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Ethical concerns surrounding mandatory vaccination: Perspectives of healthcare practitioners

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ABSTRACT

Objectives: Poor vaccine uptake is often seen in countries without policies demanding the mandatory vaccination of citizens. The policy to compulsorily get people vaccinated for the common good of the general public can be considered an ethical decision. This study was aimed at evaluating the ethical concerns surrounding vaccination mandates from the perspective of Nigerian healthcare practitioners.

Materials and Methods: A cross-sectional survey was carried out among healthcare practitioners practicing within the Uyo metropolis in Nigeria. A purposive sampling technique was used in recruiting participants for the survey. Study participants were interviewed using a suitably designed, pre-piloted, structured, self-administered questionnaire. The interview session focused on identifying ethical concerns surrounding vaccination mandates by the government from the perspective of healthcare practitioners. Data were analyzed using the IBM Statistical Program and Service Solutions version 25.0 computer package.

Results: Three hundred and two healthcare practitioners participated in the study. The majority of the healthcare practitioners (221; 73.2%) were of the view that mandatory vaccination was justifiable provided the safety and efficacy of the vaccine was established. About 68.9% (208) of the healthcare providers alluded that vaccination mandates by the government can be ethically justified, as they may be crucial to the protection of the health and well-being of members of the public.

Conclusion: In the opinion of the majority of the healthcare professionals who participated in the study, vaccine mandates can be ethically justifiable if it is safe and effective in protecting the public against an infectious disease.

Keywords: Ethical concerns, Healthcare practitioners, Vaccine mandate

INTRODUCTION

Vaccines, although generally considered a safe and effective means of preventing communicable diseases, are neither perfectly safe nor perfectly effective. For instance, some individuals may experience adverse effects after the administration of vaccines, while occasionally some vaccine recipients may not be fully protected. Vaccines, however, rarely cause serious adverse events as most adverse events associated with vaccines are minor and usually involve local soreness or redness at the injection site or perhaps fever for a day or two.[1]

During outbreaks of infectious diseases that result in epidemics or pandemics, millions of lives are at risk particularly when there are no effective vaccines against the pathogenic organism. Such outbreaks disrupt normal life and are associated with huge economic costs. For instance,

in West Africa, between 2014 and 2016 the Ebola virus epidemic led to about 30,0000 deaths, while the recent Coronavirus Disease 2019 (COVID-19) pandemic led to the loss of millions of lives globally.[2] In both situations, the narrative changed with the discovery of specific vaccines that were unavailable when the disease outbreaks started.

The availability of a specific vaccine against an infectious disease can only effectively reduce the threat of massive loss of lives if a sufficient proportion of the public is vaccinated. This can be achieved easily when the people are willing and given the opportunity to be vaccinated. The decision to get vaccinated does not only affect the individual who receives the vaccine but also people around the individual and the general public as well. The concept of "community protection" technically termed *herd immunity* is the situation where a sufficient proportion of the population becomes immune from a particular infectious disease through vaccination (or previous infection) and thus unvaccinated members of the same population become indirectly protected because the high immunization rate prevents further transmission of the infection.[2,3]

Attaining herd immunity is particularly important as it provides coverage to the proportion of the population that cannot receive the vaccine because of their age, disease condition, immune-compromised state, or other medical reasons.[2,3]

Poor vaccine uptake is often seen in countries without policies demanding the mandatory vaccination of citizens. Identified factors that promote poor vaccine uptake include religious beliefs opposing the use of vaccines, the fear of iatrogenic diseases, the belief that vaccines are unnecessary or ineffective in preventing diseases, concerns about immune system burden, and state vaccine exemption policies.[4-7] The policy to compulsorily get people vaccinated for the common good of the general public can be considered an ethical decision. In this context, ethics may be described as principles and values that govern human behavior in line with societal expectations.

