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ORIGINAL PAPER

A Scoping Review of Ethical Considerations of Mandatory COVID-19 Vaccination of Healthcare Workers

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Abstract

Duty of care is the core ethical responsibility of healthcare workers. Getting the workforce vaccinated will provide safety to the public, protect the vulnerable population and provide a safe working environment. While most agree that healthcare workers should be prioritised in the vaccination programme, mandatory vaccination remains a complicated and contentious issue with political, legal and ethical dimensions. This study aims to determine the ethical considerations associated with mandatory vaccinations among healthcare workers. A total of 152 abstracts were identified of which, 142 were excluded based on abstracts because they did not meet the inclusion criteria. The remaining ten articles were further evaluated with three articles that fit the inclusion criteria specifically discussing mandatory vaccination among healthcare workers and the ethical issues. Benefits, risks, effectiveness, equity and justice, autonomy, reciprocity and trust were used as a framework to discuss the ethical considerations which resonated both directly from the included papers, as well as more generally from the other literature associated with this search. There is limited literature on the topic of ethical considerations associated with COVID-19 mandatory vaccination of healthcare workers, as a systematic review identified only 3 papers. Benefits, risks, effectiveness, equity and justice, autonomy, reciprocity and trust were among the seven ethical considerations identified and discussed.

Keywords Vaccination · COVID-19 · Healthcare workers

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Background

COVID-19 is an infectious disease caused by coronavirus SARS-CoV-2. The World Health Organization (WHO) was notified of the disease in December 2019 after a cluster of pneumonia cases were reported in Wuhan, People's Republic of China (WHO 2020). Transmission of COVID-19 occurs mainly through respiratory droplets in aerosols and though contact with droplet-contaminated surfaces. Measures such as effective hand hygiene, social distancing and use of face masks and protective equipment have been implemented to limit the spread of disease. In spite of these procedures, the rates of COVID-19 infection and transmission remains high (WHO 2020). Amnesty International, in July 2020, reported that the UK, for example, had one of the highest numbers of healthcare worker deaths from COVID-19 (Amnesty International UK 2020). Such statistics suggest that protective equipment alone may be inadequate in protecting healthcare or front-line workers. This has promoted vaccine development as an important strategy for addressing the global response against the COVID-19 virus (NICE 2020). Even before the development of a publicly available vaccine, there have been issues raised regarding vaccine mandates (Bowen 2020; Dror et al. 2020).

It is estimated that a vaccinated individual is about 80% less likely to require hospitalisation (Rosenberg et al. 2021). The Australian government has proposed a vaccination target of 80% of the general eligible population, in order to reduce the risk of future lockdowns (Department of the Prime Minister and Cabinet 2021) .

The WHO stated that the critical vaccination rate threshold for immunisation to be effective for the whole community is 95% (WHO 2007). Voluntary vaccination uptake is generally lower than 95% due to various factors contributing to vaccination hesitancy. The uptake of the influenza vaccine in England was recorded to be 76.8% in 2020/2021 (Public Health England 2019). It has increased from 70.3% in 2018/2019 due to various public health promotions. Uptake of COVID-19 vaccine varies from 36% in the USA to 78% in Israel and tends to be low in Asian countries (Statistica Research Department 2021; Dezan Shira & Associates 2021). The American Medical Association reported a 96% vaccination rate among physicians, while a single-centre study in the UK reported a vaccination rate of 72.9% among healthcare workers (American Medical Association 2021; Azamgarhi et al. 2021). One of the most common reasons for vaccine hesitancy among healthcare workers concerns about the lack of long-term studies on their efficacy and possible side effects (American Medical Association 2021). Overseas studies also highlighted that while vaccination rates are high among healthcare workers, the workforce is not homogenous. It is significantly lower among Hispanics, Afro-Caribbean and mixed-race healthcare workers, and significantly lower among portering, domestic and catering staff (Azamgarhi et al. 2021). Vaccination programmes have historically been associated with a power imbalance between different social classes and race (Dubé et al. 2021).

Duty of care is the core ethical responsibility of healthcare workers. Getting the workforce vaccinated will provide safety to the public, protect the vulnerable population and provide a safe working environment. While it is generally agreed

that healthcare workers should be prioritised in the vaccination programme, mandatory vaccination remains a complicated and contentious issue with political, legal and ethical dimensions. Through this scoping review, some of the ethical considerations regarding mandatory vaccinations among healthcare workers will be examined and discussed.

