Ethics of Selective Restriction of Liberty in a Pandemic[1]

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Liberty-restricting measures are basic measures in combatting any pandemic. But whose liberty should be restricted? One standard response in public health ethics is to appeal to the "least restrictive alternative" necessary to achieve a public health goal. The problem is that in practice, greater restriction of liberty can lead to greater control of the pandemic and save more lives, though with increasing burdens to others. Liberty restriction is thus a question of the distribution of benefits and burdens in a population, a question of distributive justice. In this chapter, I argue that in some pandemics, such as COVID-19, it may be a more proportionate restriction of liberty to restrict the liberty of certain groups, rather than the population as a whole. Two arguments were given in the COVID-19 pandemic for liberty restriction: (1) protection of the vulnerable; (2) protection of the health service. These are, however, more fundamentally issues about distributive justice. I explore how several approaches to distributive justice can support the differential restriction of liberty. In addition, I argue that the commonly accepted justification for liberty restrictions (that liberty restrictions may be justified to prevent direct harm to others) - can be overly simplistic, as illustrated by the COVID-19 pandemic. I argue that where risk groups (such as the elderly in the COVID-19 pandemic) are more likely to utilise limited health resources, they pose an indirect threat to others during the pandemic that warrants coercion. I argue there should be a side-constraint on justice of non-maleficence. This requires that there is a limit to harm which can be imposed on individuals for others, best captured by a collective duty of easy rescue. For groups such as the young, vaccination or lockdown may not constitute an "easy rescue" of those at greatest risk. I address the issue of whether selective restriction of liberty constitutes unjust discrimination and I propose an algorithm for making decisions about selective restriction of liberty.

Introduction

Restriction of liberty or coercion is an essential response in any pandemic. Measures such as quarantine have been utilized for centuries to prevent the spread of disease.(Kass 2001) Other measures include: lockdown, mandatory use of health protection measures such as masks, prophylactic treatment, treatment upon exposure, and vaccination. Throughout the COVID-19 pandemic, it was usually applied at a population level. For example, in the UK lockdown applied to everyone equally. There are some exceptions in other countries. Sweden did not close lower secondary and primary schools. (Pashakhanlou 2021) Austria and some regions of Russia (2021) applied selective mandatory vaccination to the elderly. Italy and Greece introduced fines for those over 50 and 60 resepectively who were not vaccinated (Joly 2021; Amante, Fonte, and Jones 2022). Another example is Turkey which selectively locked down 65+ for an extended period to allow younger and working population to go out (although they also locked them down on weekends). (Koca-Atabey 2021)

Whilst liberty restriction was generally applied to the population, what was striking about the COVID pandemic was the age stratification of its direct health burdens. It was the elderly who were most at risk of dying from COVID-19, particularly those over the age of 65. (Verity et al. 2020) There were other groups who faced higher risks including males, the obese, those with co-morbidities, some ethnic minorities and people with particular disabilities. (Williamson et al. 2020) For the purposes of simplicity, I will focus mainly on the aged, though at the end of this chapter I will address the implications for other at-risk groups.

Should those at low risk be subjected to the same liberty restrictions as those at higher risk?

The usual basis for the use of coercion in a pandemic is to prevent transmission. With colleagues, I used the example of a child taking a bottle of toxic bleach to school. The bleach can be taken away from the child not merely because it is a threat to the child but because it is a threat to others. (Bambery et al. 2013)

In the COVID-19 pandemic, population-level liberty restriction was said to be justified because everyone was assumed to capable of transmitting the virus and posing a threat, and everyone was seen to be at some risk. "We are all in this together" was a slogan frequently used to describe this situation. However, I will argue that there are reasons to doubt whether this analogy applies to all groups in a pandemic. As the example of driving shows, we can pose a lethal threat to others provided the threat is reasonable, including that it is proportionate to the individual and collective benefit.

In this chapter I will consider the philosophical arguments for selective restriction of liberty. I will not consider in detail whether the facts justified such selective restrictions of liberty in the COVID-19 pandemic, though I will cite some suggestive evidence. I will not consider public opinion, though this should play some role in formulation of policy. (Savulescu, Gyngell, and Kahane 2021)

The Harm Principle and Liberty Restriction

John Stuart Mill argued the sole ground for interference in liberty is to prevent harm to others and that harm to self is never a sufficient ground. (Mill 1859) This recognises that people should be free to make their own decisions, including to identify and weigh risks to their own health. The challenge of infectious diseases is that people are not just the victims, they are also the vectors, and so their infection poses a risk of harm to others. (Mill 1859) This challenge is amplified in a pandemic, as people pose a risk to others through the potential spread of the disease and by contributing to overwhelming the healthcare system if they become ill.[1]

During the COVID-19 pandemic, a number of liberty-restricting measures were justified on the basis that they would limit the spread of the disease and so prevent the health system from being overwhelmed.[2] Various

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1 See, for example, (Ives 2020; Di Blasi 2020)

coercive measures were adopted, including quarantine, isolation, lockdown, and surveillance. (Selgelid 2009) Under this framing, the extent to which liberty-restricting measures are justified depends on the level of risk and potential severity of the harm to others. (Selgelid 2009)

The problem with this principle is that it does not address the level of liberty restriction which is justified to prevent harm or reduce risk. This could be defined in several ways by appealing to the impact on individuals' or groups' rights or the harms to them. In this chapter, I will explore the perspective of non-maleficence as a side constraint on justice.

Others have noted the problem of quantifying a just liberty restriction. As Verweij identifies, this creates the challenge of delineating between reasonable steps and 'excessive precautions'. (Verweij 2005) One popular approach in public health ethics has been the "least restrictive alternative". (Bioethics 2007; Viens, Bensimon, and Upshur 2009) This states that for a given public health goal, we should adopt the measure which least restricts liberty to achieve that goal.[3] The problem with this is that in many cases, greater liberty restrictions will achieve greater benefits. For example, no social contact with friends a family will save more lives than limited contact. So which policy is justified? If the goal is to prevent deaths in a pandemic, ever increasing liberty restrictions might seem justified and a slippery slope ensues.

Childress et al propose five 'justificatory conditions' to proceed with coercive public health measures: effectiveness, proportionality, necessity, least infringement, and public justification.[26] Each of these conditions involves value judgements.

I have elsewhere created and defended an algorithm for when mandatory vaccination is justified, similar to Childress et al's conditions. This involves evaluating:

1. Gravity of public health emergency
2. Safety and effectiveness of vaccine
3. Comparative expected utility compared to less coercive policies
4. Proportionality of cost associated with refusal to comply with the mandate in relation to 1-3

In the paper and elsewhere, (Giubilini, Savulescu, and Danchin 2022) I consider whether these 4 conditions are satisfied by COVID vaccinations. In that paper, I described the range of liberty restrictions from withholding of benefits, fines, to outright imprisonment. I also described the range of measures that can be employed other than liberty restriction to contain contagion.

For the purposes of this chapter, it is important to merely point out that this algorithm is typically only applied at a population level. Governments ask: is the cost of coercion justifiable given the safety and effectiveness of the intervention compared to other alternatives, at a population level?

But given the age stratification of COVID, the vaccines had a favourable risk-benefit profile for one group (the old), but a less favourable profile for another (the young). It was ethically easier to justify a mandatory policy of vaccination for the elderly than it was for children or infants. The elderly clearly benefitted from vaccination (and its net expected cost was lower) compared to children who benefitted little, if any. For children, the risks and costs of coercion loomed large.

It might be objected that while the direct risk posed by COVID to children was low, there were risks to their wellbeing from an ongoing epidemic (through impact on education, parents' health & income, etc.). If vaccinating all of them reduced these risks to them then it may be to their advantage that all of them are

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2 See, for example, (News 2020)

3 For example, Upshur suggests four principle for justifying public health interventions: the harm principle, the least restrictive means principle, the reciprocity principle and the transparency principle. (Upshur 2002)

vaccinated. I will later argue that "preserve the health system" argument, of which this is a variant, likely failed because it could have been preserved through less restrictive means. In the case of children, the harm of closure of schools was also the result of a decision to close schools, a decision which not every country made – Sweden kept open primary schools.

So it is possible that, if one took an individual or group-specific approach (groups can also be proxies for individuals), mandatory vaccination could have been justified for some individuals or groups, but not others, as some countries like Italy and Greece recognised. If one takes a more individualised or group-oriented approach rather than population level approach, we should then ask – how much does one group owe another? In a pandemic, we are sometimes addressing the issue of how much expected disutility or harm is the government entitled to cause to one group to benefit or prevent harm to another group.