Decisions about the use of vaccines are based on the relative balance of risks and benefits, although this balance may change over time.[8] Vaccination laws were first enacted to control epidemic diseases. Now, they are also used to increase coverage with vaccines that are deemed important to protect the public's health even in the absence of epidemics. The introduction of new vaccines to protect individuals and communities from emerging infectious diseases usually leads to an expansion of the scope of vaccination laws by countries. However, this practice is increasingly becoming subject to challenge and public outcry.[9]

Publicity about adverse events alleged to be caused by vaccines has enhanced the controversy surrounding the recommendation and use of vaccines.[10] Controversies surrounding the use of vaccines are further fueled in situations where mandatory vaccine coverage is suggested when there are no visible threats from the disease in question.[9] The occurrence of new adverse events linked to the use of vaccines further feeds the controversy. For instance, the occurrence of intestinal intussusception after administration of the rotavirus vaccine led to a withdrawal of the vaccine and lent some support to the arguments of those opposed to vaccination.[11] Persons opposed to vaccination have extensively used the internet and social media to communicate their beliefs regarding vaccines resulting in an escalation of the apprehension and negative perception of the public toward the uptake of recommended vaccines.

The Nigerian government in October 2021 declared COVID-19 immunization mandatory for civil employees and set a deadline for anyone who was not fully vaccinated to be barred from working.[12] Some persons have faulted this declaration and considered it a contravention of the ethics of clinical practice in which no human should be coerced into undertaking any clinical intervention. This study was thus aimed at evaluating the ethical concerns surrounding vaccination mandates from the perspective of Nigerian healthcare practitioners.

MATERIALS AND METHODS

It was a cross-sectional survey carried out among healthcare practitioners practicing within the Uyo metropolis in Akwa Ibom state, Nigeria. Healthcare practitioners who participated in the study included pharmacists, physicians, nurses, medical laboratory scientists, and community health extension workers. A purposive sampling technique was used in recruiting participants for the survey. The interview session focused on identifying ethical concerns surrounding vaccination mandates by the government from the perspective of healthcare practitioners.

Eligibility criteria

All licensed healthcare practitioners practicing within the Uyo metropolis who provided informed consent to participate in the study were recruited and interviewed.

Sample size

Sample size was determined with the aid of the Raosoft Online Sample Size Calculator wherein the margin of error, confidence interval, and response distribution were set at 5%, 95%, and 50%, respectively.

Data collection instrument

A suitably designed, pre-piloted, structured, self-administered questionnaire was used to obtain data

from the healthcare providers. The instrument had two sections. The first section was used to obtain data on the sociodemographic details of the respondents while the second section comprised nine questions that were used to assess the perspective of the healthcare providers regarding vaccination mandates. The questions were drawn from a policy brief on mandatory vaccination published by the World Health Organization.[13]

Data analysis

Quantitative data were analyzed using the IBM Statistical Program and Service Solutions version 25.0 computer package. Descriptive statistics was used to summarize data. Pearson's Chi-square test was used to assess the association between the respondents' perception of mandatory vaccination policy and their professional background and COVID-19 vaccination status. Statistical significance was set at $P < 0.05$.

RESULTS

Demographic details of the respondents

Three hundred and two healthcare practitioners, comprising 83 pharmacists, 67 physicians, 63 nurses, 60 community extension workers, and 29 medical laboratory scientists, participated in the study. Majority of the respondents (268; 88.7%) practiced in the public sector. The sociodemographic details of the study participants are presented in Table 1.

Table 1: Sociodemographic characteristics of respondents.

Variable	Frequency	Percentage
Gender		
Male	118	39.1
Female	184	60.9
Age in years		
20–30	128	42.3
31–40	119	39.4
41–50	50	16.6
51–60	5	1.7
Professional background		
Pharmacist	83	27.5
Physician	67	22.2
Nurse	63	20.8
CHEW*	60	19.9
Medical laboratory scientist	29	9.6
Years of practice		
1–5	179	59.3
6–10	62	20.5
11–15	39	12.9
16–20	13	4.3
>20	9	3.0
Practice sector		
Public sector (Government)	268	88.7
Private sector	34	11.3
COVID-19 vaccination status		
Vaccinated	138	45.70
Not vaccinated	164	54.30

*CHEW: Community Health Extension Worker

Respondent's perception towards mandatory vaccination

The majority of the healthcare practitioners (221; 73.2%) were of the view that mandatory vaccination was justifiable provided the safety and efficacy of the vaccine were established. About 68.9% (208) of the healthcare providers alluded that vaccination mandates by the government can be ethically justified, as they may be crucial to the protection of the health and well-being of members of the public.

