for their clients. As of October 6, 2021, the number of vaccinations provided in Zambia was 670 thousand, with 292 thousand completely vaccinated, accounting for one-sixth (1.6%) of the Zambian population and in December 2021, only 8.4 percent of the eligible population had received a COVID-19 vaccination.[12] When compared to the intended vaccination coverage, the number of vaccinations delivered in Zambia remains low; this occurrence is related with vaccine hesitancy and resistance among the Zambian population.

According to Rief[13] fear of side effects, a perceived lack of testing for vaccination safety and efficacy, mistrust of pharmaceutical firms owing to perceived financial interests, and a lack of information regarding adverse effects, lack of research on people who have experienced adverse effects after vaccinations are all plausible causes of vaccine reluctance among health workers. A number of important sociodemographic factors can also affect how widely the COVID-19 vaccination is used.[14] Health care workers, particularly nurses, who make up the majority of HCPs in Zambia, have a strong effect on patients' decisions to get the vaccine, their refusal or unfavorable attitude toward vaccination might cause hesitancy in the broader community.[15] With this background knowledge, the researcher was inspired to investigate the determinants of COVID-19 vaccine acceptance and hesitancy among nurses at The University Teaching Hospital in Zambia in order to better understand their perspectives which could guide interventions, policies, and educational efforts that aim to improve COVID-19 vaccine acceptance among nurses, thereby contributing to broader public health goals.

Methodology

The present study was conducted at the University Teaching Hospital, and utilized a quantitative, descriptive, cross-sectional design to assess nurses' hesitancy towards receiving the Covid-19 vaccine. This approach, chosen for its efficiency and cost-effectiveness, allowed simultaneous measurement of outcomes and exposures. A total of 304 participants were selected through stratified proportional simple random sampling from departmental units, including the Emergency, Adult, and Maternal and Newborns Hospitals. Data collection took place between August 10th and October 2023, employing a questionnaire adapted from Hossain et al.[16] with three sections covering socio-demographic variables, the nature and extent of vaccine hesitancy, and Health Belief Model constructs. Participants, after receiving detailed information, provided informed consent, emphasizing confidentiality and voluntary participation. Internal validity was assured through pilot testing, simple random sampling, and evaluations of face, content, and consensual validity. Statistical measures, including multiple regression, controlled for potential confounding variables. External validity was achieved by selecting a representative nursing sample from the largest tertiary facility in Zambia. Data analysis, using SPSS version 26, included checks for completeness and employed Chi-square, Fisher's exact tests, and univariate and multivariable logistic regression analysis, revealing statistically significant associations ($P < 0.05$). Reliability of the data collection tool was confirmed, showing excellent internal consistency for vaccine hesitancy (Cronbach Alpha = 0.833) and good consistency for Health Belief Model constructs. Ethical considerations were paramount, with permissions obtained from relevant ethics committees and institutions. Informed consent was diligently secured, and measures were in place to safeguard participants' rights, confidentiality, and adherence to ethical standards throughout the research process.

Presentation of the results

The results begins with the presentation of findings related to socio-demographic characteristics, the level of knowledge regarding COVID-19, perceptions of COVID-19 vaccines, followed by an examination of the associations between vaccination status and categorical variables. It concludes with the presentation of binary logistic regression data.

Socio-demographic characteristics of respondents

Table 1 presents the socio-demographic characteristics of 305 nurses from The University Teaching Hospital (UTH) in Lusaka District, Zambia, focusing on gender, personal history of COVID-19 infection, family members' history of COVID-19, and the respondents' ages. The findings indicate that 57.4% of the respondents were female, while 42.6% were male. Regarding COVID-19 infection history, 71.1% reported no prior infection, while 28.9% disclosed a history of previous COVID-19 infection. The study also explored whether respondents had family members with COVID-19, revealing that 54.1% had family members who were infected, and 45.9% reported no family members with COVID-19. The respondents' ages ranged from 23 to 54 years, with an average age of 33.05 years and a standard deviation of 7.09.

