



We need to talk about imperatives

doi:10.1136/medethics-2019-105729

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The feature article in this edition outlines and then critically examines the Nuffield Council of Bioethics' Report, 'Genome Editing and Human Reproduction: Social and Ethical issues'. While Christopher Gyngell, Hilary Bowman-Smart & Julian Savulescu, 'support the approach taken by the Nuffield Council',¹ their findings are stronger than those in the Report, arguing that - beyond being permissible - many instances of heritable genome editing will be moral imperatives. A collection of engaging responses to this feature article are provided by Rachel Horton & Anneke M Luccason, Pete Mills, and Sarah Chan. As a short-sighted introvert, I am going to leave aside my concerns about Gyngell's and colleagues' account of the weak and unhappy gene pool in which I swim, and instead focus on their talk of moral imperatives.

Gyngell and colleagues construct their moral imperative argument by way of analogy. The most straightforward, and perhaps most compelling, claim concerns single gene disorders. I reconstruct the claim in the following way:

- i. There is a moral imperative to screen (and treat) newborns for phenylketonuria (PKU).
- ii. If it were possible, there would be a moral imperative to provide replacement enzyme therapy for PKU.
- iii. By analogy, if it were possible, there would be a moral imperative to make safe genome edits which prevent PKU.

The same analogical interference is claimed in arguments in favour of: editing around 27 mutations associated with coronary heart disease (with analogy to car exhaust filters), editing to shift individuals of low or medium predisposition to intelligence to a high predisposition (with analogy to prenatal nutrition), and the general development of heritable genome editing for the benefit of future generations (with analogy to preventing ozone layer depletion). The common thread of thought, identified by Chan, is that 'if non-genetic means of attaining (these) goals are considered obligatory' then 'genetic interventions that achieve the same are likewise to be a moral imperative'.²

We need to take care when we talk of moral imperatives. Allow me to

momentarily explore the language of imperatives. If there are instances of heritable genome editing that are *permissible*, then there are no moral reasons against such editing. It is something that we *may* do. It is in this way that the Report finds that there 'are no categorical limits on its use, provided applications are consistent with its guiding principles'.¹ If there are instances of heritable genome editing that are *imperatives*, then - at minimum - there are moral reasons in favour of such editing that we know are capable of defeating (one way or another) any possible reasons against such editing. It is something that we are *required* to do. An imperative, in this formulation, is akin to an obligation. More accurately, in terms of Gyngell's and colleagues' moral imperative argument, it is something we *will be* required, or *will be* under an obligation, to do. Finally, the above formulation is 'at minimum' because an imperative could mean something further: that there are reasons in favour of genome editing that preempt consideration of any reasons against the editing. But ultimately I do not interpret Gyngell's and colleagues' argument as using this stronger (perhaps more literal) sense of 'imperative'.

Now, if the above is a fair formulation of the relationship between permission and imperative, then three problems follow for the moral imperative argument. First, we ought to be clear as to whom the imperative applies. As Pete Mills seeks to clarify in his response, the Report itself 'should be read...as orientational principles for the development of practical governance'.³ It is not 'ethic committee-ready' as the Gyngell and colleagues might hope it to be.³ Mills also expresses concern that 'the language of enhancement...muddles private and public morality', and perhaps by extension, the language of imperatives also muddles the distinctions between ethical analysis, practical governance, and 'the register of private decisions'.³ The problem here is that reasons apply to everyone; we should all, in all contexts, be responsive to moral reasons. Imperatives, like obligations and commands, are directed; directed towards the obligation-bearer or imperative-performer.

Second, if the above formulation is a fair one, then there is an impasse between what Report suggests *is* permissible and

what Gyngell and colleagues anticipate *will be* required. As Chan notes, this, at the very least, distracts is from 'whether and how we can reach the point of satisfying these conditions' where heritable genome editing is safe, effective, efficient, equitable available.² But this also undermines the analogical basis of the moral imperative argument. As Chan also identifies her response, these analogies "rest partly on parity between genetic and non-genetic, or heritable and non-heritable means of achieving a given desirable individual, societal or public health goal".² Hence, Horton and Lucassen are also concerned that the moral imperative argument relies on 'overly deterministic view of a genome sequence, and the role of variation within it, in the aetiology of disease'.⁴ There is, in other words, a lot built into assumption that an imperative to pursue a non-genetic medical intervention is sufficiently analogous to heritable genome editing *that the authors anticipate*. It is this latitude to anticipate safe and efficient forms of editing that help the analogies work.

Third, if the above formulation is a fair one, then it (depending on your ethical stripe) leaves logical space for the supererogatory; something that is good without it being required. As the title of the feature article pronounces, there may be 'Moral Reasons to Edit the Human Genome'. It may be something that ought to be encouraged, without invoking a moral imperative. Either no such space exists for Gyngell and colleagues, their moral reasons amount do amount to an imperative, or the imperative is more rhetorical than analytical. In considering this third possibility, Chan observes, that "when both the genetic nature and heritability of interventions were widely perceived as intrinsic grounds for objection, the (moral imperative argument) played an important role in reframing the issues to challenging these assumptions".² The moral imperative argument may have succeeded in shifting the Overton Window of acceptable public discourse. But now that the Window has shifted, more imperative-talk may be 'liable to reinforce the very genetic essentialism and exceptionalism that it tries to counter act', polarise the debate, and impede "progress towards realising the 'moral imperative'".² Horton and Lucassen also share this concern. Specifically, that

“presenting HGE as a potential mitigator for polygenic risks unduly distracts from the compelling arguments for HGE which relate to the very unusual situations where a parent would inevitably pass on a severe, fully penetrant disorder every time he/she had a genetically related child”.⁴

It may be the case that morality speaks in binary: something is either the wrong thing to do (prohibited) or the right thing to do (required). However, where we aim to guide, coordinate, or govern, the behaviour of others, intermediate categories emerge.

We may, for instance, permit an activity or encourage it. As I have sought to highlight here, moral imperatives - in the context of guiding, coordinating, or governing - require care in their formulation.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

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