Easy Rescue Consequentialism[2]

Another way to approach the question of coercive measures is to ask: how much should governments require their citizens to sacrifice for each other? Or how much should one group be required to sacrifice to benefit a different group? How much harm can the State cause to an individual to benefit another?

According to utilitarianism, very large sacrifices are required. Indeed, provided the utility to another or others is greater than the sacrifice to an individual, that individual ought to make that sacrifice. Thus, if one can eliminate an elderly person's risk of dying of 15% by taking on a 10% chance of dying, one should take the risk. Indeed, a young person should take on a 10% chance of dying even if she only reduced the chance of a group of elderly people dying by 1% provided that group was larger than 1000, according to utilitarianism (assuming they would both live as long, though the numbers can be adjusted to yield the same conclusion if they have different life expectancies).

One familiar objection to utilitarianism is that it is too demanding (Wolf 1982). The classic instantiation of this the Survival Lottery (Harris 1975). In the survival lottery, the government randomly picks a healthy individual and kills that individual for their organs. Those organs could save the lives of up to 8 individuals. This could be justified on either utilitarian or contractualist grounds (Savulescu 2002). Here is a cartoon of a Pandemic version of the Survival Lottery. (Fig 2. Dylan Matthews, The Washington Post) ((Savulescu 2013)

Even though this sacrifice might be justified on contractualist or utilitarian grounds, there is limit to the costs government should be allowed to impose on individuals to benefit others. This can be called a constraint of non-maleficence which places an upper limit of expected harm on an individual.

Note this constraint of non-maleficence should apply whatever theory of justice is employed to distribute benefits and burdens. For example, prioritarianism requires giving priority to the worst off. That is, benefits matter more when they accrue to those who are worse off. However, liberty restriction in a pandemic has winners and losers, it provides benefits and imposes burdens. According to prioritarianism, it could be justifiable to impose large burdens on the well off for small benefits to the worst off. Non-maleficence will impose some limit on how much harm can be caused to individuals to bring about the just (or best) outcome.

How great should that limit be? Easy rescue consequentialism provides a plausible answer.

According to easy rescue consequentialism, when I could do something that entails a very small cost to me, and a significant benefit to others, I have a moral obligation to do it. Peter Singer provided the most famous characterization of the duty of easy rescue in his article *Famine, affluence, and morality*, through the well-known example of a child drowning in a pond. According to Singer,

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2 Parts of this section on Consequentialism are developed from Giubilini, Douglas and Savulescu 2018)
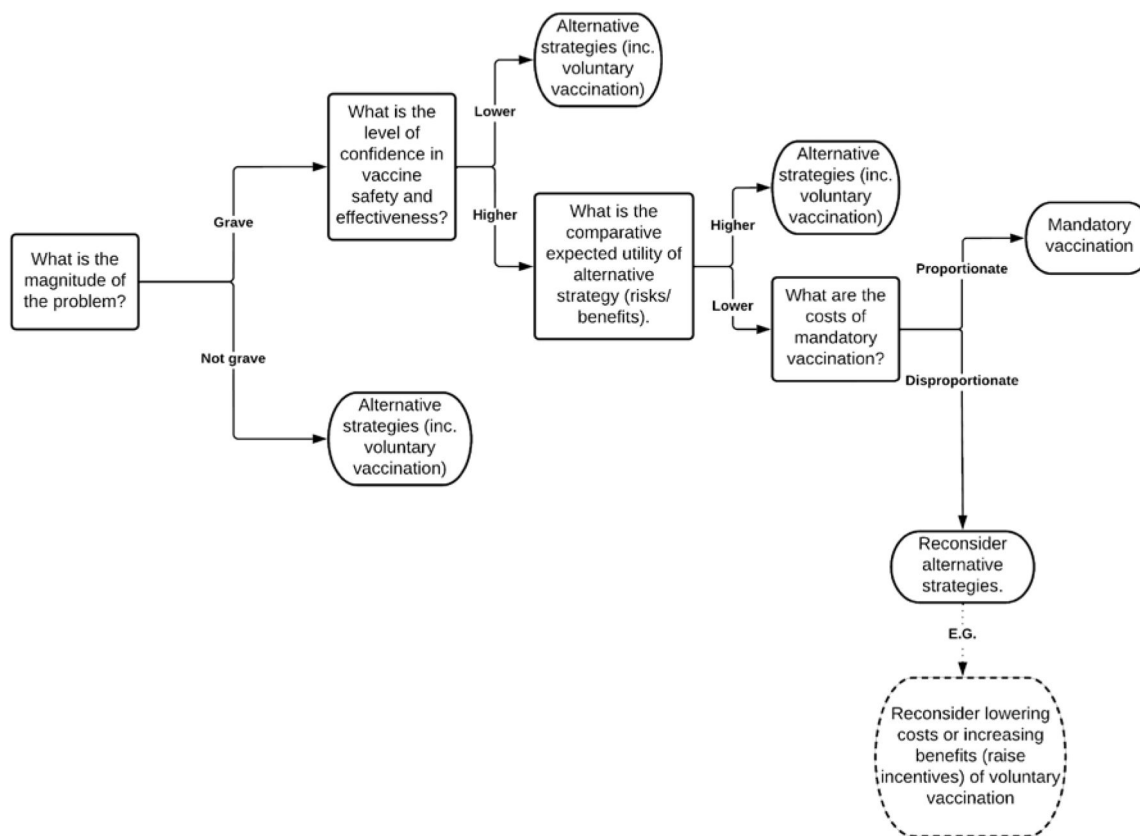
Figure 1. (Savulescu 2021)

"if I am walking past a shallow pond and see a child drowning in it, I ought to wade in and pull the child out. This will mean getting my clothes muddy, but this is insignificant, while the death of the child would presumably be a very bad thing" (Singer 1972, p. 231).

A formulation of the duty of easy rescue has been provided by Scanlon, according to whom, "[i]f we can prevent something very bad from happening to someone by making a slight or even moderate sacrifice, it would be wrong not to do so" (Scanlon 1998, p. 224).

In *Reasons and Persons*, Derek Parfit extends a principle for attribution of individual moral obligations to contribute to collective effects. Parfit asks us to consider the following collective example:

"a large number of wounded men lie out in the desert, suffering from intense thirst. We are an equally large number of altruists, each of whom has a pint of water. We could pour these pints into a water-cart. This would be driven into the desert, and our water would be shared equally between all these many wounded men. By adding his pint, each of us would enable each wounded man to drink slightly more water - perhaps only an extra drop. Even to a very thirsty man, each of these extra drops would be a very small benefit. The effect on each man might even be imperceptible" (Parfit 1984, p. 76).

The principle illustrated in this example is the following:

When (1) the best outcome would be the one in which people are benefited most, and (2) each of the members of some group could act in a certain way, and (3) they would benefit people if *enough* of them act in this way, and (4) they would benefit people *most* if they *all* act in this way, and (5) each of them both knows these facts and believes that enough of them will act in this way, then (6) each of them ought to act in this way (Parfit 1984, p. 77).

We might call this the principle of "Group Beneficence" (Otsuka 1991). According to this principle, each individual member of the collective has a moral obligation to make her contribution to enable the desirable collective effect. But what is absent is this specification of group beneficence is the cost that should be exacted from one individual to benefit the group.

A duty of easy rescue can take a similar collective form which specifies the limits of the cost. I have formalised the collective form of the duty as follows:

"If a group of people (X1…Xn) could all perform some act, V, which would collectively provide a large benefit to Y, then this group (X1 … Xn) ought to V, provided that the cost to each of them of V-ing is small" (Savulescu 2016, p. 331).

I call this a duty of "collective easy rescue". While these arguments describe moral obligations, it is plausible that if a government is morally justified in imposing harms on individuals for the benefit of others, it is most justified in imposing those harms when conform to a duty of easy rescue.

We saw an example of the duty of easy rescue in Parfit's example of the relief of dehydration by those who have plenty of water. The cost to them is small. Vaccination is an example of an action that typically entails at most a small cost to individuals and can significantly benefit others. Vaccines are typically safe and effective, the risks of side-effects or iatrogenic diseases is small, and there are typically also significant benefits for the vaccinated individual (Andre et al 2008). Accordingly, being vaccinated is typically comparable to getting one's clothes muddy in Singer's example (or perhaps, one could argue, even less costly), or giving a pint of water in Parfit's example.