Table 1 Socio-demographic characteristics of respondents (n=305)

Variable	Frequency (n)	Percentage (%)
Gender		
Female	175	57.4
Male	130	42.6
Total	305	100
History of being infected with Covid-19		
Yes	88	28.9
No	217	71.1
Total	305	100
History of family member being infected		
Yes	165	54.1
No	140	45.9
Total	305	100
Age (years)		
Minimum	23	
Maximum	54	
Mean	33.05	
Standard deviation	7.09	

Patients' level of knowledge regarding COVID-19 vaccination

In assessing the respondents' level of knowledge about COVID-19 vaccination, the study utilized a series of questions, with those answering at least 50% correctly considered to have adequate knowledge. Figure 1 presents the findings, revealing that a significant majority, 89.5% (n=273), demonstrated adequate knowledge. In contrast, a minority of respondents, specifically 10.5% (n=32), were identified as having inadequate knowledge regarding COVID-19 vaccination. This insight into the level of knowledge among the respondents sets the stage for a more comprehensive understanding of the factors influencing COVID-19 vaccination, as discussed in the subsequent sections of the study.

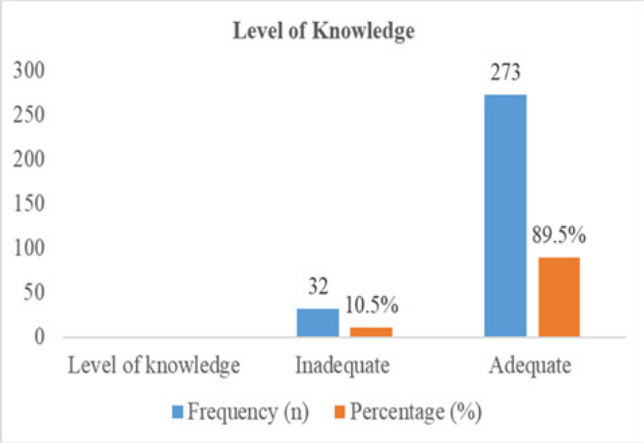

Figure 1 Respondents' level of knowledge regarding COVID-19 vaccination (n=305).

Perceptions of COVID-19 vaccination: health belief model constructs

Table 2 summarizes the respondents' perceptions of COVID-19 vaccination based on the Health Belief Model constructs, encompassing perceived susceptibility, perceived benefits, perceived barriers, and perceived severity. The findings indicate that 52% of respondents perceived a high susceptibility to COVID-19 infection. Concerning perceived benefits, 62.3% of respondents considered the benefits to be high. However, a significant portion, approximately 61.9%, perceived high barriers associated with the vaccine. In terms of the perceived severity of COVID-19 infection, 53% of respondents considered it to be high.

Table 2 Health belief model constructs depicting perception of the COVID-19 vaccine (n=305)

Variable	Frequency (n)	Percentage (%)
Perceived susceptibility		
Low	146	47.9
High	159	52.1
Total	305	100
Perceived benefits		
Low	190	62.3
High	115	37.7
Total	305	100
Perceived barriers		
Low	116	38
High	189	61.9
Total	305	100
Perceived severity		
Low	141	46.2
High	164	53.8
Total	305	100

Respondents; vaccination status

Figure 2 illustrates the COVID-19 vaccination status of the respondents, determined through direct inquiries about whether they had received the vaccine. The results indicate that 38.0% (n=116) of the respondents were vaccinated against COVID-19, while the majority, accounting for 62.0% (n=189), had not received the vaccine. This visual representation provides a clear overview of the distribution of vaccination status among the study participants, forming a crucial foundation for further analysis and discussions regarding the associations between vaccination status and other variables examined in the study.

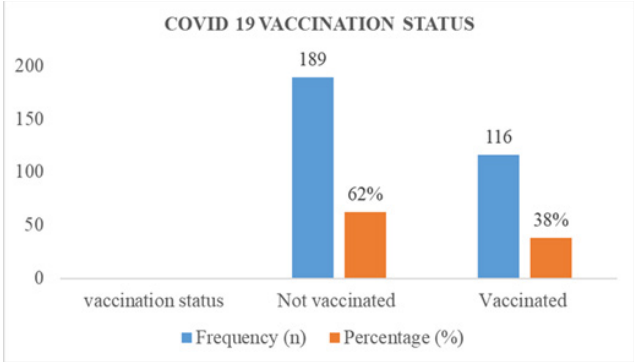

Figure 2 Respondents vaccination status.

