

ETHICS AND IMPLICATIONS OF BIOTECHNOLOGY/ HUMAN GENETIC ENGINEERING

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Abstract

Genetic engineering is the possibility and actual biotechnological breakthrough from in vitro fertilization to genetic manipulation and recombination of DNA (Deoxyribonucleic Acid) which carries the genetic instructions or blueprints used in the growth and development, functioning and reproduction of all known living organisms. It has to do with the artificial manipulation in the body of human beings, plants and animals so as to give a desired result different from that which the nature of the specie provided. For the purpose of this study, we should be focusing more on human genetic engineering. Some aspects of genetic engineering include: cloning, sperm banking, embryo transfer, prenatal diagnosis, artificial insemination, use of condom as a contraceptive, artificial birth control, euthanasia (mercy killing) and so on. This work therefore seeks to address the ethical issue of the morality behind genetic engineering, the rightness or the wrongness of the act of genetic engineering. Some scholars are of the opinion that genetic engineering reduces the dignity of human person and makes the person involved to look like an object. Whereas the proponents of genetic engineering view it as a new turn in scientific approach towards correcting and or righting the wrong privation of good embedded in the nature of that particular human being, or an evil caused by other non-organic factors. This work would bring to the open, the various types of genetic engineering, and thereafter bring it to the altar of ethics so as to stipulate its merits and demerits and finally make a recommendation for or against the continued existence and propagation of genetic engineering.

Keywords: Genetic Engineering, Ethics, Right, Wrong, Biotechnology

Introduction

The major responsibility of this work is to engage in the task of evaluating the morality behind one of the heated issues in the contemporary society. The issue of human genetic engineering in particular. The morality or in other words, the rightness or wrongness of the various types of genetic engineering is the major concern of this work. It is an effort to evaluate on the altar of ethics, both the action and the result of the action as it relates to the dignity of the human person as a person, and as an agent of freewill. Iroegbu (2005) insisted

that life no doubt must be guarded and protected, 'human life, all would agree, is the central focus of all we do and say in the world, our lives and our undertakings are indeed communal as well as individual responsibility. There is an obvious varied threats on the quality and quantity of human life in our world before and now, hence the emergence of human genetic engineering. Be that as it may, Iroegbu (2005) stated that to make life worth living is an ethical imperative. The problem of the moral backing of both the means and the end of human genetic engineering is as a result of scientific revolutions, inventions, breakthroughs and so on. Thus Stan-Williams opined that contemporary researches and breakthroughs in neuroscience, as well as the technological output in the fields of cybernetics and artificial intelligence escalate this problem, because they have helped to generate further conceptions that reduce the that human person to the level of machines. This paper would make a detailed explanation of the nature and the notion of ethics in general; dwell on the various types and forms of genetic engineering ranging from surrogacy, plastic surgery, kidney transplant, cloning, abortion, eugenics, artificial insemination, kidney and liver transplant. Then make a juxtaposition using the science of right and wrong which is in other words the ethical implications of the genetic engineering mentioned.

An overview of ethics

People are not born good or bad at any time in history. However, one can become good or bad through one's free decision and actions. At all times, people have engaged themselves in asking questions about the good life. They have not only inquired about good life, what it means and takes to live a good life, but they have also engaged themselves in making judgments about good life. From the experiences of our various activities as human beings, we would accept that not every kind of behavior is satisfactory. There are some conducts, which we describe as good or right and there are others we describe as bad or wrong. We are in the world where we cannot but make decisions. This is part and parcel of our collective human experience. From this fact of human experience, ethics takes its start. Thus according to Conclaves (2005), ethics grows out of life situation in which we are confronted with some sort of perplexity or doubt about what is the right thing to do or the best course to follow.

The word ethics is derived from the Greek word 'ethos' which means 'custom' or 'conduct'. A habitual way of acting, that is to say" acquired habit, character. A meaning which is also possessed by the Latin 'moris' from the word 'mores and the adjective 'moral' are derived. Consequently, from the etymological point of view, ethical and moral serve the same purpose. The two words are often used interchangeably. People speak indifferently of ethics and morality to designate what we may define as the science or philosophy of human action. Following this understanding, philosophical ethics is often called moral philosophy.

