Ethical implications of COVID-19: vulnerabilities in a global perspective

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The COVID-19 pandemic has highlighted a number of ethical issues that typically have not been addressed openly in public debate. The argument 'protect the vulnerable' has been a mantra to motivate all sorts of measures, many of them not scientifically motivated. In this article, the concept of 'vulnerability' is analyzed, and a model is suggested to distinguish layers of vulnerability that may or may not result in poor outcomes, depending on how many layers are present and how they interact. Ethical aspects also need to be considered at the global level, where the issue of vaccine distribution illustrates that stronger obligations and responsibilities need to be taken to fulfil wishes and declarations on the fair distribution of resources.

Introduction

The COVID-19 pandemic soared the publications on ethics. There were abundant topics to be discussed: allocation of intensive care (IC) beds; closing schools; digital tracing apps; use of technology; distribution of vaccines; triage; human challenge studies; quarantine; lockdown; vaccination passports; and so on and so forth. In a Viewpoint article in this journal,[1] we identified seven ethical principles as a practical framework for a COVID-19 ethical analysis. This framework was suggested to guide the public health community in finding a common ground for normative analysis and argumentation.[2] We identified the following core ethical principles that are generally acknowledged to give guidance in public health discussions[3]: Population health maximization, justice, autonomy, no harm principle, trustworthiness, solidarity and reciprocity, and protection of the vulnerable. Using these principles promotes a well-informed discussion about justifiable claims, and gives direction on how to act.[4]

During the COVID-19 pandemic, however, ethical deliberations were often not explicitly clarified in public health decisions, causing opaque decision-making processes. It was sometimes hard to find consistency in policies. This resulted in a loss of trust from certain communities in policies and government.[5–7] In many countries, lock-down policies were at best complicated, at worst incomprehensible. Many policies were issued with an appeal 'to protect our most vulnerable people'. This entices an intuitive reflex to act and tries to persuade people to show solidarity: 'we have to do this together'. It is interesting to see how this principle played a crucial role in policies. Therefore, in this contribution, the vulnerability concept will be further explored as exemplary for the ethical implications of COVID-19.

Vulnerability: a complex concept

The appeal to the principle of vulnerability took on a strong moral charge but failed to be used to its fullest extent. This can be explained as the result of at least three factors. First of all, the concept of vulnerability lacked conceptual clarity. Who is vulnerable and to what? Calling, for example, elderly people vulnerable, singled out an entire group and labelled them as vulnerable. Secondly, the notion of vulnerability seems to have been specifically used as a moral appeal to refrain from specific actions. 'Stay at home to protect the elderly'. Lacking are positive actions. Thirdly, this notion of vulnerability was applied within nations but seemed to play no role in the global context, even though COVID-19 has shown that whereas the entire world seemed to be vulnerable to the virus, some were more vulnerable than others.

The complex concept of vulnerability deserves further attention to understand more about the ethical challenges posed by the COVID-19 pandemic. It is a philosophically challenging principle as the pivotal questions are who is vulnerable, what vulnerabilities are relevant for further action and who is responsible to meet relevant vulnerabilities? A conceptual analysis of the concept is necessary to develop future public health policies.

Layers of vulnerability

The concept of vulnerability has indeed invited extensive discussion as it tends to label people. Groups are identified by a single characteristic not considering differences between those in the group. Children, for example, as a group are deemed vulnerable. This has sometimes resulted in excluding them from medical research. Children, however, are vulnerable to different aspects, depending on a variety of factors like having support from doctors and parents, living in a country where the healthcare system provides adequate alternatives for participating in trials, and receiving tailored information are only some of the elements that reduce the chance to be vulnerable.[8] The philosopher Florencia Luna has extensively argued that vulnerability can best be seen as about layers of vulnerability. The metaphor of layers refers to 'multiple and different strata (...) that may be acquired as well as removed, one by one.'[9] Not everybody in a group is equally vulnerable. A variety of elements can contribute to mitigating the vulnerability. Being an obese man of over fifty does not per se imply being vulnerable to COVID-19. However, living in poor housing circumstances and being hired under unacceptable working conditions, like for example European migrant workers in the Netherlands,[10] are layers that

can exacerbate the vulnerability to COVID-19. The proposed layered approach offers both a conceptually lucid approach and practically applicable tool for public health ethics.[11–14]