Aim

This study aims to determine the ethical considerations associated with mandatory vaccinations among healthcare workers.

Methods

Search Strategy for Articles

Eligible original articles published between 2020 and 2021 were identified using the following search terms (ethic$ or bioethic$) and COVID-19 and (vaccination$ or immuni$ation$ or healthcare or mandatory or recommendations or framework or challenges or considerations), across the following databases: (1) OVID-Medline, (2) Scopus, (3) Embase.

The search strategy was first conducted in consultation with a qualified hospital librarian, followed by independent searches by the authors. The initial search results were compared, any differences in the search results were discussed among the authors to reach consensus.

Screening of Articles

A full-text assessment of the articles was conducted against the inclusion criteria. Articles deemed suitable were further reviewed independently by all three authors for inclusion or exclusion. Differences were resolved by re-reading and discussion until consensus was reached.

Inclusion and Exclusion Criteria

Articles that were published in English, contained abstracts, limited to humans and discussed ethical considerations pertaining to mandatory vaccination were included.

Exclusion criteria	No. of excluded articles
1. Clinical management and research activity studies	32
2. Non-healthcare staff studies	25
3. Wellbeing studies	12

Exclusion criteria	No. of excluded articles
4. Application of technology and modelling studies	14
5. Resource allocation and prioritisation studies	32
6. Non-ethics related studies	30
7. Commentaries	4
Total	149

Results

The search results are shown in the PRISMA (http://www.prisma-statement.org) diagram (Fig. 1). A total of 152 abstracts were identified of which 142 were excluded based on abstracts because they did not meet the inclusion criteria. The remaining 10 articles were further evaluated with 7 subsequently excluded as they did not address the aim of the study.

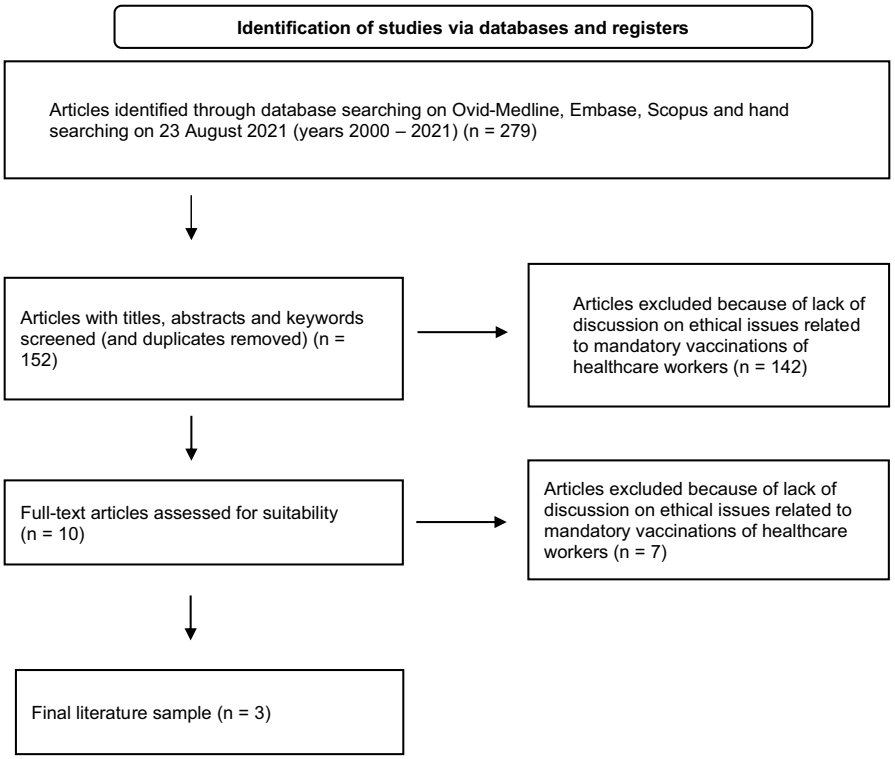

Fig. 1 Prisma diagram

Discussions

There were three articles that fit the inclusion criteria specifically discussing mandatory vaccination among healthcare workers and the ethical issues arising from this.