Now one difference between Parfit's example and a pandemic is that harms and benefits are certain in Parfit's example, while a pandemic involves risk and uncertainty. Thus in the case of a pandemic we should consider the *expected* utility or disutility, which is the probability of an outcome multiplied by the value. So where I write harm and benefit in connection with a pandemic, that should strictly be expected utility and expected disutility.

Another difference between Parfit's example and a pandemic is Parfit's example involves benefitting whereas in a pandemic we are concerned with one individual not harming another. Of course, for consequentialists, failing to benefit is equivalent to harming. But even for non-consequentialists, the issue is what level of harm or expected disutility can be imposed on one individual to reduce the very small or negligible risk of that individual harming another. The issue of collective rescue becomes, in a pandemic, the issue of collective "not harming".

One difficulty with the collective duty of easy rescue (or not harming) is that it implies that members of the collective X1…Xn could have a duty to V even if their own V-ing would be irrelevant to the production of the benefit to Y because it would be sufficient to produce the benefit that some subset of X1…Xn perform V. Of course, as an individual or group represents a higher risk to others, there is more justification for greater infringement of their liberty (for this reason, those who returned from high risk areas were subjected to quarantine).

However, in the case we are discussing of the COVID pandemic, we should find the smallest group or the group defined by conditions of fairness, such that it is sufficient to provide the benefit (or prevent the harm to a significant enough degree). In Parfit's case, there is just a group of 1000 donors. If there had been 10 000, but 9000 had 2 pints of water, and 1000 had 5 pints, arguably the donation of a pint each should come from those with 5 pints.

I will now argue that the elderly are, in one way, like those with 5 pints of water and the young are like those with 2 pints. While vaccination is an easy rescue for the elderly, it may not be an easy rescue for the young.

Epidemic

A highly contagious virus has emerged and is spreading quickly throughout the land. These six people contract it:
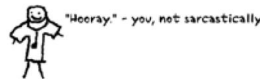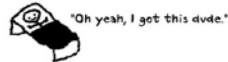
You're the doctor who has to treat them.

"Hooray." – you, sarcastically
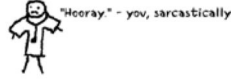
If you do nothing, then five of the six people die.

But there's a cure!

"Hooray." – you, not sarcastically

One of the six has a great immune system and can beat the thing.

"Oh yeah, I got this dude."

So you can kill him...

"Wait what."

And put his blood in the other five patients.

They would survive. Instead of one living and five dying, five live and one dies.

So, you have two options.

Option One, "Inaction," looks like this:

Option Two, "Extraction," looks like this:

Which option do you choose?

Figure 2. Dylan Matthews, The Washington Post

Applying Easy Rescue Consequentialism to the Pandemic

An easy rescue consequentialist approach is preferable to the harm principle because it enables a balancing exercise at a population level that aligns more closely with the aims of public health. Public health aims to protect and promote the health of the population. (Selgelid 2009) Public health measures are not simply aimed at

ensuring people do not harm others and achieving this in the least restrictive manner. An ethical framework is needed that defines the circumstances in which it would be appropriate to pursue population-wide benefits in light of the costs of doing so. This may be achieved by first considering the consequences of a measure at the population level and then considering the costs to relevant individuals of achieving these benefits. It is necessary to assess the net utility of a measure across the population and the cost to individuals separately because although the individual may be part of the population, imposing measures on particular individuals may result in disproportionate costs to those individuals As the Black Lives Matter movement shows, we should consider the costs and benefits to groups, and ultimately individuals. Public health ethics frequently adopts a utilitarian approach which can be insensitive to the impact on individuals.

Population level consequentialist assessment

Rather than simply assessing whether there is a sufficient risk of harm to warrant liberty-restricting measures, it is necessary to consider the total utility of the population of a measure and whether the net utility is greater than other available options. Three factors are relevant to this assessment:

- The gravity of the threat to public interest;
- The expected health gains of the measure compared to other measures;
- The extent to which the expected health gains outweighs the restriction of liberty.

At a population level, a measure will be justified if the comparative expected health gain justifies the restriction of liberty. For example, requiring everyone to wear masks might be a reasonable restriction for everyone, even if some are unlikely to become ill or pass on the virus. Such an intervention has the potential to reduce disease burden and is a small liberty restriction. It is like requiring motor cyclists to wear helmets.

Individual costs

Utility at a population level cannot always be given priority. (Selgelid 2005) A key objection to a utilitarian approach is the risk that it will result in utilitarian calculations in which people's liberty and well-being will be sacrificed whenever this would result in a net overall benefit to society.[13]. This may mean that particular groups of individuals can be forced to make significant sacrifices in order to achieve marginal social gains or that the burdens of achieving public health aims may continually fall on the same group. This would be unfair. This issue may be overcome by considering the outcomes at an individual level both in terms of well-being and liberty to an individual compared to the benefits to others.

As I have argued, 'If the cost (including foreseeable risk of significant disability or death) to someone of performing an action X (or of refraining from performing an action Y) is sufficiently small to be reasonably bearable, and the resulting benefit to other people (or harm that is prevented) is large relative to the cost, then the agent ought to do X (or not do Y)'. (Giubilini et al. 2018) This is a case of 'easy rescue' and this provides a stronger basis for state intervention to compel the person to do perform some action, such as getting vaccinated. (Giubilini, Douglas, and Savulescu 2018)

For example, one modelling exercise conducted by our group in 2020 prior to the introduction of vaccines suggested that restricting the liberty of those over the age of 50 (while allowing free mixing under the age of 50) would have saved over 400,000 lives in the UK compared to the unmitigated scenario at the height of the pandemic.[1] This would not have saved as many lives as the blanket lockdown of all age groups, the model suggested, but it would have kept mortality at a level experienced at the peak of the pandemic in April and have prevented the collapse of health systems.[3] For an individual over the age of 50, this benefit is achieved at the cost of their liberty. But the liberty restriction also benefits them by preventing their exposure to a disease that poses

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3 Of course, households mix and care workers have families. The extent to which a selective policy could effectively shield the vulnerable is an open and vexed empirical question.

a particular risk to them. Importantly, this age group is also the most vulnerable to COVID-19 and so the benefit to them is significant. Arguably, it is a net overall benefit to them compared to a policy of no liberty restriction for the over 50s.

At an individual level, whilst the cost of the liberty restriction may be great, this must be weighed against the personal benefit of avoiding the disease. There may even still be a net expected cost to the individual, but this may be outweighed by the benefit to others and reasonable if the net cost is small. For people over the age of 50, this may be a net benefit or at least a case of 'easy rescue', in which the overall cost to the individual of saving others is relatively small, compared to the benefit to others.(Giubilini, Douglas, and Savulescu 2018)

At an individual level, the weighing of costs and benefits for those under the age of 50 is different. This is because imposing liberty restrictions on people under the age of 50 will not directly benefit them in the same way because COVID-19 does not pose the same risk to them. Despite this reduced personal benefit, those under the age of 50 would still incur the same costs from liberty restrictions as well as costs to their well-being in other ways. For example, the closure of schools during the COVID-19 pandemic significantly harmed children and substantially impacted their development.(Christakis, Van Cleve, and Zimmerman 2020). One analysis of the UK's lockdown using the QALY method found that it was likely to have a cost-benefit ratio significantly outside the NHS' standard range (Miles, Stedman, and Heald 2021). As there are fewer benefits for someone under the age of 50 in being isolated, the relative cost of liberty restrictions may outweigh the potential benefits to others. For those under 50, liberty restrictions may be a more difficult rescue.

Considering the costs and benefits of a measure at both a population and individual level ensures that individuals are not forced to bear disproportionately high costs either in terms of liberty or well-being to achieve marginal social gains and, ideally, benefit from them. It satisfies a constraint of nonmaleficence. An easy rescue consequentialist approach may have supported age selective liberty restrictions in the COVID-19 pandemic. There are of course challenges in identifying relevant costs and benefits and making generalisations across the community about the value of different costs and benefits to individuals.(John 2020) For example, the cost of liberty restrictions may vary significantly across individuals, including among people of the same age. But this challenge also arises under the application of the harm principle and least restrictive model. In the assessment of the impact of any policy across a population it is necessary to make generalisations.