The layered approach provides insight into different aspects of vulnerability while considering individual differences and contextual aspects. Different levels or 'layers' that can cause vulnerability to a greater or lesser extent are identified. Some layers act separately, while others interact or trigger other layers. Whereas during the COVID-19 pandemic, being older was labelled as being vulnerable, Luna's approach shows how being older as such does not imply vulnerability. Area of residence, socio-economic status, underlying illnesses, access to health care, social support, etc., can all constitute layers of vulnerability. An older person diagnosed with Alzheimer's disease, living in a crowded residential care home in a less privileged area, with children having to travel a long way to visit him/her, experiences more layers of vulnerability than an older person with onset dementia in more advantageous situations. Age and illness are not the only aspects that constitute vulnerability, it is about different layers that might interact, add on, diminish or even have a cascade effect. The layers might be manageable when circumstances are such that sufficient and appropriate care and infrastructure is provided. These layers of vulnerability, however, might add on when, for example, COVID-19 forces people to live in isolation. The person with onset dementia, who lives in her own home and is cared for at home by her or his children, might be less vulnerable than the person living in a crowded care facility. Or, the person in the crowded care facility might be better off because s/he can continue interacting with people, being stimulated and active; while the person living at home being cared for by her children might be crushed between their duties to work from home, homeschool their own children and so forth. The concept of vulnerability that Luna proposes is contextual: one might no longer be vulnerable when a situation changes, for example when vaccines become available. The vulnerabilities cascade when they trigger a series of events lead to harm. For example, when one lives in a country that depends on the COVAX program (https://www.who.int/initiatives/act-accelerator/covax), is determined by the international will to cooperate in achieving equitable distribution of vaccines.

Practically, Luna suggests two steps: identification and evaluation. The first step involves the identification of layers: what are 'stimulus conditions', i.e. what makes layers manifest? And how and when do they 'cascade', i.e. interact to magnify the effect? Identifying stimulus conditions is important because they might be readily addressed and mitigated. Cascade effects are the most harmful because they generate new vulnerabilities. They trigger existing conditions for vulnerability into new vulnerabilities. For example, living in a cramped house with no means to avoid other people makes people vulnerable to COVID-19.[15] Or having no access to the food necessary to uphold the nutritional advice given during the COVID-19 pandemic (http://www.fao.org/fao-stories/article/en/c/1392499/). These cascades of layers make people living in these circumstances more vulnerable to the virus. The second step is about evaluating the vulnerabilities based on their harmfulness and application of obligations to the ranking of the vulnerabilities. This step is a necessary step towards implementation and policymaking.

Protection and obligations

The practical tool Luna offers, in the end, helps to achieve what Goodin sees as what the ultimate goal of using the vulnerability principle is: the protection of the interests of (groups of) people who are especially vulnerable or in some way dependent on the choices and actions of 'others'.[16] The practical tool forecloses a too generalized approach by not labelling groups, enables identification of what interests really need to be protected and recognizes and distinguishes obligations ensuing from this analysis (see table 1).

In this model, age, for example, is not the core vulnerability. It becomes a vulnerability when other cascading effects are triggered by

the stimulus condition, i.e. (chance of) exposure to COVID-19 (see table 2).

This table can be used to chart different vulnerabilities and see what obligations need to be met. Other indicators of vulnerability, e.g. stress, poverty, etc. will contribute to a more complex and nuanced analysis of what 'protection of the vulnerable' implies. It also reveals that in some countries, certain obligations can be met more easily than in others.

The analysis in table 2 thus moves far away from the too generalized and simple slogan: 'stay at home to protect the elderly'. It shows how vulnerability becomes active when specific elements are triggered. Most of them are in the public domain. The concurrent obligations need to be made operative in policies that go way beyond individual actions. They are, as will be explained in the next section, a matter of national and international policies.

Protecting the vulnerable: responsibilities in a global pandemic

In light of the obligation of equitable access to healthcare, one of the top priority issues on the agenda is how to come to equitable distribution of vaccines. 'Vaccine dumping' is unacceptable. It has been mentioned in the news that countries who have an excess of vaccines cannot, *due to legal and logistic reasons*, share them with poorer countries.[17] Consequently, these vaccines go to waste. However, moral outrage should not be directed at the inability of rich countries to share their leftovers but at their ability to secure an overabundance of vaccines for themselves. WHO's director-general Tedros Ghebreyesus made clear what the real issue is: 'Over 3.5 billion vaccines have been distributed globally, but more than 75% of those have gone to just 10 countries. Vaccine inequity is not only a moral failure, but it is also epidemiologically and economically self-defeating' (press conference 21 July 2021). In this case, living in a specific country can be a vulnerability. This is triggered by COVID-19 and cascades because of unfair purchasing policies.

Fair distribution in a pandemic: crucial values

On 3 September 2020, an international group of ethicists published an ethical framework for global vaccine allocation.[18] This framework is an answer to a general endorsement of an equitable distribution of COVID-19 vaccines without 'describing a framework or recommendations'. Theirs is an ethically defensible and practical proposal: the Fair Priority Model addressed to COVAX, vaccine producers, and national governments. They convincingly argue that limited national partiality might be acceptable, but unlimited national partiality is unacceptable. They identify three crucial values for a fair distribution: benefitting people and limiting harm; prioritizing the disadvantaged; and equal moral concern or non-discrimination. Guidance for fair distribution is given by the three-phase Fair Vaccine Distribution Model (see table 3).

