
The Effects Of Genetic Engineering On Children

ABSTRACT

The invention of a robust gene-editing tool, Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) which is cost efficient and quite simple to use, made the birth of humans genetically modified in in-vitro fertilization (IVF) center a theoretical possibility. According to the Center for Genetics and Society, a non-profit-making data and public affairs organization, human genetic engineering is the potential of fixing inherited genes of future children. Considering the possibility of a healthier world, human genetic engineering could be used to modify, clone and remodel genes. However, an enormous world outcry was sparked by scientists not to create a baby using technology. This outcry resulted when a doctor in China, Dr. He Jiankui claimed that he had created the first genetically modified babies by editing the genes of a human embryo in a laboratory dish in 2015. The plan was to eliminate a gene known as CCR5 in hopes of making the offspring resistant to HIV, smallpox, and epidemic cholera. Data submitted as part of the clinical trial listing shows that genetic tests have been carried out on fetuses as late as twenty-four weeks. Dr. He claimed that his method created twin girls. Tests suggest that one twin had both copies of the intended gene-altered and the different twin had only one altered, with no evidence of damage to other genes. He was then dismissed by the Southern University of Science and Technology. There is one necessary take away from the controversy that appears to have gone overlooked within the CRISPR ethics discussion: Defining the ethics of editing human life should not be left to scientists alone. The research community widely agreed that He and his colleagues crossed an ethical line with the first inheritable genetic modification of human beings. Different societies caused controversy and wanted to know what He and his team are expressing concern about. Who determines what the ethics of altering human life are? Where some see a new form of medicine that eliminates genetic diseases, others see a slippery slope to enhancements, designer babies, a way of playing God and a brand new type of eugenics.

INTRODUCTION

The modification of an organisms genetic composition by artificial means, usually including the transfer of specific traits or genes from one organism into a plant or an animal of a completely different species is known as genetic engineering (Bartleby, 2015:1). Genetic engineering based on recombination was developed in 1973 by American biochemists Stanley N.Cohen and Herlot W.Boyer who were among the first to cut deoxyribonucleic acid into fragments, rejoin different fragments and insert the new genes into E.coli bacteria, that then reproduced. As of now, genetic engineering has been used on animals and plants however, the chance of a healthier world depends on human genetic engineering. According to the Center for Genetics and Society, a non-profit-making data and public affairs organization, human genetic engineering is the potential of fixing inherited genes of future children. Considering the possibility of a healthier world, human genetic engineering could be used to modify, clone and remodel genes. Ostensibly, this could already be happening. A loud cry out for help was sparked globally from scientists not to create a baby using technology. This outcry resulted when Chinese researchers first edited the genes of a human embryo in a laboratory dish in 2015. According to Chinese medical documents, a team at the Southern University of Science

and Technology in Shenzhen has been recruiting couples in an effort to make the first gene-edited babies. They planned to eliminate a gene known as CCR5 in hopes of making the offspring resistant to HIV, smallpox, and epidemic cholera. The clinical trial documents describe a study in which Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is used to modify human embryos before they are transferred into women's uteruses. The scientist behind the effort, He Jiankui failed to reply to the list of questions about whether or not the undertaking had created a live birth. However, data submitted as part of the trial, listing shows that genetic tests have been carried out on fetuses as late as twenty-four weeks. It had been later reported that according to He, one couple in the trial gave birth to twin girls. He was later dismissed by the Southern University of Science and Technology. There is one important takeaway from the controversy that seems to have gone unnoticed within the CRISPR ethics discussion: Defining the ethics of editing human life should not be left to scientists only. The research community widely agreed that He and his colleagues crossed an ethical line with the first inheritable genetic modification of human beings. where some see a new form of medicine that eliminates genetic diseases, others see a slippery slope to enhancements, designer babies and a brand new type of Biosciences.

LITERATURE

The invention of a robust gene-editing tool, Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) that is cost-efficient and simple to use, made the birth of humans genetically modified in in-vitro fertilization (IVF) center a theoretical possibility. Many say that the hopes of human genetic engineering are dreadful and that if the world had the possibility to be healthier one, one will rest assure that would make that possibility a reality. However, the ontologists argue that the world already has been having that possibility through genetic engineering, however, at the same time, it's remained a possibility and not a reality. So the big question is, why has it remained a possibility?

DISCUSSION

Different societies caused controversy and wanted to understand what He and his team are expressing concern about. Who determines what the ethics of altering human life are?