However, distinction is; often made between the two terms. Morals or morality ordinarily refers to the conduct itself while, ethics: or ethical ordinarily suggests the study of moral conduct or system of the code which is followed. Hence morality is the basis of ethics. Hence Chukwujekwu (2007:17) asserts that by moral value and ethical values, we mean one and the same thing. Higgins (1951:10) indicated therefore that any distinction between the two terms is unnecessary and irrelevant. Igboanusi (2009:80) defined ethics as the study and evaluation of human conduct in the light of moral principles. Ethics deals with the fundamental principles of right and wrong, good and bad conduct and the conditions for ascribing moral values to intentions, decisions and actions. According to Igboanusi (2009) moral philosophy, therefore involves the analysis, systematizing defending and recommending concepts of right and wrong behaviour.

Genetic Engineering: An Overview

It is: not longer new in the medical world that human being on daily basis is faced with a lot' of challenges ranging from pathological, physical, genealogical and so on. Man in order to continue to save and make the human race better and not go extinct has come up with a lot of medical breakthroughs. Majorly, the four medical responsibilities of the physician and others involved in medical research and practice are as was stipulated by Iroegbu (2005)

1. To: conserve life
2. To alleviate suffering
3. To promote health
4. To maximize physical wellbeing integrally.

Monge (1994:45) writes that the medical profession is always at the service of 'life, Going further Igboanusi stated that the' defense of life is a problem of preserving relevance, if one considers the constant aggression on life that we witness today, life about to be born (abortion), life that is already consolidated (violence, terrorism, war) life that is on the decline (euthanasia), one immediately appreciate that we are dealing with a subject of utmost importance.

All these various challenges to human life gave birth to what we know and see today as genetic engineering.

What is Genetic Engineering

Genetic engineering is taken as the possibility and actual biotechnological breakthrough from invitro fertilization to genetic manipulation and recombination of DNA down to development of new form of human life. Pamela (1993) defined biotechnology as use of the genes of

living organism or their product to modify human health and the human environment. It is the arrangement or substitutes of genes on the molecular level within the chromosome. It involves any manipulation of the genome or intervention in human nature such as in-vitro fertilization, artificial insemination, eugenic methods, cloning, prenatal diagnosis, embryo transfer, sperm banking etc. Strictly speaking, genetic engineering involves direct intervention in the genetic makeup of an organism, the changing of genes or addition of new genes to the genetic code or blue print .of an organism to create a new organism or to repair a defective one. Gene is an element of gene plasma that transmits a hereditary character and forms a specific part of a self-perpetuating DNA in the cell nucleus. Igboanusi (2009) sees genetic engineering as a process that seeks to control, alter and determine the hereditary materials and organic structures of organisms through their inner cellular structures thus removing unwanted features and producing desirable ones, changing the phenotype through the genotype. A gene is a unit of chromosome which controls inherited characteristics. They are also information carriers. Chromosomes are tiny parts like threads in animals and plant cells, carrying genetic information on the particular characteristic that each animal or plant will have, and they are located in the nuclei of the body. Genes are what carry .out traits through generations and genes are made up of the DNA (deoxyribonucleic acid). Genes and chromosomes are sources of information. When we talk about inherited characteristics, we are talking about different types of hereditary. One is the genetic information that comes to us as members of the human species. We inherit information that is shared by all human species such as patterns of met or behavior example: walking upright, sitting down, writing and so on.

The second kind of hereditary refers to characteristics transmitted through a specific gene pool. Such traits as hair colour, skin colour, blood group, and height are all genetic information passed from generation to generation. The gene works as a guide, pattern, or language for the production of many thousands of molecules of ribonucleic acid RNA. The DNA controls the manufacture of molecules and also serves as a template for its own reduplication. It is the recipe for the regulation of all cells' life. Scientists believe they can produce living organism by producing DNA artificially in a laboratory. Having known what genetic engineering is all about, let us quickly examines the various types of genetic engineering making waves in the society today.

