

Avoiding 21st-Century Eugenics: Gene Editing, Posthumanism, and Conscientious Innovation

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Abstract:

Emerging biotechnologies in the 21st century such as CRISPR gene editing have brought great potential for improving human health and treating fatal diseases. However, these technologies have also triggered profound ethical controversies and human rights challenges. By reviewing the 2018 He Jiankui incident and comparing it with earlier, less controversial experiments, this article analyzes the transformation of social concepts and the lag in ethical frameworks. The discussion extends to the broader posthumanist technological wave, emphasizing concerns about exacerbating inequality if genetic enhancements become routine, which echoes eugenics in history. This essay argues that technological progress should not come at the expense of human rights, and calls for a global pause in gene editing experiments, as well as the establishment of a global accountability system. The article finally emphasizes that humans must be guided by patience and responsibility on the road to the future, and while enjoying the benefits of science and technology, we must protect our common humanity and moral bottom lines.

Keywords: Gene Editing, CRISPR, Biotechnology, Ethics, Human Rights, Posthumanism

Introduction

In the 21st century, developments in biotechnology such as synthetic biology, genetic engineering, and cloning technology have enabled humans to further explore the essence of life and directly intervene in its conception. Emerging technologies, such as Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) gene editing, have the potential to

greatly improve the quality of human life by reducing the risk of genetic diseases and enhancing overall health conditions. However, these technologies also pose challenges to human rights, including the rights of equality. The challenge is balancing the enjoyment of the benefits of technological progress while preserving our shared humanity and equality. People should carefully balance technological progress with human rights through rules, awareness, and learning

from the past to prevent emerging technologies from dominating our society.

Ethical Debate over CRISPR Gene Editing

In 2018, Chinese scientist He Jiankui announced that he had successfully edited human genes using CRISPR technology for a pair of twin babies. This revolutionary news immediately triggered a fierce debate around the world. He Jiankui aimed to give babies natural immunity to HIV through CRISPR technology, which enables precise and targeted DNA modifications. This technology offers new possibilities for humans to prevent and treat genetic diseases, holding great promise for improving overall human health (Westermann, Neubauer, and Köttgen). However, the scientific community and the public generally believed that He's behavior crossed the line and violated scientific ethics. In the end, He Jiankui was sentenced to three years in prison by the Chinese government for illegal medical practice (BBC).

While He's action drew intense criticism, it was not the first instance of CRISPR being used on human embryos. As early as 2016, the UK's Human Fertilisation and Embryology Authority had officially approved the Francis Crick Institute in London to conduct experiments on the CRISPR gene editing technique on human embryos (Stoye). In this case, the experimental embryos were not to be implanted in the uterus and had to be destroyed within two weeks. Arbitrarily editing embryos and deciding their futures at will likely jeopardizes the current framework of ethics. Nevertheless, the British experiment only caused sporadic concerns about technical safety and regulatory issues at the time, and encountered almost no public resistance.

From the British experiment in 2016 to the He Jiankui incident in 2018, the attitude of society towards CRISPR has changed dramatically. It seems that until the first CRISPR babies were officially born, people had never really faced its ethical issues. Only when people faced the reality of gene-edited babies directly did public opinion quickly turn to opposition.

Posthumanist Technological Wave and Ethical Challenges

The mixed public reception towards CRISPR technology is not an isolated case. A survey by the Pew Research Center shows that 30% of US adults support using gene editing in babies to reduce disease risk, an equal 30% oppose the idea, while 39% remain uncertain (Rainie et al.).

The even division between positive and negative views aligns with the global development of the posthumanist movement, an unprecedented trend that attempts to challenge and break through the traditional boundaries of human beings. Whether it is gene-editing, brain-computer interface, or human chip implantation, these technologies are gradually blurring the boundaries between humans and machines and changing the essence of human beings. With technological development, humans may actively intervene in their own evolution and existence, which will lead to philosophical thinking regarding the true definition of humanity.

Just like with CRISPR babies, posthumanist technologies expand future possibilities, but also raise serious social and ethical concerns. For example, if gene engineering becomes routine, the wealthy may use this technology to optimize genes, thereby further exacerbating inequality and undermining social fairness (Braidotti). As Slavoj Žižek writes in *Post Human Desert*, "humanity is creating its own god or devil," and "if something resembling 'post-humanity' emerges as a collective fact, our world-view will lose all three of its defining, overlapping subjects: humanity, nature, and divinity" (Žižek). This shift becomes evident: life being precisely manipulated by technology could lead to an unappreciation of its inherent characteristics. The real danger of this, is that the humans, once rooted in humanity, natural wonder, and respect for the divine, may lose their core essence in the post-human world.

New Eugenics and Lessons of History

Gene editing and other technologies that modify the human body are intended to create more "excellent" human individuals, a sentiment that echoes the Eugenics movement in the last century. Eugenics is "the science of the improvement of the human race by better breeding," which was adopted by many governments in the 20th century (Davenport 1). Today, gene editing technology enables humans to select germlines intentionally, potentially "jeopardiz[ing] the inherent and therefore equal dignity of all human beings and renew eugenics, disguised as the fulfilment of the wish for a better, improved life" (UNESCO 26).

In the 20th century, Nazi Germany used eugenics to support its racist and social Darwinist theories and carried out large-scale ethnic cleansing, forcing millions of Jews and other groups considered "inferior" to be sterilized or directly exterminated (Lifton 25). Such historical tragedies warn us that once humans are regarded as objects that can be edited and compared arbitrarily, it will lead to the collapse of the existing value system and catastrophic

social consequences. If people maintain their current laissez-faire attitude with gene editing, humans may fall into a similar tragedy as that predicted by H.G. Wells in *The Time Machine*, where technological advancement ultimately leads to a divided humanity and a darker future.