The item-by-item response of the healthcare practitioners to questions assessing their perception toward vaccination mandates by the government and a test of association with their professional background and COVID-19 vaccination status is presented in Table 2.

DISCUSSION

The uptake of vaccines globally is less than optimal.[14] Epidemic outbreaks in various parts of the globe in the past have shown the risks associated with poor vaccine coverage. Legislation on mandatory vaccination has been enacted in many countries to curb the threat of the outbreak of vaccine-preventable infectious diseases. Subtle, non-coercive measures to improve vaccine uptake such as public health enlightenment campaigns have reportedly not yielded the desired improvement in vaccine uptake. On the other hand, mandatory vaccination has been identified as the major component of the global polio eradication strategy that has recorded tremendous success.[14,15]

The majority of the healthcare providers interviewed in our study agreed that it is common for governments and institutions to mandate certain measures to protect the well-being of individuals or communities. In their assertion, such mandates can be ethically justified, as they may be crucial to protecting the health and well-being of the public. The Australian government, in a bid to eliminate conscientious objections to vaccination and encourage families to present their children for vaccination as scheduled, enacted the

Table 2: Respondents' perception towards mandatory vaccination and test of association with professional background and COVID-19 vaccination status.

Questions	Responses			Association with respondents' professional background: Pearson Chi-square test/*P*-value	Association with respondents' COVID-19 vaccination status: Pearson Chi-square test/*P*-value
	Yes *n* (%)	No *n* (%)	Don't know *n* (%)		
In clinical practice, most interventions involve risks and burdens.	231 (76.5)	47 (15.6)	24 (7.6)	16.196 (0.04)*	2.393 (0.302)
It is common for governments and institutions to mandate certain actions to protect the well-being of individuals or communities.	188 (62.3)	83 (27.5)	31 (10.3)	39.366 (0.001)*	1.582 (0.453)
Such mandates can be ethically justified, as they may be crucial to protecting the health and well-being of the public	208 (68.9)	58 (19.2)	36 (11.9)	9.111 (0.333)	2.164 (0.271)
Mandatory vaccination is justifiable if it is necessary for and proportionate to the achievement of an important public health goal (including socioeconomic goals) identified by a legitimate public health authority.	173 (57.3)	99 (32.8)	30 (9.9)	5.194 (0.737)	1.106 (0.575)
Mandatory vaccination is justifiable if it would increase the prevention of significant risks of morbidity and mortality and/or promote significant and unequivocal public health benefits.	217 (71.9)	70 (23.2)	15 (4.9)	9.696 (0.287)	8.984 (0.011)*
In a pandemic situation, employers may be justified to demand vaccination status from employees and applicants.	215 (71.2)	65 (21.5)	22 (7.3)	5.816 (0.668)	6.233 (0.044)*
Mandatory vaccination is justifiable if available data demonstrate that the vaccine being mandated has been found to be safe in human populations for whom the vaccine has been used.	221 (73.2)	62 (20.5)	19 (6.3)	13.713 (0.090)	8.581 (0.014)*
Mandatory vaccination is justifiable if sufficient evidence shows that it is efficacious in interrupting the transmission chain and preventing harm to others.	221 (73.2)	60 (19.9)	21 (6.9)	15.904 (0.044)*	7.506 (0.023)*
Mandatory vaccination is justifiable if sufficient evidence shows that it is efficacious in preventing hospitalization and reducing the burden on an already overburdened healthcare system.	216 (71.5)	56 (18.5)	30 (9.9)	9.205 (0.325)	1.872 (0.392)

*Statistically significant ($P<0.05$)