One objection is that liberty restriction of those under 50 nonetheless benefits most people because COVID-19 still represents a lethal risk. One could argue that the young giving up certain freedoms still constitutes an easy rescue. This objection ignores other non-COVID-19 related costs to a person's wellbeing from liberty restrictions.

If COVID-19 did not affect those over the age of 50 at all, but affected those under the age of 50 in the same way, we would not think liberty restrictions were justified in the under 50s. So those liberty restrictions are for the benefit, in the actual case, for those over 50.

Another common objection to selective restriction of liberty is that more utility will be generated by general restriction of liberty (Nix 2022). More lives would be saved by a general lockdown or mandatory vaccination of all in COVID-19. This may well be true. But we should ask whether the additional restriction of liberty represents a case of easy rescue for those adversely affected by it. If the harm to younger people is more than minimal, it may be a difficult rescue.

They key issue is whether moving from a selective liberty restriction to a general restriction of liberty generates enough expected utility to the vulnerable group to justify the costs to the less vulnerable group. According to easy rescue consequentialism, the government can only impose expected harm on the less vulnerable if it were an instance of easy rescue. (Of course, utilitarians would impose costs on the less vulnerable as long as they were even slightly less than the costs to the more vulnerable.) In the case of COVID-19, it is arguable that targeted measures were sufficient to reduce deaths without a generalised liberty restriction, as the experience of Sweden

showed: whilst their nearest neighbours achieved slightly better results through more restrictive measures, the benefits were relatively minor (see Fig 3).

Resource Use and Indirect Harm

I will now consider a second argument in favour of selective restriction of liberty in the case of the COVID-19 pandemic.

'Lockdown was the only way to stop the NHS being broken' - The Times Weekend Essay

Comment piece from the Chancellor of the Duchy of Lancaster, originally published in the Times on Saturday 28 November 2020." (Lancaster 2020)

"The single most important action we can all take, in fighting coronavirus, is to stay at home in order to protect the NHS and save lives." (2020)

The commonest justification for general lockdown was that it was necessary to "flatten the curve" to prevent overwhelming health services such as the NHS. This was captured in the UK government slogan, "Stay Home, Save the NHS, Save Lives" which was repeated over and over during the height of the pandemic.

The traditional justification for coercion and liberty restriction is to prevent transmission to others. This is the harm to others justification. However, at the time of John Stuart Mill, there was no national health service or social welfare state. But with the advent of health care, particular public health care, pandemics cause a second kind of harm, indirect harm. Those who fall ill use limited health care resources and put pressure on health systems.

The stratification of risk in the COVID pandemic means that different groups are likely to put different pressures on the health system. It was primarily the elderly, not children, putting the NHS at risk. Of course, if the health system is overwhelmed, everyone is at risk.

Thus the probability of falling ill represents a second kind of harm during a pandemic: it indirectly threatens the health of other people (both the vulnerability to COVID and all other diseases) by consuming limited health resources and threatening the health system.

It is to prevent this harm that coercion could also be justified. But this would only justify coercion of those groups which are likely to put pressure on the health system. In the case of COVID, the group most likely to put pressure on the health system was the elderly. This could justify a selective lockdown or vaccination policy applied only to the elderly (or to other at risk groups).(Savulescu and Cameron 2020)

Now one immediate objection would be that this argument could apply to using coercion whenever someone is more liable through their behaviour to use health resources. It might be thought that people could be forced to give up smoking, drinking, skiing, over-eating, taking drugs, being sedentary etc. However, we all contribute to the health system in order, partly, to pursue risky lifestyles. And moreover, life involves taking risks. Climbing a mountain or discovering a new habitat involve risks. The difference is that a pandemic represents an extreme and unusual emergency for which the health system is not set up. We as citizens do not contribute sufficient resources to keep a health system running while allowing significant liberty during a pandemic. Thus, as an exception, to keep the system running, we should be able to appeal to indirect harm as a basis for coercion.

It might be objected that we should simply devote more resources to the health system and stop it being overrun. However, there are a number of responses. Firstly, it may not be possible to quickly improve the health system to a sufficient degree. The UK built a number of "Nightingale hospitals" but these failed partly because there were insufficient staff to service them (Marsh and Campbell 2020).
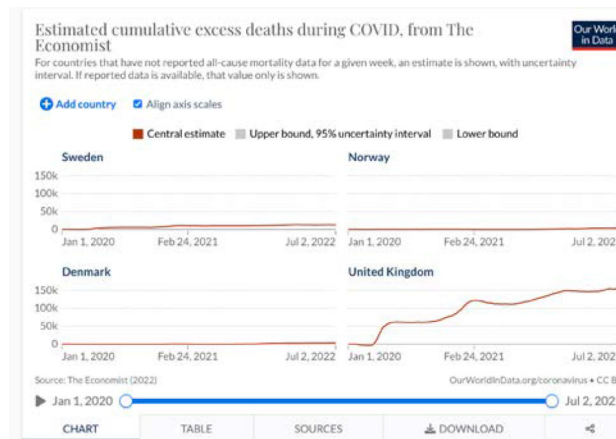
Figure 3. Cumulative excess deaths during the pandemic, Our World in Data

Secondly, resources are limited. Even they are increased to health, they must be taken from other areas, which will then cause other harms. And at some point, no matter how much is thrown at the problem, a limit will sometimes be reached whereby difficult triage or priority decisions must be made.

Thus rather than focusing on preventing harm to others through reducing transmission, a consequentialist approach also recognises it is possible to limit the harm caused by the disease by focusing on the victim. An individual has limited control over whom they infect, but public health measures may limit the extent to which those most at risk are exposed to the disease. This was called "shielding" the elderly.

Moreover, in COVID-19, the vaccines developed were comparatively better at reducing serious illness than preventing transmission. Current estimates are that they reduce mortality by about 90 %, which remains high over time, and but that their ability to prevent infection (symptomatic or asymptomatic) wanes sharply, to a lower range estimate of as little as zero by 6 months after booster (Agency 2022). When it comes to transmission, one recent study found that "[t]he SARs [secondary attack rates] in household contacts exposed to the delta variant was 25% in vaccinated and 38% in unvaccinated contacts." Moreover, the same study found "SAR among household contacts exposed to fully vaccinated index cases (25%; 95% CI 15-35) was similar to household contacts exposed to unvaccinated index cases (23%; 15-31)." (Wilder-Smith 2022)

It might be objected that we should give weight to restricting the liberty of those who cause harm rather than their victims. We should put potential victims of murder in lockdown rather than murderers, even if the **second** route was less costly and more successful in stopping harm.[4]

I have discussed on constraint – non-maleficence – on the pursuit of utilitarian or other justice based public health policies. There may be other constraints, such as human rights, which provide other important considerations.

Consistency: Compare with Children

Imagine that a future pandemic had the reverse mortality across age groups: young children who contracted Disease X would have a 15% chance of dying and the elderly would have a negligible chance. Society would not hesitate to remove children from school and social interactions and shield them as being vulnerable.

Children cannot consent whereas the elderly can. But we are discussing non-consenusal liberty restriction or coercion. So the autonomy or consent of a group is largely irrelevant.

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4 Thanks to Frances Kamm for this objection.

In the childhood version of Disease X, should society impose a blanket lockdown? It is not immediately obvious that it should – it would depend on whether children could be sufficiently shielded without a blanket lockdown. The default should not be to restrict everyone because of the catastrophic social, economic and non-pandemic medical effects of general lockdown, as several pandemic plans constructed before the COVID-19 pandemic predicted, including by the WHO (Programme 2019). Yet in the COVID pandemic, such selective restriction of liberty was barely countenanced and when implemented by Sweden, roundly pilloried.

Generally society adopts a targeted and selective approach towards vaccination. For example, children are vaccinated against meningitis but the elderly are not. This is because children and young people most frequently contract meningitis, and sufficient protection can be obtained by Now older people occasionally develop meningitis and can be a vector. Vaccination of everyone would reduce total deaths. But the incremental benefit is not worth the cost. So a selective approach is adopted.

Objections

1. Discrimination and the value of equality

If these arguments are correct, selective liberty restrictions may be imposed to reduce the disease burden. This leaves the question of whether it would be acceptable to restrict the liberty of a group of people on the basis of particular characteristics in order to reduce the disease burden? For example, age selective restriction of liberty could be said to be ageist.