Association between variables

Table 3 reveals associations between COVID-19 vaccination status and various factors, analyzed using chi-square and Fisher's exact tests. Significant associations were found with a history of personal COVID-19 infection (p<0.001), family history of infection (p<0.001), level of knowledge (p=0.047), perceived susceptibility (p<0.001), perceived severity (p<0.001), perceived benefits (p<0.001), and perceived barriers (p<0.001). These results suggest that respondents with a history of infection, higher knowledge levels, and positive perceptions were more likely to be vaccinated. Gender (p=0.340) did not show a significant association with the decision to receive a COVID-19 vaccination.

Table 3 Factors associated with COVID 19 vaccination

Variables	Vaccination status			p-values
	Vaccinated	Not vaccinated	Total (%)	
Sex				
Female	71	104	175 (57.3%)	0.34
Male	45	85	130 (42.7%)	
Hx infected with Covid-19				
Yes	85	1	86 (28.2%)	< 0.001 f
No	31	186	217 (71.8%)	
Hx infected family member				
Yes	115	50	165 (54.0%)	< 0.001 f
No	1	139	140 (46.0%)	
Level of Knowledge				
Inadequate	17	15	32 (10.5%)	0.047X2
Adequate	98	175	273 (89.5%)	
Susceptibility				
Low	1	145	146 (47.9%)	< 0.001 f
High	115	44	159 (52.1%)	
Severity				
Low	16	125	141 (46.2%)	< 0.001 X2
High	100	64	164 (53.8%)	
Benefits				
Low	1	189	190 (62.3%)	< 0.001 f
High	115	0	115 (37.7%)	
Barriers				
Low	114	23	117 (38.4%)	< 0.001 f
High	2	186	188 (61.6%)	

C, chi-square test; F, fisher's exact test

Univariable and multivariable logistic regression analysis

The multivariable logistic regression analysis revealed several key factors associated with COVID-19 vaccination among nurses. Nurses with adequate knowledge had 50% lower odds of vaccination (aOR = 0.50, 95% CI = 0.24, 1.04, P = 0.023). Those perceiving more barriers had over 99% lower odds of vaccination (aOR = 0.01, 95% CI = 0.19, 0.77, P = 0.006), and nurses with family members with COVID-19 had over 99% lower odds of vaccination (aOR = 0.003, 95% CI = 0.00, 0.02, P < 0.001). On the other hand, nurses perceiving higher benefits had 3.3 times higher odds of vaccination, and those perceiving higher severity had odds of vaccination by a factor of 37.88 (aOR = 37.88, 95% CI = 15.44, 27.9, P < 0.001). Higher perceived susceptibility was associated with 12.20 times higher odds of vaccination (aOR = 12.20, 95% CI = 6.64, 22.41, P < 0.001). Nurses with a history of being infected with COVID-19 were 2 times more likely to be vaccinated (aOR = 2.002, 95% CI = 0.00, 0.02, P < 0.001). While female nurses had higher odds of vaccination than males, the association was not statistically significant (aOR = 1.290, 95% CI = 0.81, 2.07, P = 0.290) Table 4.