Plastic Surgery

New Webster's dictionary clarifies plastic surgery as the branch of surgery concerned with correcting disfigurements due to injury, age or congenital deformities usually by transfer of skin or bone. Monge (1994:45) says it is a surgery which aims to repair or restore (chiefly by tissue transfer)" parts of the body that have been lost, injured or deformed, It is mainly implored for three major reasons namely.

- To remedy a truly pathologic case of fire burns.
- To change physical appearance for aesthetic or cosmetic and
- For psychological and security reason.

Cosmetic or aesthetic surgery is one that is based purely on the quest for perfection of beauty, the quest to remain ever young and pretty. It is undertaken to aging and ugliness and to paralyze frown and wrinkled muscles. Collagen and .liposuction is usually used here. Examples are ear reshaping, anti-wrinkles injection, nose reshaping, eyelid surgery, chest implants, forehead, upper arm, breast, thigh and buttocks lift, breast and penis augmentation or enlargement, tummy tuck in, skin resurfacing and chemical/peel.

Risk of cosmetic surgery

Economically, the whole process is cost cumbersome because, even the surgery maintenance is needed and it is a continuous cost, once one step, the effect because very dangerous because the person involved becomes uglier than before,

Penile augmentation is seen as unsafe and unethical since it can result to permanent dysfunctions some of the injections can cause allergic reaction for the users. Over treatment cause burns and scars. For the face lifts, damage to facial nerves may cause temporary insensitivity in some parts of the face. There may be infrequent risk of blood pooling, infections, hair loss. In liquosusction, one can be sent into shock due to excessive loss of fluid during suction process.

Ethical evaluation

The general health of the subject ought to be protected from notable risk Secondly, any surgery that is undertaken to seduce one into sin or damage to the function of the physical organ has no moral backing. It was for such reason that Stella Obasanjo lost her life and Michael Jackson was looking like a demented wizard before he died. Thirdly, any operation that exposes the psychical body to burn or disease such as cancer, just for more vanity or the whims of fashion is not advisable. Fourthly, after plastic surgery, the skin becomes so soft and so sensitive to heat; sun and physical blow or injury that its fragility becomes a cause of concern strenuous work is ruled out.

New Reproduction Technologies

It involves the use of some techniques to carry out artificially what other-wise happens naturally. It is also seen as the use of skill or technology to cause conception in an extra-

ordinary way. It is done artificially by the use of some already invented i.e, productive techniques for the service of man. Reproductive technologies manufacture human beings in the laboratory by using artificial means. It is the application of biotechnology to problems of fertility and practice to childbirth. Anthony Dyson say RTs refers to all forms of biomedical interventions and help a man or woman may encounter when he/she considers having or not having a child. Some of this technologized parenthood are:

- Artificial insemination
- Surrogate motherhood
- Cloning
- Abortion
- Eugenics

Artificial insemination/invitro fertilization

Artificial insemination is among the technologies in use for the couple who do not have children of their own. It is impregnation not by means of natural intercourse but by means of mechanical or artificial aid e.g syringe used for the transfer of sperm. It is the abnormal biological process of a woman getting pregnant by injecting the sperm into the uterus via instrument. In the process, the sperm donor typically masturbates to collect sperm, which is introduced into the woman's vagina by a catheter. At times condom or Onanism is employed to collect it. If the sperm is obtained from a donor, it is called heterogeneous insemination (HI) but if it is gotten from the wife's husband, it is called homologous insemination. If it is introduced into the uterus, it is called intra uterine insemination, if it is into the woman's cervix then intra cervical insemination. Another is done by the mixture of a husband's sperm with that of a donor AIHD Artificial Insemination by husband and donor but this usually gives rise to legal and moral problem as regards the paternity of the child. Pancoat, a medical professor was the first person to perform artificial insemination on a human being.

Ethical implication

Some wives are usually accused of infidelity and consequently divorced. So in order to avoid paternity problem, some doctors deliberately hide the identity of the donor, fatherhood is hence reduced to the plane of commercialization. Artificial insemination does not cure or reverse the situation of infertility hence it is not a therapeutic healing. This biotechnological approach has given rise to a lot of women deciding to become single mothers without any keen interest in who the biological father of the baby is, therefore denying the baby the right of having a father. There is a great chance that in a sperm bank, the same material will be used for multiple inseminations, therefore, those children will be half-brothers and consequently, there may be marriage of half siblings that are unaware of their conditions.