The extent to which discrimination is acceptable is identified as a separate consideration because, as Childress et al identify, moral concerns that justify public health goals, such as producing benefits and preventing harms may conflict with other moral concerns, such as equality.(Childress et al. 2002) Equality has value because it demonstrates respect for a person as a distinct individual. Hellman argues discrimination is wrong when and because it demeans the person affected. (Hellman 2011) This is because it reduces them to merely being the particular characteristic that was the ground for discrimination.

While consequentialists such as utilitarians do value equality as equal consideration of interests, selective restriction of liberty may appear to violate Aristotle's principle of equality to treat like cases alike, unless there is a morally relevant difference. Failing to treat like cases alike constitutes unjust discrimination.

2. Relevant differences

However, there _can_ be relevant differences that a selective liberty restriction policy. During the pandemic, people returning from high risk areas were routinely been required to quarantine on the basis of being at higher risk of infecting others. This is not discrimination against these people because the feature – return from a high risk area – tracks a relevant feature associated with elevated risk of carrying COVID-19.

In a similar way, those who are at higher risk of becoming ill and placing pressure on the health system could be required to "shield" or selectively lockdown. If the aim of a measure is to reduce disease burden, it may be acceptable to differentiate between people based on their risk as a relevant criterion. In the case of COVID-19, there was a clear correlation between age and risk of death. The risk of a 20-24-year-old dying as a result of an episode of infection with SARS-CoV-2 was estimated to be 4/100,000 or 0.004%; (O'Driscoll et al. 2021) lower than the yearly risk of dying in a car accident in the United States. (Levin et al. 2020) Considered in isolation, this risk does not warrant liberty-restricting measures. But the risk of a person over the age of 85 dying was estimated at 7%.(Levin et al. 2020) This is a significant risk of death that may warrant liberty-restricting measures. What the age-based mitigation strategy highlights is that it is not necessary to impose the same restrictions on the whole population in order to avoid this risk. Instead, measures may focus on preventing those

most at risk from contracting the virus. This would mean restricting the liberty of those who face a 7% risk of death, but not those who face a 0.004% risk.

Restricting everyone's liberty to avoid the same risk is levelling down equality.(Savulescu and Cameron 2020) People at significant risk of death from a pandemic disease are likely to need to submit to liberty restrictions in order to avoid this risk, but this does not necessarily mean everyone should be subjected to the same liberty restrictions. It is common for governments to impose liberty-restricting measures on particularly vulnerable groups for paternalistic reasons but it is also preventing harm to others through use of limited hospital resources.

But implementing such measures every time a particular group was identified as posing a risk to others would significantly undermine equality. The issue is when such discrimination is justified.

As I have pointed out, the annual risk of dying in a car accident for someone under 30 is about the same as dying of an episode of COVID-19.(Schaefer et al. 2020) Now the risk of other groups dying in car accidents is much higher: those who are drunk, abusing drugs, have epilepsy or other underlying medical conditions, and the elderly. However the response is not to ban all driving of cars because some groups have a higher chance of dying or being injured in a car accident. The response is to ban those at a *sufficiently* higher risk.

There is one obvious disanalogy between driving and COVID-19. In the case of driving, those at higher risk are both a higher risk to themselves and to others. This is not the case for most of the lower risk age groups in relation to COVID-19 – they are not at a significantly higher risk of harming themselves, but do put others at higher risk. On this basis, everyone's liberty should be restricted because everyone is at an elevated risk of harming others.

This is an important point, but there is a relevant response. In both COVID-19 and driving, there are two kinds of harm that may be caused. The first is the direct harm: colliding in a car or passing on the virus. The second is using limited health resources for hospital care following a not immediately fatal incident. Now generally, we allow people to take risks that expose them to utilising health resources. Health care is there to facilitate people realising their plans of the good life, which may require driving a car. But unlike driving, as I have pointed out, a pandemic is an extreme emergency. In such a situation, the state is entitled to restrict freedom to prevent overwhelming of the health system in order to ensure people can continue to access healthcare. This is not the case in ordinary driving where no extreme emergency exists.

So while we don't normally take "use of limited health resources" to be a decisive factor in restricting liberty, in a pandemic I assert that it can sometimes be. And it is on this ground that those who are more at risk (over 50) present a kind of harm that others who are under 50 do not present (even if both present the same risk of spreading the virus). And it is on this ground their liberty can be restricted just as in the driving case. Age is different, in one way, to "driving while drunk." It is a characteristic of a person over which that person has no control or responsibility. It is also a characteristic that is protected by law (2010) which prevents discrimination on the basis of age, sex, race, gender orientation, etc

But being young also falls under "age". The young expect to gain far less from general liberty restriction than the old and may lose a lot. This is to discriminate, in one way, against the young. An egalitarian application of liberty restriction should aim to distribute expected benefits and burdens equally or fairly across age groups.

3. Reinforcing Structural Injustice and Further Disadvantaging the Worst Off

The argument outlined so far could be extended to justify selective restriction of liberty of those with other risk factors, such as in COVID-19 those who are immunosuppressed, males, the obese, and certain ethnic groups. Gostin and Berkman argue 'in the exercise of compulsory powers, distributive justice requires a fair allocation so as not to burden unduly particularly vulnerable populations'.(Gostin and Berkman 2007) One objection to a

policy of selective restriction of liberty is that those at increased risk may be at increased risk as a result of pre-existing structural injustice. This is particularly the case for racial, ethnic minorities, those in lower socio-economic groups, and to a lesser degree, the aged.

The flip side of this is that the most vulnerable, for example the aged, would be better off if there was blanket rather selective liberty restriction. Prioritarianism, or giving priority to the worst off, requires general liberty restriction.

There are several responses to these arguments.

Firstly, although it may be true that it is better for those who are vulnerable to COVID for there to be blanket restrictions it is far from clear that it is better for other vulnerable people, eg those with cancer, for there to be a blanket restriction of liberty. And many of the most disadvantaged were hardest hit by the socioeconomic and health effects of lockdowns (Palomino, Rodríguez, and Sebastian 2020).

Secondly, even if it were the case that it is better for the most vulnerable to have a blanket lockdown or other coercive policy, as I have argued before, we must ask whether it is worth the incremental utility compared to a selective approach. Indeed, although prioritarianism requires giving some priority to the worst off, it doesn't require giving *absolute* priority. To take an extreme example, if moving from selective to blanket lockdown saved 100 85 year old lives for one year, would it be worth 20 000 cases of severe depression, or 10 billion pounds, or 20 suicides of young people, etc? The issue of proportionality looms large.

4. Historically wrong discrimination and symbolic value of equality

In discussions about quarantine and other coercive measures to limit the spread of an infectious disease, concern about past practices has encouraged a focus on equality. Fairchild et al explain 'One way to understand the past approach to disease and containment is to read it in a story of blame and social division'. (Fairchild, Gostin, and Bayer 2020) For example, the suspicion of a plague-related death in Chinatown in San Francisco in 1900 led to the evacuation of white residents while Chinese residents were blockaded within the district. (Fairchild, Gostin, and Bayer 2020) Such treatment is plainly wrong. People were treated differently on the basis of their ethnicity even though this had no effect on the spread of the disease.

These historic wrongs have justifiably encouraged a focus on equality. For example, Selgelid argues that liberty-restricting measures must be used in an equitable manner.[13] Selgelid suggests this may be achieved by avoiding applying such measures in a discriminatory manner against marginalized groups or by requiring that such measures are only used in a discriminatory manner when there is strong justification. This would recognise that some members of society require special protection.[13] Viens et al argue that if liberty-restricting measures are employed in a discriminatory fashion this will violate a state's obligation not to discriminate and so is unjustifiable.(Viens, Bensimon, and Upshur 2009) Viens et al suggest this is the case 'even if restrictive measures are implemented in a way that makes them measurably successful overall in containing the contagion'. (Viens, Bensimon, and Upshur 2009)

These broad statements appear to overstate the extent to which it is wrong to implement measures that treat people differently. Discrimination on the basis of a particular characteristic may be morally permissible when that characteristic correlates with a morally relevant difference. For example, during the COVID-19 pandemic, people living in the Australian state of Victoria faced significantly harsher restrictions on their movement than the rest of Australia. (Victoria, Australia 2020a and 2020b) This was not unjust discrimination against Victorians, but rather reflected the fact that the virus was more prevalent in Victoria, such that it was appropriate to differentiate on the basis of geographic location. If other States experienced similar rates, similar restrictions would have been justified.