Table 4 Univariable and multivariable

Variables	Univariable analysis			Multivariable analysis		
	cOR	CI (95%)	p-value	aOR	CI (95%)	p-value
Level of knowledge						
Inadequate	Ref			Ref		
Adequate	1.05	0.26, 4.26	0.048	0.5	0.24, 1.04	0.023
Perceived benefits						
Low	Ref			Ref		
High	0.87	0.28, 2.68	0.032	3.31	0.00, 1.01	0.063
Perceived barriers						
Low	Ref			Ref		
High	0.22	0.14, 0.58	< 0.001	0.01	0.19, 0.77	0.006
Perceived severity						
Low	Ref			Ref		
High	0.21	0.12, 0.36	< 0.001	12.2	6.64, 22.4	< 0.001
Perceived susceptibility						
Low	Ref			Ref		
High	0.12	0.06, 0.25	< 0.001	37.88	15.44, 27.9	< 0.001
Hx of being infected with Covid-19						
Yes	Ref			Ref		
No	1.13	0.08, 0.22	< 0.001	2.002	0.00, 0.02	< 0.001
Hx of family member infected						
Yes	Ref			Ref		
No	1.23	0.01, 0.32	< 0.001	0.003	0.00, 0.02	< 0.001
Gender						
Male	Ref			Ref		
Female	0.09	0.01, 0.06	< 0.041	1.29	0.81, 2.07	0.29

cOR, crude odds ratio; aOR, adjusted odds ratio; CI, confidence interval; Hx, history

Discussion of findings

The discussion focuses on the demographic data, the level of knowledge regarding COVID-19, perceptions of COVID-19 vaccines as well as association between vaccination status and the independent variables. The outline of the findings to be discussed consist the study variables in comparison to the existing literature.

Demographic data

Over half (57.4 %) of the nurses in the study were female. This is not so surprising because according to Cottingham[17] nursing has been historically regarded as a predominantly female profession despite the desire for a more gender diverse nursing workforce being a resounding theme. More than half (71.1%) of the nurses in the study reported no prior experience of being infected with COVID-19. Nurses, as healthcare professionals, may be more diligent in adhering to infection prevention and control measures, reducing their risk of contracting COVID-19.[18] A greater number (54.1%) of nurses reported that they had family members who had been infected with COVID-19. According to Sharma et al.[19] healthcare workers, including nurses, may be more informed about COVID-19 and its symptoms therefore this awareness could lead to more proactive testing and reporting of infections within their families due to the encouragement from the health workers. The nurse's ages ranged from a minimum of 23 years to a maximum of 54 years with the average age being 33.05 years. Nurses often enter the profession at various stages of their lives and some might pursue nursing as a second career, leading to a later entry into the field and this could account for the varying years of the nurses in the current study.

Vaccine hesitancy among nurses

The study results show that more than half (62.0%) of the nurses were not vaccinated against COVID -19 despite the fact that HCWs were given priority for vaccination due to their increased risk of acquiring nosocomial infection. This snapshot leaves a lot of questions on what is driving these choices. They expressed varying thoughts

on the willingness for future vaccination consideration being ; some expressing a definite unwillingness to take the vaccine (33.9%), some expressing being uncertain about their vaccination plans (32.3%), some expressing a likelihood of not taking the vaccine (18.5%) and some expressing delay in their decision regarding vaccination (15.3%). Vaccine hesitancy has also been reported in several other studies around the world. Early studies by Wang et al.[20] in China and Kabamba et al.[21] in Congo reported low acceptance rates of the COVID- 19 vaccine of 40.0% and 27.7% respectively, which raised the alarm as nurses are front-line health personnel that require higher protective measures as they battle the pandemic. Similarly COVID-19 vaccine hesitancy among HCWs was found to be 60.9% in Ethiopia by Mohammed et al.[22] in which lack of belief in COVID-19 vaccine benefits, lack of trust in the government, lack of trust in science to produce safe and effective vaccines, and concern about vaccine safety, were found to be predictors of COVID-19 vaccine hesitancy. Another Study conducted in Israel by Dror et al.[23] revealed some level of vaccine hesitancy among health workers with 61% of the nurses accepting the COVID- 19 vaccine as compared to more than three quarters (78%) of doctors in the study.

Although the findings of the aforementioned study shows a higher percentage of nurses accepting the COVID- 19 vaccine, the heterogeneity of the sample led the nurses to appear more hesitant than their counterparts as different professions could perceive their risks to the infection differently according to their different roles. On the other hand, a Study in China by Kwok, et al.[24] revealed that the proportion of nurses who had the intention to take the COVID-19 vaccine were more than half (63%) which was found to be higher and this stronger COVID-19 vaccination intention was associated with younger age, more confidence, less complacency and more collective responsibility among the nurses. The study setting and the timing of the study could have influenced this high reported intention as Hong Kong was one of the areas with a high COVID-19 death rate as reported by Taylor[25] and this could have heightened the perception of risk thus leading to a stronger intention to get vaccinated as a protective measure.