Surrogate Motherhood

Surrogacy means mercenary or borrowed. Surrogate mother therefore according to Okoro (2009) represents 'all manners of activities in which women are paid to bear children for other women and/or couple. The transaction entails, bringing a woman (surrogate mother) to carry a pregnancy by whatever avenue of fertilization and get her paid an amount certain in money so as to make her give up the rights she has over the baby when she is delivered of the baby. The prospects of using a surrogate arises when a married couple cannot have a child of their own, specifically when a woman (the wife) is unable to conceive or carry a pregnancy to term. Here, the child is alleged to be "a tenant" or a "resident" in a rented womb. The surrogate is indeed the mother of the child both genetically and gestationally. She is called a surrogate merely for psychologically and commercial purposes. Okoro (2009) noted that much as some have argued that it is an anti-abortion measure, has led to dehumanization of womanhood, loss of dignity and the loss of the fundamental, civil and moral rights of the girl child. In explaining commercial surrogacy, Anderson (2007:42) states that a commercial surrogate mother is anyone who is paid money to bear a child for other people and terminate her parental rights so that the others may raise the child as exclusively their own.

Ethical implication

When women's labour is treated as a commodity, the woman is degraded and the child is as well as degraded by reducing their status to that of commodities. Okoro (2009:94) opined that, naturally, the relationship between children and their parents entail love, care and nurtured parent love also entails passionate and unconditional commitment to nurture one's baby. From the foregoing, she and the couple who pays her thus treated her rights as a kind of property right'. Another major issue embedded in the practice of surrogacy is that 'one can give birth to one's own relation since actual intercourse is oftentimes not necessary. This practice changes the perspective of the surrogate mother and hence 'her morality and life style are affected; she may become sexually promiscuous. This practice is sometimes deceitful because by preaching the message of love, generosity and altruism, the agency or broker manipulates the woman's emotions to his own advantages and that of his clients. Many commercial promoters of surrogacy thus see surrogate mother as inanimate objects, mere 'hatcheries' 'plumbing' or 'rented apartment', things without emotions and rights.

Abortion

Igboanusi (2009:46) defined abortion as the termination of pregnancy before the baby is viable outside the womb of the mother. The termination of the fetus occurs in-between fertilization and delivery of the baby. We have two types of abortions; they are voluntary or involuntary and direct and indirect. Voluntary abortion is also known as direct abortion. In this case, the mother is completely aware that she is pregnant and goes to make conscious

effect to get rid of the fetus. Involuntary abortion, otherwise known as indirect abortion is a case where the baby is ejected unknowingly and or unconsciously it is technically known as miscarriage. Igboanusi (2009) stated that direct abortion is where the act of ejecting the baby is done with full intent and instrumentality or corporation of the mother. Indirect abortion is the case where there is a complication in the health of the mother and as a result of the therap. The baby is lost, but this is not willed by both the doctor and the mother.

Ethical Implication

Some pro-abortionists project an argument in favor of abortion, based on the fact that women have the right to choose to have sex without the corresponding resultant effect of keeping the baby of fertilization occurs. They hold that women have right over their body. Again they propagate the case of abortion on the ground of rape that the baby should be exterminated. Igboanusi (2009) stated that the anti-abortion group argues that the baby in the womb is a human person and as such, as the right to live and be protected by the mother. Abortion is considered under the humanistic point of view a colossal crime and unjust execution and denial of a right to live of the unborn. The supporters of anti -abortion are known as the pro-lifers, they hold that life starts at conception and ends in death. Two cardinal ethical issues here are: the moral status of the fetus which implies if the fetus is a person, at what stages does it becomes a person and what is the right of the pregnant woman-does she have the right to choose to carry or not to carry the unborn. Another dimension to this is when the mother is exposed to danger of death, can abortion be sought for.