Modernist

“A modernist is someone who thinks about the search of an abstract truth of life” (Oak, 2018). Modernists attempt to construct a logical worldview and their thinking states that humankind progresses by using science and technology. Modernism consists of a series of reforming movements in art, architecture, literature, music and applied arts. It had been characterized by an enormous change of thought, whereby humans wanted to enhance their setting. Modernism caused a reform in all spheres of life as well as philosophy, commerce, and literature with the assistance of technology and experimentation. It led to progress in several spheres of life by changing the approach of humankind towards them. “The ontological reductionism, which consists in the view that biological organisms or beings (onto) are ‘nothing but’ their basic units (Joshua, 1997), can be supported by the modernists because the truth is largely established within the colours of modernism.” For modernists, man is rational by nature(Leffel, n.d) and they believe that it is possible to find ultimate truths through the exercise of reason alone and to develop a comprehensive, rational worldview. “Epistemological

reductionism believes that the theories and experimental laws formulated in one field of science can be shown to be special cases of theories and laws formulated in some branch of science" (Joshua, 1997). Modernists will support the epistemological concept as well because it is based on knowledge and rejects dualism. French philosopher, Rene Descartes, also considered as the father of contemporary philosophy, tried to develop a technique of discovering the reality freelance of external sources of authority. He began with his rationalist deduction "I think, therefore I am." Descartes' initial certainty was that "I exist as a thinking thing." Descartes based his theory on an autonomous self (the "I" that "thinks") on mind/body dualism, the concept that an immaterial mind stands over and apart from nature. Philosophers later rejected this dualism and the theism it speculates, but for more than two hundred years, most maintained the belief in an autonomous, rational self and confidence in the rational objectivity it made possible. The autonomous, rational self became the foundation for Enlightenment humanism and its liberal political theory, free-market economics and, radical individualism.

Post-modernist

Post-modernism means "after the modern" (Cornell,2006) It refers to the state that lacks a central hierarchy and one that is advanced, ambiguous and diverse (Matteo,2018). Post-modernists denied the chance of rational objectivity because they reject the review of the self that modernism presupposes. Their thinking was based on pseudoscientific, irrational thought processes and believes that there is no universal truth, abstract or otherwise. The post-modernist or post-postmodernist (since postmodernism started going out of fashion in the late Nineties and was replaced by post-postmodernism) will reject both the ideas of ontological reductionism and epistemological reductionism since it is the opposite of modernism. The ontological reductionism is based on what is true and what exists yet there is science involved in it. Postmodernists believed that morality is relative and that is why they do not believe in genetic engineering. They believe in going by superficial appearances and playing on surfaces and show less or no concern towards the depth of subjects. instead of seeing humanity as an ocean of autonomous rational selves as modernists do, they think of humans as an extension of culture and deny the individual self altogether. Although they may seem "politically correct", postmodernism is anti-essentialist and anti-humanist. There is no universal human essence, no stable personal identity and, no inherent human worth. Humans derive a sense of individual identity and value as persons from the discretionary mores of a gene-culture. So one's identity, value and, civil rights are an accident of cultural origin and not some property intrinsic to human culture. The challenge among postmodern spirituality episteme lies with its passiveness, among its regressive and conceited parts. Central to postmodern ascription and construction is a profound feeling towards articulation, it seems naturally apophatic in object and subject (Howells, 2005). Profoundly different from the pre-modern and modernistic dogmatic style, postmodernism tends to cower from teaching and preaching experience, preferring to make spaces for teams and individuals to possess their own. Inspiration lies not inside not in the ground of being in a traditional sense but arises out of a rationally evident tension of productive anxiety. Intelligence and inspiration are co-terminus, co-temporal, co-existence and interdependent, ontologically dynamic. Inspiration neither presupposes prior intelligence nor can it be unintelligent, rather it is like an enfoldment (Kitaro,2005:18) of intelligence and is therefore not independent of intelligence.

Evolutionist

An Evolutionist is someone who believes in the theories of evolution and natural selection (Than,2018) Evolution is any modification across sequential generations within the heritable characteristics of biological populations. The ontological reductionism concept will be supported by evolutionists known as physicalists however, the epistemological concept will be denied because philosophers and biologists argued that it is in principle impossible to reduce for instance population genetics to Mendelian genetics and Mendelian genetics to molecular genetics because the epistemological concept states that that the theories and experimental laws developed in one field of science can be shown to be special cases of theories and laws formulated in some branch of science (Joshua, 1997). This is often not possible because each level is an example of many entities interacting at the lower level and many entities at the upper-level result from one entity at a lower level. Many Mendelian genes are made from many deoxyribonucleic acid molecules and plenty of population traits are coded for by many Mendelian genes. the simple reduction will not work according to Hull (1997). What is referred to as an evolutionary gene is simply a unit of heredity that may be seen to selection and it could be an entity at any level, a molecule, a Mendelian gene or even a population attribute. Reduction enters the evolutionary dialogue in the form of the issue of cluster selection. In 1962, Wynne-Edwards projected that some bird populations regulate their clutch size (the number of eggs laid) in hard times to benefit the population as a whole, even though it had been prejudicial to the Darwinian fitness of the individual birds. Williams (1966) responded with an argument that the selection of individuals could not account for this and different kinds of supposed group selection and that if group selection occurred in any respect, it was not vital. A decade later, Dawkins (1976) hardened this view into the claim that genes and genes alone are the units of selection and that all biological effects in evolution are the results of these lower-level entities. On, my examination, I examined the idea of evolution according to Charles Darwin. He says that organisms are formed as a result of evolutionary changes occurring as a result of adaptation for survival, whereas genetics and genetic engineering are based on genes and DNA. Charles Darwin primarily based his theory on the fact that complex forms evolve from non-complex forms over time. His theories were based on the natural selection that acts to accumulate and transform minor the advantageous genetic mutations. Charles Darwin's theory of evolution is a gradual and slow method whereas modern genetic engineering is considered a quick system that alters the underlying genetic material to supply modifications within the new organism. An evolutionist will not support genetic engineering because genetic engineering will disturb the natural selection process. Genetic engineering is an artificial scientific method but Charles Darwin projected his theory as a strictly naturalistic method.