Level of knowledge regarding covid19 vaccination

The results of this study reveal that more than three quarters (89.5%) of nurses possessed adequate knowledge regarding the Covid-19 vaccine. This is a positive and noteworthy finding as high knowledge levels contribute to public trust in vaccination efforts, as these professionals are seen as reliable sources of information to the public. This finding is consistent with most of the findings around the world. In a study conducted in China by Li et al.[26] vaccine knowledge level was high (89.2%) among nurses. A study conducted by Elhadi et al.[27] in Libya also revealed a high knowledge level of the COVID-19 vaccine among nurses with 86% of the respondents believing that vaccination could reduce morbidity and mortality. On the other hand, results of a study conducted in Ethiopia by Adane et al.[28] revealed that even though 64.6% of the nurses had good knowledge level regarding the COVID 19 vaccine a substantial number of nurses were not convinced on the safety of the vaccine as well as being misinformed. Healthcare workers play a crucial role as influencers in public health matters and therefore lack of adequate knowledge among some nurses may impact public trust in vaccination efforts more broadly. On the other hand, a research by Manning et al.[29] found that knowledge of the vaccine was inadequate among nurses, primarily as a result of the vaccine's rapid development, which raised questions about its safety and potential side effects. The fact that the aforementioned study included both full-time faculty nurses and nursing students can be used to explain why the results were inconsistent. Manning and colleagues came to the conclusion that nurse leaders may create immunization programs that incorporate information on the COVID-19 vaccine's side effects and effectiveness with the nursing faculty acting as role models to the nursing students.

Perceptions of Covid-19 vaccines using the health belief models constructs

In this study, slightly half (52%) of the nurses believed they had a high susceptibility to COVID-19 infection while over half (62.3%) rated the benefits to be high. Furthermore, more than half (61.9%) perceived high barriers associated with the vaccine. In terms of perceived severity of COVID-19 infection, about half (53%) of respondents considered the severity of the infection to be high. Similarly, a study by Limbu et al.[30] reported that health care professionals had higher perceived susceptibility to and severity of the COVID-19 infection, with 73.8% indicating being at high risk of infection and 61.9% expressing concerns about the infection. Furthermore, more than three quarters (87.5%) thought COVID-19 infection was more dangerous than influenza infection. In terms of perceived advantages, the respondents believed the vaccines to be efficient and to protect them as well as their families. Storage conditions, adverse effects, and vaccine efficacy were among the perceived barriers. Similarly studies in Iraq by Al-Metwali et al.[31] and in Lebanon by Youssef et al.[32] have also highlighted nurse's perceived higher susceptibility and severity of the disease, perceived higher benefits of the vaccine as well as perceived higher barriers towards the COVID 19 vaccine. On the other hand, findings in a study conducted by Alhasan et al.[33] in Saudi Arabia revealed mixed perceptions regarding the HBM constructs with perceptions regarding the susceptibility to COVID-19 and worries regarding the likelihood of getting COVID-19 infection were less among the majority of the health personnel. The reason for the discrepancy may be attributed to the nature of the study population who were being assessed for their booster dose intention.

Relationship of knowledge level regarding covid-19 vaccine hesitancy among nurses