Cloning

This is the identical representation or copying of the same human genome into as many copies as wished. It is an aspect of Biotechnology or Genetic Engineering that raises serious issues of moral argument. In a loose sense, cloning occurs naturally in the birth of monozygotic twins otherwise known as the identical twins. It is done in two different ways which are DNA sequencing and Recombination DNA. We have reproductive cloning and research cloning. Reproductive cloning is the type of cloning that gives rise to child birth, often multiple. In producing genetically identical offspring or clones, embryos can be twined or split. Here an early embryo is split in vitro and both parts will then be implanted in a womb, so that they can develop into individual organisms genetically identical to each other. This process occurs naturally with identical twins. This is usually what happens when women go for fertility treatment; they are induced to have multiple births. Research and therapeutic cloning occurs when after using the cells of organism after birth, nuclear transfer can also be done using embryonic cells, also called stem cells, which can be manipulated to develop into various organs of the body. Here, the cloned embryo is not transferred into a womb; rather, it is used to obtain tissue or patient specific stem cell, which is used for

research and therapy. They are harvested for organ replacement therapies in what is referred to today as 'regenerative medicine'

Ethical Implications

Creating and killing embryos for stem cells are a very big moral issue. Embryos do not survive the isolation of embryonic stem cell. So creating and killing embryos for the purpose of harvesting their stem cells trivialize human life. The issue of morality here is that embryo is a human person as should he be treated as one. The creation and killing of the embryo result to a grave moral evil. Another very prominent ethical implication of this is that of moral consent. More often than not, the donors are not aware that their eggs donated for fertilization are being used and manipulated for research purpose. It is a very big principle in applied ethics to inform donors and get their full conscious consent. Financial inducement is another ethical issue with cloning. The financial incentives is usually employed as a means of getting women to donate their egg which forms the integral part of their body, and as such, should not as a matter of morality be commercialized. Some go as far as inducing women unduly, force or blackmail them into to give in their body parts for others or even for therapy. When women are commercialized, they are reduced to objects. Igboanusi (2009) posited that the awareness that one is a clone may limit the sense of self and independence that he or she has and thus reduce his or her autonomy.

Eugenics

Etymological speaking, eugenics comes from two Greek words: eu meaning good and gene meaning birth. Putting the two together, eugenics implies good birth. In a concise way, it simply means Good Breeding. Edmund Igboanusi defined it as 'the theory that only the good and viable persons should be encouraged to assist in the continuation of the species. The ugly and bad people should not be allowed to reproduce. Oxford advanced learners' dictionary 6th edition sees it as 'the study of the methods to improve the mental and the physical characteristics of the human race by human race choosing who may become parents. Igboanusi (2009) stated that this certainly assumes that humans have absolute powers over who gets born, and how they get into this world, and by whom. Plato in his discussion with Socrates suggested that strong men should be mating with the best of the women as often as possible so as to bring up only the best of offspring. Plato opted for the education of the children of healthy, fine, robust and strong parents for only these can yield better forms of humanity.

Ethical Implications

The ethical implication is as the same as that of cloning, except that this approach when employed would deny some members of the society of human person their right of procreation which is a natural right and as such one should not be alienated from it.

Summary and Conclusion

The major task of this paper was to explain what ethics is and what ethics is not. It should be well noted that the only issue which forms a topic in applied ethics is one which has a wide controversial background. Human genetic engineering therefore is a hot and contemporary issue in ethics. Be that as it may, genetic engineering still makes wave and is always seen on the front burners of the lives of human being in the present society. The major submission on the issue of ethics and genetic engineering is situated in the postulation by Immanuel Kant. Human beings as a matter of dignity should be seen and taken as ends in themselves and not as a means to an end. Again human person has got a dignified status from nature and as such, should be seen and treated as such. Human person should not be treated as an object in whatever measure; dehumanization of human being is absurd, irrespective of whatever biotechnological breakthrough; worst still is to be used as guinea pig or an object of experiment. Commercialization of the human person is degradation to the dignity bestowed on human person. In the effort to advance the course of humanity, freewill and consent should never be relegated to the background, because it is the costliest asset of the human person, and should not be toiled with. The life of the human person is sacred and ought to be respected.

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