The authors conclude the article 'the model offers governments, international organizations, and vaccine producers a practical way to fulfil their pledges to distribute vaccine fairly and equitably, and make their words a reality' (p. 1312). The joint EUPHA-WEMOS statement on sharing of patents, know-how and technology to maximize COVID-19 production,[19] Dr Ghebreyesus' quote and the policy brief issued by the People's Vaccine Alliance on 29 July 2021,[20] are, however, sad proof of words having remained promises. This, once more, shows how an ethical analysis must be complemented by a clear identification of who must fulfil what obligation.

Future research and implications for policy

This begs the question of how to proceed. Aristotle reminds us that justice not only is a virtue of character but also a virtue of constitutions and political arrangements. These two cannot be separated.

Table 1 Evaluation step[9]

PROCESS OF PRIORITIZATION (FROM MORE TO LESS HARMFUL)	OBLIGATIONS
Cascade Vulnerability	Avoid Exarcebating layers
very harmful	Eradicate layers
very probable	Minimize layers
How? Through their stimulus conditionS	Through different strategies: protections, safeguards, empowerment

Table 2 Evaluation step Age and COVID-19[a]

Vulnerability: older age Prioritization	Obligations
Cascade vulnerabilities: underlying medical condition; social circumstances, e.g. housing, access to healthy food, etc.; accessibility to vaccines	Minimize layers: ensure access to healthcare; ensure policies that promote social justice; ensure equitable access

a: All of these are very probable to have a cascading effect and can be very harmful when the stimulus condition 'exposure to COVID-19 virus' is present.

Table 3 Three phases of fair vaccine distribution (p. 1311)

Distribution phase	Primary aim	Metric to distribute vaccine doses	How the metric fulfills values	Prioritization
Reducing premature deaths	Reducing foreseeable premature deaths directly or indirectly caused by COVID-19	Standard expected years of life lost (SEYLL) averted by administering vaccine	Prevents substantial harms and gives priority to the worst-off by giving weight to premature deaths. Recognizes equal moral concern by valuing a life saved at a given age identically across countries	Priority to countries that would reduce more SEYLL per dose of vaccine
Reducing serious economic and social deprivations	Reducing serious economic, social and fatal and non-fatal health harms caused by COVID-19	SEYLL averted. Reduction in absolute poverty measured by poverty gap. Declines in gross national income (GNI) averted by administering vaccine	Prevents harm by recognizing a wide range of economic, social and health deficits. Gives priority to the worst-off by prioritizing people in poverty	Priority to countries that would reduce more poverty, avert more loss of GNI, and avert more SEYLL per dose of vaccine
Returning to full functioning	Ending community spread of COVID-19	Ranking of different countries' transmission rates	Prevents harm and gives priority to the worst-off by prioritizing countries with higher transmission rates	Priority to countries with higher transmission rates

On the one hand, individuals need to develop and nurture just characters. It is a lifelong exercise and challenge. On the other hand, constitutions and political arrangements must be just. Laws, rules and guidelines must be in place to ensure a just society, and political arrangements must be such that they ensure that benefits and burdens are distributed among members of society in such a way that is fair and just. Fair is giving each person what he or she deserves and treating equals equally unless they differ in ways that are relevant to the situation in which they are involved. Just is about identifying the general moral rules and standards of rightness applicable to making differences.

The short analysis of identification of vulnerabilities presented here reveals that many of the layers of vulnerability are not uniquely linked to COVID-19. The virus had a cascade effect on layers of vulnerability that have been identified time and again in public health research. The people most affected by the pandemic are the people that have a multitude of layers of vulnerability. In the context of public health, I would suggest that table 2 needs to be complemented with a third column: who is responsible for meeting the obligations.

Public health professionals cannot shy away from this task. They must present the ethical analysis of their research and work. Explicitly clarifying how it contributes to justice would be such a practice. It would send a message to policymakers and industries.

It is a competence that should be firmly embedded in the curricula of future public health professionals and part of ongoing education.

An example is the volume of articles that Colin Flood et al. produced in June 2020.[21] This collection addressed how vulnerable people and systems are when a virus hits hard. This Canadian book, written and published in 8 weeks, was a real tour of the force. It was primarily grounded in law delineating responsibilities, accountability, rights, distribution of wealth and health. The volume documented 'the vulnerabilities and interconnectedness made visible by the pandemic and the legal, ethical, and policy responses to it' (p. 1). The theme addressed in this book and its emphasis on the interconnectedness of law, ethics and policies set a standard.

As a European Public Health community, ongoing research into how vulnerabilities are pervasive not only on a national and European level but also on a global level is necessary.

Preparedness for future pandemics calls for timely identification of vulnerabilities and obligations resulting in a clear outline of obligations. These obligations need to be firmly rooted in legal frameworks. In the end, the public health community from its onset was, is and should remain committed to contributing to just societies, not only in times of pandemics.

Conflicts of interest

None declared.

Additional Content

A video to accompany this paper is available at https://youtube.com/playlist?list=PLv5eq4ZCoNWubJurAJ-7Ht33cjNshLw7R.

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