The findings of this study have revealed a strong association between the nurses level of knowledge regarding COVID 19 vaccine and their decision to get the COVID 19 vaccination (p=0.047). Nurses with adequate knowledge about COVID-19, as opposed to those with inadequate knowledge, had over 50% lower odds of getting the vaccine. Despite being knowledgeable about the COVID vaccine, many health workers shun away from up-taking it due to the knowledge on its possible side effects such as infertility, safety concerns, fear of the unknown and concerns about its effectiveness. According to Robinson et al.[34] Vaccines are intended to be administered by medical professionals, who will then advise patients based on their knowledge of the vaccine. However, the populace receives a bad signal from this health worker's unfavorable attitude because those who administer the vaccine will not want to take it themselves. Similar to the findings of this study, a study conducted in India by Ashok et al.[35] revealed that even though a significant portion of health workers had fair to moderate knowledge of COVID-19 vaccinations, less than 40.2% of them were eager to get vaccinated as soon as it became accessible. On the other hand , a study conducted by Baniak et al.[36] in Pennsylvania revealed that most nurses were knowledgeable about the COVID 19 vaccine and over 80% of them were either willing to receive or had already received the vaccine. Among those hesitant and unwilling to get the vaccine, lack of adequate knowledge to make an informed decision about whether to receive the vaccine and not having adequate information about the expectations of the vaccine were among some of the factors that led to the vaccine hesitancy.

A greater understanding of the disease and vaccination was the main predictor of vaccine acceptance in another study by Kumar et al.[37] in Quarter, where vaccine hesitation was only 12.9%. Variability in study design, methodology, and how knowledge and acceptance have been measured between the afore-mentioned studies and the current study could have led to differences in findings. This discrepancy in findings can also be due to other factors that can influence vaccine hesitancy other than knowledge such as risk perception, demographic factors or prior experiences. Knowledge is one of the important factors that affects intention to receive the COVID-19 vaccination among HCWs. Therefore, HCWs should be updated with the latest information about COVID-19 through trustworthy channels of information including the website of Ministry of Health/Hospital so as to dispel the myths from the community.

Relationship of perceptions of Covid-19 vaccines and COVID-19 vaccine hesitancy

The study on nurses' COVID-19 vaccine decisions indicated significant influences of perceived susceptibility, barriers, severity, and benefits. Nurses with higher perceived susceptibility had greater vaccination odds, aligning with Dubé et al.[38] Conversely, those perceiving more barriers, such as side effects concerns, showed reduced vaccination likelihood, in line with Chen et al.[39] and Dror et al.[23] This alignment suggests a practical connection between occupational exposure, risk perception, and vaccination decisions. The correlation between perceived severity and increased vaccination odds supports Al-Metwal et al.[31] findings in Iraq. Nurses' firsthand experiences with COVID-19 patients and personal histories of infection or having relatives with COVID-19 contributed to a heightened sense of severity. This, in turn, motivated proactive measures like vaccination, emphasizing the impact of personal experiences on health-related behavior.

Nurses with a strong belief in vaccination benefits exhibited higher vaccination rates, echoing Al-Metwal et al.[31] Emphasizing both personal and societal advantages, such as reduced transmission and community protection, emerged as a crucial point in communication strategies, aligning with Kregar et al.[40] and Wong et al.[41] These findings underscore the importance of conveying practical benefits to address hesitancy and enhance vaccine uptake among healthcare professionals. To enhance vaccine uptake, interventions should acknowledge nurses' occupational realities, addressing concerns about side effects and emphasizing the tangible benefits of vaccination. Creating a supportive workplace environment that encourages vaccination and addresses concerns collaboratively is pivotal. The study highlights the necessity for tailored strategies resonating with healthcare professionals' unique experiences and perceptions on the frontline.

Conclusion

The study reveals significant vaccine hesitancy among nurses at The University Teaching Hospitals in Lusaka, Zambia, with 62.0% remaining unvaccinated against COVID-19 despite their heightened infection risk. This aligns with global challenges in addressing healthcare workers' hesitancy. While nurses demonstrated commendable COVID-19 vaccine knowledge, the study emphasizes that knowledge alone does not always drive adoption. Hesitancy is complex, influenced by factors like risk assessment, past experiences, and demographics. Nurses perceiving higher susceptibility and severity of COVID-19 were more likely to get vaccinated. Conversely, perceived barriers, including side effects, trust issues, and fear, were strongly associated with lower odds of vaccination. Understanding individual perceptions and addressing concerns are crucial in fostering a supportive vaccination environment. Effective communication strategies, emphasizing personal and societal benefits, are vital in encouraging vaccine acceptance among nurses.

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Conflicts of interest

The author declares that there is no conflicts of interest.

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