Differential treatment on the basis of relevant differences is not just permissible, but is necessary to achieve equitable outcomes. Universally applied social distancing measures during COVID-19 created a superficial equality, but the impact of the measures were 'profoundly unequal'.[33] Restrictions on when it is acceptable to leave home have a different impact on someone who has a stable home environment and has the option to work from home, compared with someone who has neither. Just as there are relevant differences in assessing the impact of liberty restrictions on particular groups, there are also relevant differences in assessing the risks of particular groups contracting the disease.

Nonetheless, segregating a group risks stigmatising that group, sending the (wrong) message that some groups are less deserving of liberty than others. This is particularly egregious if applied to racial or ethnic minorities who have seen liberty unjustifiably restricted in the past. Some would argue that the symbolic value of equality is worth its costs.

Indeed, returning to structural injustice, it is doubly egregious if a group's vulnerability is the result of past injustice and that group now experiences greater liberty restriction.

There are, as usual, possible responses to these objections. Firstly, measures should be taken to "send the right message" about why selective restriction of liberty is being employed and to promote the interests of those who lose their liberty in other ways, perhaps even through financial compensation.

Secondly, this may be a good argument against selective restrictive liberty of some racial groups. But age is different to race (and other risk factors such as being male or obese). We will all be old one day, if we are lucky. This is a feature of all of our lives, generally. Yet we cannot change our race (unless one believes these categories are socially constructed). And even if we could change race, we would not all share the common feature of being in one racial group, in the way we do with older age. There maybe reasons to treat some groups differently to others;n there may be a reason to treat age differently. The old have been young, but the young have not been old.

Elsewhere I have shown widespread support for the use of age in allocating ventilators and vaccines when these are limited resources (Wilkinson et al. 2020) and this has been demonstrated in other trade-off situations (Savulescu, Kahane, and Gyngell 2019). Indeed, giving a lower priority to age is supported by both utilitarianism and contractualism. From behind a veil of ignorance (where one does not know who in society one will be), it would be rational to prefer priority to be given to the young in allocation of life saving resources because each of us would stand to live longer. There is weaker utilitarian or contractualist support for using other protected characteristics like sex or race (Savulescu, Gyngell, and Kahane 2021). Indeed, the public support for using such characteristics is much weaker than for using age (Kappes et al. 2021).

Another reason is that age is necessarily associated with some degree of vulnerability and that vulnerability is not entirely socially constructed. As we age, our body slowly deteriorates and dies. That is what makes the aged vulnerable. It will happen to all of us at some point if we live long enough. This is different to the vulnerabilities associated with race, ethnic minority and lower socioeconomic class which are in part, or large part, socially constructed.

So while concerns about the symbolic value of equality, expressivism, reinforcing past injustice and disadvantaging the worst off have some force, they apply less to age than to other risk factors.

5. Proportionality

The identification of higher risk groups is not necessarily a sufficient basis to discriminate. It will always be possible to identify a particular group that is at higher risk from an infectious disease and accepting liberty restrictions in each of these cases would significantly undermine equality. The issue is identifying when the

difference is significant enough to warrant discrimination. This may be understood in terms of proportionality. When would discrimination be a proportionate response?

Human rights law recognises that a human right may be limited when this would be proportionate. The tests developed under human rights law to determine whether the limitation of a right is proportionate may provide practical guidance in determining when a discriminatory measure is appropriate. Human rights instruments such as the European Convention on Human Rights recognise the right to equal enjoyment of human rights, including the right to freedom of movement, and so are relevant to discriminatory liberty-restricting measures.[4] There are a number of variations of the proportionality test, but the four limb test developed in the UK is discussed here.(Bjorge and Williams 2016; Ramshaw 2019)[5] This suggests that a measure will be proportionate if:

1. the objective was sufficiently important to justify limiting a fundamental right;
2. the measure designed to meet the objective was rationally connected to it;
3. the means used to impair the right or freedom were no more than is necessary to accomplish the objective; and
4. the measure strikes a fair balance between the rights of the individual and the interests of the community.

If these tests are applied to the historic instances of discrimination discussed above (such as the Chinatown example), it is clear they would fail on the second and third limb. This is because there was no rational connection between ethnicity and those diseases and because it was no more necessary to restrict the liberty of these groups than others. However, this does not mean it will never be proportionate to discriminate.

The measures proposed in the age-selective liberty restriction may be proportionate under this test. Limiting the number of deaths that occur during a pandemic may be sufficiently important to justify limiting the right to equality and so may fulfil the first limb. Under the second limb the disease modelling described previously demonstrates there may be a rational connection between restricting the liberty of one group of people and limiting the negative impacts of a pandemic.

The application of the third limb raises a number of issues. If the objective is to limit morbidity and mortality, an age-selective restriction strategy is not strictly necessary as there are a range of other options, such as non-selective strategies. But each of these options also have negative effects and conflict with other moral concerns.

The fourth limb is the broadest and may create some ambiguity, as the relevant 'interests of the community' are undefined. In relation to the age based mitigation strategy, this would achieve substantial benefits in reducing morbidity and mortality and preventing the health system from being overwhelmed.

The proportionality test may provide guidance about the acceptability of future discriminatory liberty-restricting measures. The measure may be acceptable if:

1. The objective is to limit the disease burden
2. The measure is designed to prevent those who are most at risk from contracting the disease.
3. The liberty restrictions imposed must be no more than are necessary to limit exposure to the virus.

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4 *Convention for the Protection of Human Rights and Fundamental Freedoms*, open for signature 4 November 1950, 213 UNTS 221 (entered into force 3 September 1953), arts 2 and 14. This is not intended to be a legal analysis of the application and discussion of proportionality tests applied under human rights law. As the concept of proportionality has been developed under human rights law and been the subject of significant debate, the test is discussed here to determine whether they may provide normative guidance for policy makers during a pandemic.

5 *Bank Mellat v HM Treasury (No 2)* [2014] AC 7000, [20];

4. Liberty-restricting measures on high-risk groups would significantly reduce the utilisation of limited health resources and the mortality rate of the disease, which would otherwise result in a large number of deaths.

This test recognises the value of equality and that the issue should not be reduced to a question of health benefits vs liberty restrictions. It is important that each person is respected as an individual and that they are not arbitrarily discriminated against.

An algorithm for decision making

Below is an algorithm (Figure 2) which captures these considerations for determining when liberty-restricting measures may be acceptable. This recognises liberty-restricting measures should only be implemented when the threat posed is sufficiently grave, that the costs and benefits must be weighed at the community and individual level, and that discriminatory measures should only be imposed if they would be a proportionate response.

Conclusion

In this paper, I have not sought to decisively argue that selective restriction of liberty should have been employed in the COVID-19 pandemic. Rather I have created a framework where selective restriction of liberty could be justified in a future pandemic X. Whether it is, or not, will depend on the relevant empirical facts. There are no doubt other arguments (some based on intergenerational desert and justice arguments) which would support age selective liberty restrictions, but in this paper I have concentrated on when consequentialist considerations could justify selective restriction of personal liberty, particularly age-selective liberty restrictions. I have also considered the extension of such arguments to other at risk groups, such as males, immunosuppressed, obese and ethnic minorities. I did not consider the implications for those who were infected prior to vaccination, but the arguments presented here would justify selective restriction of liberty of the non-immune and immunity passports (Brown et al. 2021; Brown et al. 2020).

In order to identify appropriate responses to a pandemic, governments should adopt a consequentialist approach with the aim of reducing the disease burden to an acceptable level of harm. What constitutes an acceptable level of harm will depend on a range of factors, including the morbidity/mortality impact of an unmitigated epidemic, the extent to which this harm could be reduced with selective measures, the extent to which the disease has spread already in a population, the political and geographic features that impact the ability to eliminate and prevent re-introduction of the virus, the harms of countermeasures, and the resources available to the government. Selective restriction of liberty is justified when the problem is grave, the expected utility of the liberty restriction is high and significantly greater than the alternatives and the costs of the liberty restriction are relatively small at an individual level. That is, when the need for liberty restriction is considered an 'easy rescue'. Discrimination can be justified under these conditions when it is proportionate and limited to a very specific public health challenge.

I have outlined easy rescue consequentialism as a basis for just liberty restriction in a pandemic and set the constraint of non-maleficence at a low level: only small costs should be imposed. However, the key is proportionality – in a very grave emergency large costs might be placed on individuals to bring about very large benefits, as the cartoon of the Epidemic illustrates. But the COVID-19 was not an extremely grave emergency: Sweden (which imposes fewer liberty restrictions) experienced a −2% excess mortality during the pandemic and Norway −8%. However, if COVID-19 had been as lethal as Ebola, then much more significant liberty restrictions would have been justified.