Young Earth Creationist

“A young Earth creationist is an individual who believes that the planet and its lifeforms were created in their present forms by supernatural acts between 6000-10000 years ago. It is based on religious belief specifically Christianity, who believe that God created the earth in six 24-hour days as stated in the book of Genesis in the Bible. They believe that about 2300-3300 years before Christ, the surface of the planet was radically rearranged by Noah’s flood. All land animals and birds not in Noah’s Ark perished, many of which were subsequently buried in the flood sediments. In Jesus’ comments regarding Adam and Eve, Cain and Abel, Noah and the flood, Sodom and Gomorrah, etc, he clearly took the events recorded in Genesis as literal history, just as did all the New Testament writers. Several scriptures show that Jesus believed that man was created at the start of creation, not billions of years after the beginning (Mark, 10:6 and 13:19 and Luke 11:50-51)” (National Centre for Science Education). His miracles

also confirm the young-earth creationist's view. The Young Earth Creationist would not support genetic engineering or science as a full because it powerfully contrasts with the bible and their ontological worldview. Reductionism as a whole (both ontological and epistemological) strongly contrasts with faith. Young Earth Creationists argue that the gap theory is not true because God supernaturally created the first plants, ocean creatures, birds, land animals and the first human couple because the outline of those events is stated in a way that contrasts with the description of how other such creatures would come into existence after the original ones (Mortenson, 2011). Also, the nature of all God's later miracles in the Bible and the miracles of Jesus in the gospels were fast meaning the way God created needs no vast stretches of time. therefore their argument is, if the gap theory is true, then what kind of God is it who would create the earth and all kinds of life, except man and allow them to live and die for millions of years and then destroy all of them before he recreated the Earth with creatures very similar to those he had already destroyed? They also believe that God can cure you if you are sick. they are also aware that genetics provide cures in terms of medicine, however, because they have faith in God, they do not want to question or doubt his works and so they stick to their beliefs. In an epistemological view on a young-earth creationist, the knowledge of genetic engineering and the knowledge that is attained from the bible would not reach a mutual understanding. The knowledge attained from the bible is all about what the individual believes. The knowledge that is attained from genetics provides solutions to the future and assists people to understand how science can be used to create a healthier world.

CONCLUSION

“Modernism whether or not thought of as a renaissance plan, an Enlightenment project or a capitalist project, embodies within it that a physical reality exists outside the human cranium and that this reality can be apprehended and understood by the human mind.” In other words, modernism has allowed the possibility of science and has even encouraged its ascendancy (Gilbert, 1995: 559-561). I think that it is great that the modernist society is open to science and it's risks and the indisputable fact that they're not biased. However, they appear to be too eager to improve any aspect of life without taking the risks that may be involved in concern. This might make them look apathetic and they might end up taking unethical decisions within the name of improving life. Therefore modernists will certainly support the genetic engineering of babies. Postmodernism, on the other hand, has many concepts that deny the possibility of modernist science. I feel like postmodernists are rather uptight and that they are too comfortable with their epistemology and they do not appear too eager to learn or to enhance the lives of humans. Evolutionists believe in natural selection making it difficult for them to support genetic engineering. They believe that genetic engineering is a man-made scientific method that will disturb natural selection. I personally do not believe evolution because I believe that true science should be testable, observable and repeatable. Science has never witnessed an increase in genetic information from one generation to the next. Young earth creationists believe solely in the gospel of God they see science as a way of playing God so they will never support the genetic engineering of babies. They believe that a baby is a gift from God and is created in an image of God. I think that Young earth creationists sometimes let their faith over shadow realities of the world. However, I favor the fact that they state facts and that what is written in the bible specifically in the book of Revelation is undeniably coming into existence. With this being said, I would like to consider myself as a young earth creationist who is a scientist. I am a firm believer in the gospel of the lord and I do believe that he created the earth. If an easy question like why does the universe even bother to exist was asked many would not

know the answer but I think that the world exists because of God. For me personally, God is the truth, the way and, the light. Science is a marvelous tool for understanding the universe, however, God gives me the answers to the philosophical questions in life. I chose science because as an individual there's something in me that wants to know the bigger picture. I feel like there is something more to our existence than just our survival here on this planet. In my concluding statement I would like to quote Jennifer Whiteman, a Christian astrophysicist who said: " you need to look at biblical literature from the perspective of when it was written, the original audiences, the original languages, the original purposes...the message that was meant to be conveyed by it. The Bible is not a scientific text" (Whiteman, 2015).

CONCLUSION

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