The first paper (Osbourne and Clark 2021) discussed the issues of mandatory vaccination for nurses in the UK using the Beauchamp and Childress (2009) theory. The authors used this theory to compare the ethical issues brought up with the current Nursing and Midwifery Council (2018) and interpreted and evaluated the conflicts that arose. There was an in-depth discussion about autonomy versus beneficence in deciding whether to have mandatory vaccinations.

The second included study (Hughes et al. 2021) discussed the prioritisation and mandating of vaccines in vulnerable populations and healthcare workers. The authors considered the lack of long-term studies on COVID-19 vaccines and how it relates to consideration of vaccination take-up. They related the issues of an individual's autonomy of choice and potential large-scale reduction of risks among the vulnerable population which are cared for by healthcare workers.

The third and final study (Martin-Fumadó et al. 2021) describes the legal considerations of mandatory vaccinations (from a Spanish perspective) on healthcare workers. The authors used a deontological approach to discuss the legal and ethical issues faced if governments decide to mandate the COVID-19 vaccinations. This is particularly important in Spain as it had one of the highest numbers of healthcare workers affected by COVID-19. Mandatory vaccination programmes have always been a complicated subject ethically, politically and legally. While mandatory vaccination programmes have demonstrated their effectiveness, they impinge on an individual's autonomous decision, among other critical ethical values (Babcock et al. 2010).

During the literature search, the work by Beauchamp and Childress provided an ethical framework using four principles (Beauchamp and Childress 2009). However, this basic framework may be inadequate to solve complex ethical dilemmas involving patients (Walker 2009). Verweij and Dawson (2004) proposed an ethical framework tailored for public health vaccination programmes. Issacs (2012) further developed this framework into seven ethical principles or considerations in view of the emergence of new and future vaccines. They are (1) benefits, (2) risks, (3) effectiveness, (4) equity and justice, (5) autonomy, (6) reciprocity and (7) trust. These were used as a scaffold to further discuss the ethical considerations which resonated both directly from the included papers, as well as more generally from the other literature associated with this search.

Benefits

COVID-19 vaccinations benefit both the individual and the community. The Joint Committee of Vaccination and Immunisation (JCVI) from the UK stated that 90% of people are protected from COVID-19 after the first dose (JCVI 2021). It reduces the severity of the disease, prevents its spread and in turn eases the burden on the

healthcare system. This could be considered under the umbrella of 'the greatest good for the greatest number'. Vaccinating healthcare workers could reduce the risk of infection among the general population. In this way, the actions of one group of people would be positively influencing and benefiting the community/society (Osbourne and Clark 2021; Martin-Fumadó et al. 2021). Martin-Fumado cited Spanish law as being clear that public health overrides individual freedoms.

Risks

There are risks involved with being and not being vaccinated. Not being vaccinated will subject an individual to COVID-19 infection which could be fatal. Being vaccinated may expose the individual to adverse effects such as thrombocytopenia syndrome (TTS) with the AstraZeneca vaccine, or myocarditis with the Pfizer vaccine (Elalamy et al. 2021; Watkins et al. 2021). There has been some concern regarding the experimental nature of the vaccine which could potentially put the healthcare worker in harm's way (Bowen 2020). It is the government's duty to monitor and report any adverse effects and assist healthcare workers to make informed decisions by explaining possible risks involved in both options (Huang 2021). Such an example is JCVI from the UK which releases regular statements and updates on vaccine safety and other vaccine-related matters (JCVI 2021). Another authoritative example is the Australian Technical Advisory Group on Immunisation (ATAGI) which is responsible for updating the usage of vaccinations in Australia. Mandating a vaccine programme to a large population such as healthcare workers implies that some will experience these adverse events without freedom of choice. It is the government's obligation to monitor for any adverse risks and establish an open and clear communication channel with the public.

Another aspect is the risk of a non-vaccinated healthcare worker passing the disease onto a person in their care. While there is an ethical responsibility of the healthcare worker for self-protection, this must also extend to the protection of the patients. Furthermore, a healthcare worker represents the institution and the healthcare system. A vaccinated healthcare worker, who is seen as being a low risk for transmission, may generate confidence in the population, through their actions (receiving the vaccination), showing the value of scientific evidence and avoiding misinformation.