What level of harm can be imposed on individuals for the sake of public health is a deep ethical not scientific question. We ought to begin with the least demanding requirement of easy resuc consequentialism: when the
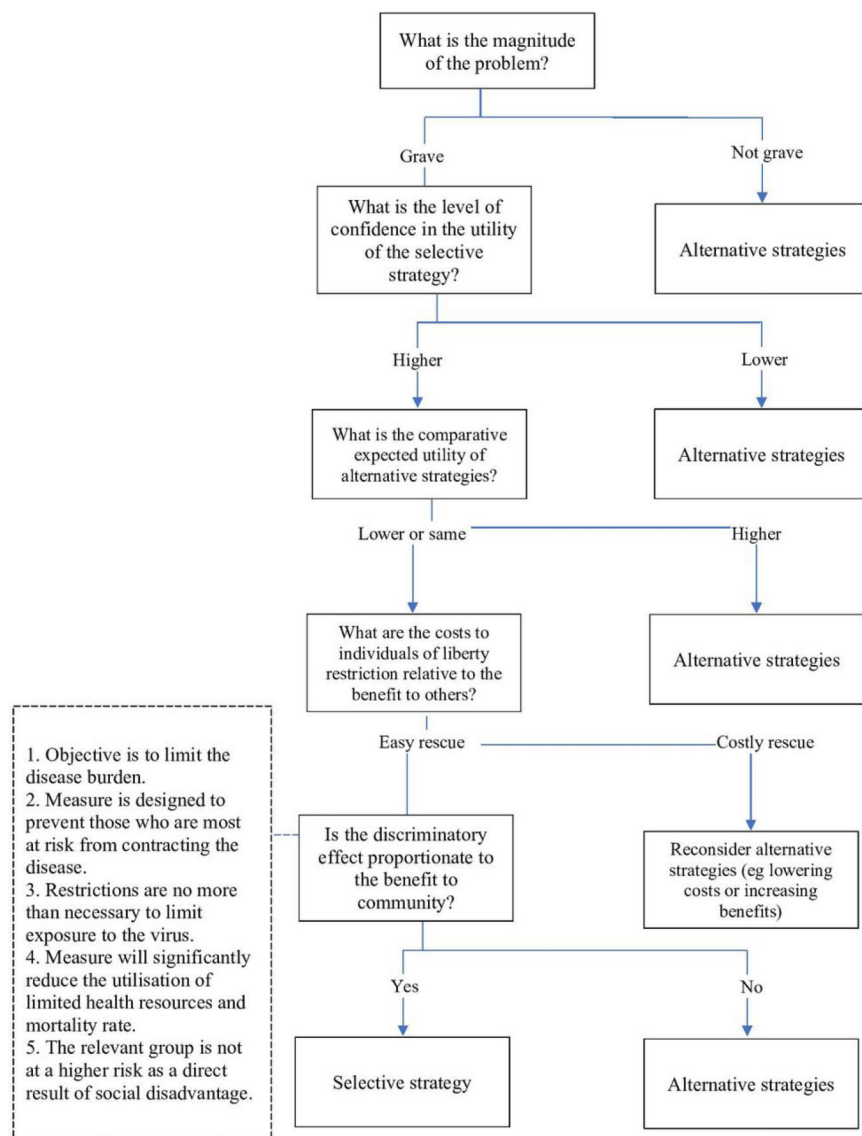
Figure 4. (Cameron et al. 2021)

harm imposed on individuals is small, and the benefits to others are great, liberty should be restricted. This satisfies a constraint of non-maleficence.

This would have implications outside of pandemics. For example, it would justify opt-out or even mandatory blood or posthumous organ "donation". It would justify the use of data for research purposes for public health without consent. A collective duty of easy rescue would have significant implications for public policy generally.

In the introduction to this volume, we considered on version of Pandemic X. It was *H7N9* avian influenza with human to human spread (bird flu). It had high mortality in people in their 20s, like Spanish flu. Whose liberty should be restricted in such a pandemic through lockdown, quarantine, mandatory vaccination or other coercive measures will be determined by how transmissible such a virus is, how much reduction in transmission is achieved by coercive measures, whether those who are vulnerable can be protected without liberty restriction of others, how likely an individual who contracts the virus is to require hospitalization and the capacity of the health system. We require both ethics and science to decide whether liberty restriction should be general or selective.

2010 *Equality Act*.

2020. "Guidance: Staying at home and away from others (social distancing)." Gov.uk, accessed 5 July 2022. Available at: https://www.gov.uk/government/publications/full-guidance-on-staying-at-home-and-away-from-others/full-guidance-on-staying-at-home-and-away-from-others.

2021. Twelve Russian regions introduce mandatory vaccination for residents over 60. TASS Russian News Agency.

Agency, UK Health Security. 2022. COVID-19 Vaccine Surveillance Report: Week 24. 16 June 2022.

Amante, Angelo, Fonte Giuseppe, and Jones Gavin. 2022. Italy extends COVID vaccine mandate to everyone over 50. *Reuters*.

Bambery, Ben, Selgelid Michael, Maslen Hannah, J. Pollard Andrew, and Savulescu Julian. 2013. "The Case for Mandatory Flu Vaccination of Children." *The American Journal of Bioethics* 13 (9):38–40.

Bioethics, Nuffield Council on. 2007. Public Health: Ethical Issues. London.

Bjorge, Eirik, and Williams Jack R.. 2016. "THE PROTEAN PRINCIPLE OF PROPORTIONALITY: HOW DIFFERENT IS PROPORTIONALITY IN EU CONTEXTS?" *The Cambridge Law Journal* 75 (2):186–189.

Brown, Rebecca C. H., Kelly Dominic, Wilkinson Dominic, and Savulescu Julian. 2021. "The scientific and ethical feasibility of immunity passports." *The Lancet Infectious Diseases* 21 (3):e58–e63. PubMed PMID: 33075284.

Brown, Rebecca C. H., Savulescu Julian, Williams Bridget, and Wilkinson Dominic. 2020. "Passport to freedom? Immunity passports for COVID-19." *Journal of Medical Ethics* 46 (10):652. PubMed PMID: 32817362.

Cameron, James, Williams Bridget, Ragonnet Romain, Marais Ben, Trauer James, and Savulescu Julian. 2021. "Ethics of selective restriction of liberty in a pandemic." *Journal of medical ethics* 47 (8):553–562. doi: 10.1136/medethics-2020-107104. PubMed PMID: 34059520.

Childress, James F., Faden Ruth R., Gaare Ruth D., Gostin Lawrence O., Kahn Jeffrey, Bonnie Richard J., Kass Nancy E., Mastroianni Anna C., Moreno Jonathan D., and Nieburg Phillip. 2002. "Public Health Ethics: Mapping the Terrain." *Journal of Law, Medicine & Ethics* 30 (2):170–178.

Christakis, Dimitri A., Van Cleve Wil, and Zimmerman Frederick J.. 2020. "Estimation of US Children's Educational Attainment and Years of Life Lost Associated With Primary School Closures During the Coronavirus Disease 2019 Pandemic." 3 (11):e2028786–e2028786.

Di Blasi, Erica. 2020. Italians over 80 'will be left to die' as country overwhelmed by coronavirus. *The Telegraph*. Accessed 4 July 2022.

Fairchild, Amy, Gostin Lawrence, and Bayer Ronald. 2020. "Vexing, Veiled, and Inequitable: Social Distancing and the "Rights" Divide in the Age of COVID-19." *The American Journal of Bioethics* 20 (7):55–61.

Giubilini, Alberto, Douglas Thomas, Maslen Hannah, and Savulescu Julian. 2018. "Quarantine, isolation and the duty of easy rescue in public health." *Developing World Bioethics* 18 (2):182–189. PubMed PMID: 28922559.

Giubilini, Alberto, Douglas Thomas, and Savulescu Julian. 2018. "The moral obligation to be vaccinated: utilitarianism, contractualism, and collective easy rescue." 21 (4):547–560.

Giubilini, Alberto, Savulescu Julian, and Danchin Margie. 2022. "Reply." *The Journal of Pediatrics* 240:319–320. PubMed PMID: 34416261.

Gostin, Lawrence O., and Berkman Benjamin E.. 2007. Pandemic Influenza: Ethics, Law, and the Public's Health. *Georgetown Law Faculty Publications and Other Works*.