"No jab, No Pay" legislation in 2016. Similar mandates on vaccination have also been reported in some parts of Europe and some states in the United States of America.[16] Such mandates have reportedly been associated with increased vaccine uptake. For instance, legislation making the evidence of immunization a requirement for entry into schools, childcare access, and access to welfare benefits resulted in increased vaccination rates in Europe.[16-19] Usually, there is an increase in the uptake of vaccines when vaccination is made a prerequisite for school entry or associated with certain financial benefits.[16]

We found that the majority of the respondents agreed that mandatory vaccination is justifiable if sufficient evidence shows that it is efficacious in interrupting the transmission chain of infection and preventing harm to others. In Italy, a study exploring the attitude of pregnant women toward compulsory vaccination reported that about 80% of the women interviewed were favorably disposed toward compulsory vaccination.[20] The opinion of members of the public regarding mandatory vaccination varies. Some people, usually referred to as "anti-vaxxers," are out-rightly against vaccination, while others who may not be averse to it are against the involvement of the State and the enactment of laws

making vaccination mandatory. Yet, there are some people who are only concerned about the safety of the vaccines.[21-24]

More than two-thirds of our respondents agreed that in a pandemic situation, employers may be justified in demanding vaccination status from employees and applicants. According to Wicker and Marckmann, mandatory flu vaccination of employees in the healthcare sector is only ethically justified if the vaccine is effective in preventing influenza infections in the general population and specifically among healthcare workers; and there is sufficient evidence supporting the claim that vaccination of healthcare workers against flu would reduce morbidity and mortality in patients who receive care from the healthcare providers.[25]

A vaccine mandate is often perceived as a form of coercion from a government that limits people's autonomy and freedom of choice. The extent and degree of coercion may vary and include restricted access to social amenities, or threatening punishment such as payment of fines, or forced vaccination in extreme cases. An attempt to enforce vaccination mandates brings to bear the notion that vaccination is not a personal choice, but an obligation to society. Mandatory vaccination policies appear to be an effective strategy to optimize the uptake of vaccines, enhance immunization rates, attain herd immunity, and prevent further transmission of infectious diseases. Reports from different sites have shown increased uptake of vaccines following vaccine mandates.[26-29]

In many countries, mandatory vaccination is used for vaccine-preventable diseases affecting children.[30] For instance, in Australia, parents are required to show evidence of vaccination of their children before being eligible to receive some social welfare benefits. In Italy and the United States of America, evidence of vaccination is a requirement for enrolment into some public schools and childcare centers. In some cases, adult healthcare providers are required to show evidence of vaccination before they are allowed to offer care to patients.[31]

A report on ethical issues surrounding public health interventions recommends that the seriousness of the threat of the disease to the general population and the risks associated with the disease and the vaccine be taken into consideration when assessing the acceptability of a policy on vaccination.[32] According to Savulescu *et al*., mandatory vaccination may be ethically justified if the infectious disease poses a serious public health threat, the safety and efficacy of the recommended vaccine have been established, the use of mandatory vaccination is a more cost-effective approach compared to other measures, and the level of coercion is suitable and commensurable.[33]

Limitations

Uyo, though a metropolis in Akwa Ibom State may not be a true representation of the Nigerian society with different religious, cultural, and traditional values. Furthermore, the study population of only healthcare practitioners may have resulted in biased responses. Hence, a similar study incorporating people from different walks of life may be necessary.

CONCLUSION

In the opinion of the majority of the healthcare professionals who participated in the study, vaccine mandates may be ethically justifiable, as they may be crucial to protecting the health and well-being of the public. It is important for the government to take ethical concerns into consideration before enforcing mandatory vaccination on its citizens.

Ethical approval: Ethical approval for this research work was obtained from the Akwa Ibom State Health Research Ethics Committee (AKSHREC), number AKHREC/10/3/22/082 dated April 05, 2022 and the Health Research Ethics Committee of the University of Uyo Teaching Hospital, Uyo, number UUTH/AD/S/96/VOL.XXI/665 dated May 16, 2022.
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