

Navigating ethics in the gene editing era through “Gattaca”

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The 1997 sci-fi film “Gattaca,” directed by Andrew Niccol (Gattaca 1997), transports the viewer to a completely unknown and dystopian setting where a person’s worth and future depend fully on their genetic composition. Despite being released nearly 30 years ago, “Gattaca” offers insight into many ethical concerns surrounding gene editing techniques in modern-day and hypothetical scenarios that could resemble our future. “Gattaca” shows us a society where every individual has been genetically modified to perfection. From before someone is born, not only is their intellect and physical appearance determined, but their societal role and merit as well. We are faced with a society with no flaws where all but one issue has ceased to exist: the genetically ordinary.

“Gattaca” raises questions regarding the negative repercussions of this branch of technology, whether gene editing should even be available to the public, and, if so, what importance it should be given to society. The storyline explores potential answers to these questions by following the life of Ethan Hawke’s character, Vincent, as he attempts to navigate the struggles of being one of the few people alive who didn’t have their genome edited before birth.

There is a heavy emphasis on the social repercussions of having gene editing technology made widely available to the public. Something that immediately stands out in the film is the discrimination that Vincent faces daily. This is presumably because of genetic determinism, which states that one’s abilities and potential depend largely, if not solely, on one’s genetic makeup (Carver et al., 2017). Given that everyone around him knows the truth behind Vincent’s genetics, it becomes impossible for him to escape the derogative and condescending treatment that reflects and impacts

all aspects of his life, ranging from his academic and work opportunities to his love life. Here, individuals are judged not on their personality or merit but rather on their genetics, making communities cold and excluding those who don’t fit the criteria right off the bat.

Although there is no specific mention of the forms of discrimination that affect our society in the present day, it can be inferred that the attitudes towards people whose genome was not edited could be referring to people who currently belong to marginalized groups, specifically to people of color, people of a lower socioeconomic status and disabled people. One wonders how the issue of genome editing technology would work in logistical terms; who would have access? And which traits would be valued enough to be set as a standard of perfection? Undoubtedly, current issues of racism, ableism, and classism come to mind.

One possibility is that the medical industry would want to capitalize on this discovery, and this technology would be exclusively for people with enough privilege and money to be able to pay the high prices, hence excluding people with less monetary resources and further increasing economic inequality. In terms of what “perfection” would physically look like, it is easy to assume that present beauty standards based on Western ideals could perhaps be favored and implemented, which would result in an inevitable loss of diversity and individuality and in an increase in racist attitudes towards people of color that do not want or cannot access the technology. Finally, those with some form of disability will have to navigate through a world with less accessible resources and services as the rise in gene editing would likely give way to a decrease in the number of disabled people being born and would have to face an increase in social marginalization. In a world

where gene editing under very specific criteria is synonymous with perfection, it is easy to see how someone who falls below that line could immediately be seen as inferior and be treated as such.

Furthermore, “Gattaca” delves into issues of social security and corruption, resulting in the uprise of “genetic fraud” within the movie. This becomes common practice amongst unedited individuals who wish to deceive and conceal their true genetic identity to access certain privileges that would otherwise be denied to them; however, the process of genetic fraud also fuels a new type of black market, which places individuals at significant emotional and physical risk. The film effectively portrays a grave sense of desperation fueled by the desire to be recognized as equal. Vincent, the protagonist, goes to great lengths to live a life that is promised to most people from birth but denied to him due to his perceived genetic inferiority. He endures unthinkable challenges. Eventually, and at a great personal cost, Vincent manages to infiltrate this exclusive society, proving that he can perform to the same standard as his edited counterparts, if not better. This raises the question of whether genetic modification in humans should have ever been allowed, given that as “perfection” is not exclusive to those that have been modified genetically, the grave social costs are not justifiable.

It is important to keep in mind that whilst “Gattaca” could be used to begin thinking of the potential future implications of genetic editing, it remains a science fiction with an exaggerated effect. Nowadays, gene editing technologies are merely in their infancy and can only be tested on humans in very limited instances. Perhaps the most popular technology in terms of genome altering is CRISPR-Cas 9 (MedlinePlus Genetics). This genetic “cut and paste” technique has been implemented for a variety of beneficial purposes, such as engineering mosquitoes to reduce the spread of Malaria and in agriculture to grow crops that can flourish despite the detrimental effects of climate change. Moreover, it has also been implemented in some clinical trials and in research to treat diseases like cancer (Synthego). Nonetheless, experiments and research regarding gene editing and alteration remain heavily controversial and must follow a variety of legal restrictions. Testing on human subjects and embryos is currently illegal in many countries, including the US, largely because of ethical concerns that could arise from the pursuit of this type of knowledge (MedlinePlus Genetics).

The debate about whether to continue looking into gene editing in humans is ongoing, with many worried that if implemented, the negatives might overshadow any positive contributions. The film “Gattaca” allows us to use our imaginations to think and acknowledge the dire consequences that the future of gene editing might bring whilst also allowing us to use logic and reason to critique the extremes to which they are depicted. The film is thought-provoking and a great watch for anyone interested in the theme of genetic manipulation; however, it should not be taken as a forecast of the future as it is crucial to understand the benefits it could provide humans.

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