Harris, John. 1975. "The Survival Lottery." *Philosophy* 50 (191):81–87. PubMed PMID: 11664454.

Hellman D. 2011. *When is Discrimination Wrong?* Cambridge: Harvard University Press.

Ives, Jonathan. 2020. Coronavirus may force UK doctors to decide who they'll save. *The Guardian*. Accessed 4 July 2022.

John, Stephen. 2020. "The Ethics of Lockdown: Communication, Consequences, and the Separateness of Persons." *Kennedy Institute of Ethics Journal* 30 (3):265–289.

Joly, Josephine. 2021. COVID in Europe: Greece begins fining those over 60 who are unvaccinated. *Euronews*.

Kappes, Andreas, Zohny Hazem, Savulescu Julian, Singh Ilina, Sinnott-Armstrong Walter, and Wilkinson Dominic. 2021.

Kass, Nancy. 2001. "An Ethics Framework for Public Health." *Public Health Matters* 91 (11):1776–1782.

Koca-Atabey, Müjde. 2021. "Disability and old age: the COVID-19 pandemic in Turkey." *Disability & Society* 36 (5):834–839.

Lancaster, Chancellor of the Duchy of. 2020. 'Lockdown was the only way to stop the NHS being broken' - The Times Weekend Essay. Gov.uk.

Levin, Andrew T., Hanage William P., Cochran Nana Owusu-Boaitey Kensington B., Walsh Seamus P., and Meyerowitz-Katz Gideon. 2020. "Assessing the age specificity of infection fatality rates for COVID-19: systematic review, meta-analysis, and public policy implications." 35 (12):1123–1138.

Marsh, Sarah, and Campbell Denis. 2020. "Nurse shortage causes Nightingale hospital to turn away patients." *The Guardian*. Available at: https://www.theguardian.com/world/2020/apr/21/nurse-shortage-causes-nightingale-hospital-to-turn-away-patients.

Miles, David K., Stedman Michael, and Heald Adrian H.. 2021. ""Stay at Home, Protect the National Health Service, Save Lives": A cost benefit analysis of the lockdown in the United Kingdom." *International Journal of Clinical Practice* 75 (3):e13674. PubMed PMID: 32790942.

Mill, John Stuart. 1859. *On Liberty*: J. W. Parker and Sons.

News, BBC. 2020. Johnson orders UK to "stay home" to protect NHS from coronavirus. Accessed 23 March 2020.

Nix, Hayden P. 2022. "Canadian perspective on ageism and selective lockdown: a response to Savulescu and Cameron." *Journal of Medical Ethics* 48 (4):268. PubMed PMID: 33707302.

O'Driscoll, Megan, Ribeiro Dos Santos Gabriel, Wang Lin, Cummings Derek A. T., Azman Andrew S., Paireau Juliette, Fontanet Arnaud, Cauchemez Simon, and Salje Henrik. 2021. "Age-specific mortality and immunity patterns of SARS-CoV-2." 590 (7844):140–145.

Palomino, Juan C., Rodríguez Juan G., and Sebastian Raquel. 2020. "Wage inequality and poverty effects of lockdown and social distancing in Europe." 129:103564.

Pashakhanlou, Arash Heydarian. 2021. "Sweden's coronavirus strategy: The Public Health Agency and the sites of controversy." *World Medical & Health Policy* n/a (n/a).

Programme, Global Influenza. 2019. Non-pharmaceutical public health measures for mitigating the risk and impact of epidemic and pandemic influenza. World Health Organisation.

Ramshaw, Adam. 2019. "The case for replicable structured full proportionality analysis in all cases concerning fundamental rights." *Legal Studies* 39 (1):120–142.

Savulescu, J., Gyngell C., and Kahane G.. 2021. "Collective Reflective Equilibrium in Practice (CREP) and controversial novel technologies." *Bioethics* 35 (7):652–663. doi: 10.1111/bioe.12869. PubMed PMID: 33945162.

Savulescu, Julian. 2002. "The Embryonic Stem Cell Lottery and the Cannibalization of Human Beings." *Bioethics* 16 (6):508–529. PubMed PMID: 12472112.

Savulescu, Julian. 2013. "Winchester Lectures: Kamm's Trolleyology and Is There a Morally Relevant Difference Between Killing and Letting Die?" *Practical Ethics in the News*, 23 October 2013.

Savulescu, Julian. 2021. "Good reasons to vaccinate: mandatory or payment for risk?" *Journal of medical ethics* 47 (2):78–85. doi: 10.1136/medethics-2020-106821. PubMed PMID: 33154088.

Savulescu, Julian, and Cameron James. 2020. "Why lockdown of the elderly is not ageist and why levelling down equality is wrong." *Journal of Medical Ethics* 46 (11):717. PubMed PMID: 32561661.

Savulescu, Julian, Kahane Guy, and Gyngell Christopher. 2019. "From public preferences to ethical policy." *Nature Human Behaviour* 3 (12):1241–1243. doi: 10.1038/s41562-019-0711-6.

Schaefer, G. Owen, Tam Clarence C., Savulescu Julian, and Chuan Voo Teck. 2020. "COVID-19 vaccine development: Time to consider SARS-CoV-2 challenge studies?" 38 (33):5085–5088.

Selgelid, M. J. 2009. "Pandethics." 123 (3):255–259.

Selgelid, Michael J. 2005. "ETHICS AND INFECTIOUS DISEASE1." *Bioethics* 19 (3):272–289. PubMed PMID: 16167406.

Upshur, R. E. G. 2002. "Principles for the Justification of Public Health Intervention." 93 (2):101–103.

Verity, Robert, Okell Lucy C., Dorigatti Ilaria, Winskill Peter, Whittaker Charles, Imai Natsuko, Gina Cuomo-Dannenburg Hayley Thompson, Walker Patrick G. T., Fu Han, Dighe Amy, Griffin Jamie T., Baguelin Marc, Bhatia Sangeeta, Boonyasiri Adhiratha, Cori Anne, Zulma Cucunubá Rich FitzJohn, Gaythorpe Katy, Green Will, Hamlet Arran, Hinsley Wes, Laydon Daniel, Gemma Nedjati-Gilani Steven Riley, Sabine van Elsland Erik Volz, Wang Haowei, Wang Yuanrong, Xi Xiaoyue, Donnelly Christl A., Ghani Azra C., and Ferguson Neil M.. 2020. "Estimates of the severity of coronavirus disease 2019: a model-based analysis." *The Lancet Infectious Diseases* 20 (6):669–677. PubMed PMID: 32240634.

Verweij, Marcel. 2005. "OBLIGATORY PRECAUTIONS AGAINST INFECTION." *Bioethics* 19 (4):323–335. PubMed PMID: 16222840.

Viens, A. M., Bensimon Cécile M., and Upshur Ross E. G.. 2009. "Your Liberty or Your Life: Reciprocity in the Use of Restrictive Measures in Contexts of Contagion." 6 (2):207–217.

Wilder-Smith, Annelies. 2022. "What is the vaccine effect on reducing transmission in the context of the SARS-CoV-2 delta variant?" *The Lancet Infectious Diseases* 22 (2):152–153. PubMed PMID: 34756187.

Wilkinson, Dominic, Zohny Hazem, Kappes Andreas, Sinnott-Armstrong Walter, and Savulescu Julian. 2020. "Which factors should be included in triage? An online survey of the attitudes of the UK general public to pandemic triage dilemmas." *BMJ Open* 10 (12):e045593. doi: 10.1136/bmjopen-2020-045593.

Williamson, Elizabeth J., Walker Alex J., Bhaskaran Krishnan, Bacon Seb, Bates Chris, Morton Caroline E., Curtis Helen J., Mehrkar Amir, Evans David, Inglesby Peter, Cockburn Jonathan, McDonald Helen I., MacKenna Brian, Tomlinson Laurie, Douglas Ian J., Rentsch Christopher T., Mathur Rohini, Wong Angel Y. S., Grieve Richard, Harrison David, Forbes Harriet, Schultze Anna, Croker Richard, Parry John, Hester Frank, Harper Sam, Perera Rafael, Evans Stephen J. W., Smeeth Liam, and Goldacre Ben. 2020. "Factors associated with COVID-19-related death using OpenSAFELY." 584 (7821):430–436.

Wolf, Susan. 1982. "Moral saints." *Journal of Philosophy* 79 (8):419–439.

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