Effectiveness

There is a plethora of data supporting the efficacy of COVID-19 vaccinations. To have an efficient and effective vaccination programme, disease surveillance is important. The efficacy for the mRNA-1273 (Moderna) vaccine ranges between 94.1 and 95.6% for 18–65 year old, and 86.4% for those above 65 years (2021) (Moderna TX 2020). BNT162b2 (Pfizer-BioNTech) provides a similar level of protection at 95% for age 16 or older (Polack et al. 2020). There are reported strategies on 'dose sparing', increasing the number of first dose given to the public and prolonging the interval before the second dose (Cobey et al. 2021) to maximise the effectiveness of vaccine.

Vaccine prioritisation has been reported to improve vaccination effectiveness and efficiency at the societal level (Statistica Research Department 2021). In Spain, part of the Royal Decree 664/1997 proposes that if there is an effective vaccine available to workers who are at risk of exposure to biological agents, it must be made available to them while informing them of the advantages and disadvantages (Martin-Fumadó et al. 2021). A point of contention is the lack of long-term data on the effectiveness and effects of COVID-19 vaccinations. This is in contrast to the current vaccinations (i.e. hepatitis B, tuberculosis) that are required for health workers, which have longer historical data.

Equity and Justice

Equity suggests that the targeting of vulnerable, disadvantaged communities which have a higher incidence of disease is optimal. Immunisation programmes have been shown to reduce inequity especially as lower socio-economically disadvantaged people fare worse and are at a greater risk from preventable infections (Andre et al. 2008). Vaccinating healthcare workers promotes a type of equity in that it could help offset the disadvantages of groups such as the immunocompromised or others who are unable to receive the vaccine.

COVAX is a WHO organisation whose aim is the fair and even distribution of COVID-19 vaccination among all nations on a global level (World Health Organization 2021). On a more local level, institutions need to ensure that all healthcare workers, no matter what their roles are within an organisation, should have equal opportunity and access to vaccination. Studies report that healthcare workers of Hispanic, Afro-Caribbean, South Asians, mixed-race staff and certain roles display more hesitancy towards vaccination (American Medical Association 2021; Azamgarhi et al. 2021; Khunti et al. 2021). Mandatory vaccination programmes could improve the vaccination rates among these subgroups; however, targeted, clear and consistent information should be provided to improve their understanding of the vaccines and improve vaccine acceptance (Khunti et al. 2021; Raus et al. 2022). Being vaccinated may allow people to access increased work and social opportunities especially with the introduction of ‘vaccine passports’ in many countries.

Autonomy

Autonomy is one of the most important ethical principles in the western society. Making decisions about an individual’s healthcare which reflects their needs, values and wishes is a major tenet of western countries. Mandatory vaccinations may only be ethically justified if it complies with John Stuart Mill’s Harm principle. The Harm Principle suggests that the only scenario in which any government may exercise its power over an individual’s will is to prevent harm to others (Huang 2021). In cases of high-risk of transmission of infections to vulnerable patients, the Harm principle may be used to justify mandatory vaccination at the expense of autonomy, among healthcare workers (Isaacs and Leask 2008). On the other hand, it could be argued that COVID-19 vaccinations do not have a clear effect on directly preventing

transmission to others; therefore, vaccinations may not be viewed as the only armamentarium available in combating the virus, and alternatives should be offered, thus preserving autonomy and freedom of choice (Martin-Fumadó et al. 2021). While vaccines available have shown a high percentage of efficacy against COVID-19, these are only short-term data and their risks are not always clearly communicated to the general public. Mandatory vaccination will compromise an individual's right to decide if they wish to be vaccinated (Bowen 2020). By mandating a vaccine with only short-term data available, we could be eroding healthcare worker's autonomy to participate in the vaccination programme. Various authors also discussed the possible legal challenge under their country's constitution and human rights laws (Flood et al. 2021; Martin-Fumadó et al. 2021). Healthcare workers have an ethical duty to protect the public as well as provide a safe working environment for others; however, mandatory vaccination remains controversial. Many have suggested that improving channels of communication and creating a system for nudging towards vaccination remain better alternatives (Hughes et al. 2021; Raus et al. 2022). Alternatively, an 'opt-out' system has been suggested whereby everyone has 'presumed consent' and people can choose to opt out if they decide not to be vaccinated (Blackmore 2018). This would allow the healthcare worker to exercise their autonomy and feel empowered by their decision. Bowen (2020) has also proposed a similar perspective.