In the ever-changing possibilities available in this age, it is important to remember the purpose of technological progress. The aim of scientific and technological advancement should be improving people's quality of life and protecting their freedom, equality, health, dignity, and other basic rights, as stated in the *Universal Declaration of Human Rights* (United Nations); in other words, progress need not be for the sake of progress. The advancement of science and technology should uplift the whole of humanity, instead of coming at the expense of compromising human rights.

Therefore, a line must be drawn to ensure that gene editing serves humanity rather than undermines values such as equality and dignity. This line should permit therapeutic intervention, such as correcting severe genetic disorders, while prohibiting enhancement, such as selection for intelligence or appearance, that could exacerbate inequality and reproduce the divisive legacy of eugenics (Salib). This line must remain flexible, evolving with scientific insights and societal needs, while being subject to rigorous monitoring to prevent unintended consequences.

Our Response: Patience and Accountability

In recent years, the development of gene editing has far exceeded the expectations of the academic community (Powell). Similar to the alarm raised in response to CRISPR, the progression of artificial intelligence has also raised concerns. Faced with the unforeseen risks brought by AI, many scientists and ethicists jointly issued a statement calling for a moratorium on certain large-scale AI experiments (Future of Life Institute). The same is needed in the face of gene editing technologies and the potential revival of eugenics. The key is to remain patient.

Just like AI, gene editing should undergo careful review and rigorous clinical trials to ensure safety and control, minimizing risks. People should also be aware of its ethical challenges, such as the difficulty in distinguishing between gene modifications for treating diseases and those for "enhancing" individual abilities. Today, human society is clearly not well prepared for the post-human era. Even a comparatively smaller issue like AI copyright has caused overwhelming moral debates, not to mention consequential technologies such as gene editing that can completely transform humankind itself. Therefore, before

gene editing technologies are fully controllable and the ethical framework is refined, it is more important to remain patient than to blindly advance.

In *Homo Deus*, historian Yuval Harari predicts that the most likely result of artificial intelligence is a complete split within human society, which is much more serious than class differentiation (Harari 309). In the book, biological and computer technologies jointly lead to a widening gap between those who know how to control those technologies and those who do not, and those who are left behind face extinction. Today, with the unrestricted development of technologies such as gene editing, this fictional prediction might become a reality. Currently, the decision-making power of gene editing technology is in the hands of a few scientists and government agencies (Blasimme). As Greek economist Yanis Varoufakis writes in his commentary, this situation can be called Techno-Feudalism (Varoufakis). Instead of eliminating social inequality, technological advancements such as gene editing may lead to technological elites further "parasitically exploiting working people and traditional capitalists alike" (Hedges).

Therefore, considering the parallels between AI and genetic editing in that people are not yet prepared to face such unpredictable technological, ethical, and social risks, we call for a pause on gene editing research. During this period, the international community and governments should take the following measures:

1. Establish a global scientific ethics review agency to conduct strict supervision of gene editing technologies.
2. Formulate globally unified technical specifications and strictly define the safety range of relevant gene technologies to prevent different countries from abusing technology due to regulatory differences.
3. Establish standardized and transparent laboratories to prevent individual scientists or small research teams like He Jiankui from conducting high-risk experiments in the absence of supervision and ethical review.
4. Strengthen public awareness education to enhance society's understanding of the long-term risks that gene editing may bring.

For the above measures to be effective, strong international supervision and enforcement are needed. Since gene editing technologies have the potential to decide the future of humankind, they may cause vicious competition among countries, especially in the current context of anti-globalization and great power hegemony (Walter). In the face of this unprecedented technological crisis, now is not the time for countries to compete with each other. The supervision and regulation of related technologies should not be limited to specific countries, but should become a global consensus.

Today, in the global competition of gene editing technology, different countries are adopting entirely different

regulatory strategies, as the data shows below. (Genetic Literacy Project)



Figure 1 The image shows how strict regulatory strategies are for available countries (Genetic Literacy Project)

Without internationally unified standards and regulations, some countries can relax gene editing regulations to attract related industries (National Academies of Sciences, Engineering, and Medicine). Facing the huge benefits brought by the technology, related practitioners will flock to countries with loose regulations. In this way, the stricter regulations in some countries will become effectively futile, leading to the collapse of the international regulatory system. Therefore, we need to establish a credible international accountability system to ensure that all gene editing research follows common ethical standards, rather than being left to self-interested countries to decide for themselves.

In the history of technological development, humans have witnessed the catastrophic consequences of technological uncontrollability many times. The development of nuclear energy, chemical weapons, and biological agents has experienced similar dilemmas, which ultimately forced humans to restrain these technologies and themselves through international cooperation. Today, the impact of gene editing may be far more profound than the above technologies, and a global accountability mechanism urgently needs to be established.

Conclusion

The posthumanist technological revolution represented by gene editing promises a better future, but also threatens the essence of humanity. From the moral dilemma of CRISPR babies to the specter of new eugenics and techno-feudalism, history warns us that unfettered progress can cause catastrophic inequalities and losses. Now, more than ever, we stand at a crossroads: we can either rush headlong into a posthuman abyss or pause for a while

to forge a global consensus that safeguards our shared humanity. At the same time, global accountability mechanisms for gene editing technologies are not only urgent, but also essential to ensure that today's miracles do not become tomorrow's tragedies.

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