Reciprocity

The WHO defines reciprocity as 'a relationship between parties characterised by corresponding mutual action' (WHO 2007). The interests of individual and that of the wider community is inter-related. Healthcare workers have moral, professional and contractual obligations to provide care for the community. Governments and employers, on the other hand, should reciprocate by minimising risks to healthcare workers. It may be done through the provision of adequate personal protection equipment (PPEs), vaccination, medical care should it be required and psychosocial treatment availability and support (WHO 2007). Governments and healthcare institutions could also provide incentives to improve healthcare workers' perception of compulsory vaccination such as a medical and/or death compensation scheme (WHO 2007). It could be argued that mandatory vaccination is part of the governments or employer's reciprocal response to provide protection to the healthcare workers, especially for ethnic minorities that are more hesitant to be vaccinated. Additionally, the question arises of whether the right of the health worker to opt for non-vaccination supersedes the right of the patient not to be infected by the healthcare worker. A Spanish perspective, based on current Spanish law, proposes that the rights of the patient should prevail eventually (Martin-Fumadó et al. 2021). However, the onus and responsibility of receiving a vaccination cannot be completely placed on the healthcare worker without sufficient protections for the worker. Due to the relatively newness of the vaccine, there are still unknown effects of the vaccination on the health of a person. If mandating the vaccine causes any untoward effects to the healthcare worker, then this would not be fair to the healthcare worker due to the enormous burden now placed on the worker. Creation of a vaccine injury

compensation programme offers a reciprocation in acknowledgement of the mandating of the vaccine.

Trust

A successful vaccination programme depends on mutual trust. Distrust in authorities and perceived risk of the disease/vaccine are some of the key deterring factors lowering vaccination uptake (Dubé et al. 2021). Vaccines normally take years to develop and clinical trial prior to their approved and wide-spread distribution (Fadda et al. 2020; Graham 2020). However, the rapid development and production of COVID-19 vaccines have engendered mistrust and scepticism among the public as to the testing methods and validity of the clinical trials (Murphy et al. 2021). There are increasing numbers of conspiracy theories regarding COVID-19 vaccination (Gilroy 2019; Ahmed 2021). Social media has also increased the spread of false information in support of anti-vaccination (Wadman 2020). Healthcare worker's knowledge about the efficacy and safety of the vaccine is a key determinant on vaccine acceptance and promotion of the vaccine to others (Dubé et al. 2021). Education or improving communication on these factors may be more useful than mandating vaccination. Transparency is an important part of trust-building; if the government can maintain clear and transparent communication channel with healthcare workers, it will increase the acceptance of public health policies such as mandatory vaccination programmes (Cheung and Parent 2021; OECD 2021).

Limitations

The authors wish to acknowledge the limitation of this scoping review. The topic of ethics can be very broad and subject to biased philosophical interpretations and underpinnings. In this review, the focus was on the specific issue of mandatory vaccination in healthcare workers. However, the scope and diversity of healthcare workers around the world presents many confounders due to culture, language, ethnicity, philosophy and gender to name a few. The discussion generalises healthcare workers as a single entity that might fail to account for these complexities.

Additionally, the search strategy was limited to three databases. The chosen search string may have missed relevant literature due to synonyms, equivalent meaning words used in other countries and articles published in other languages. As the COVID-19 pandemic is constantly and rapidly evolving, articles published after the search date would not be included in the study.

Conclusions

There is a considered effort globally for introducing mandatory COVID-19 vaccination for healthcare workers. However, there is limited literature on the topic of ethical considerations associated with COVID-19 mandatory vaccination of healthcare workers, as a scoping review identified only 3 papers. The ethical considerations of

mandatory vaccination have been evaluated and their relevance discussed in terms of benefits, risks, effectiveness, equity, justice, autonomy, reciprocity and trust. This review may help provide some insights and guide further discussion and investigation regarding this multifaceted topic of mandatory vaccinations for healthcare workers.

Author Contribution The paper was conceptualised by TS and authors CL, TS and RR contributed to the literature search, writing and final version of the paper. All authors have read and approved the manuscript.

Declarations

Ethics Approval This is a review paper. The Western Sydney Local Heath District Research Ethics Committee has confirmed that no ethical approval was required.

Consent to Participate Not applicable.

Consent for Publication Not applicable.

Conflict of Interest The authors declare no competing interests.

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