Pre-implantation genetic diagnosis and human enhancement: The new eugenics

Eugenics, from the Greek “eu” (good) and “genus” (born) is a concept that means well-born and refers to any intervention on human individuals or populations which aims to improve their genetic characteristics.

The concept was firstly introduced by Sir Francis Galton, an eminent Victorian doctor, to refer to programmes of humanity improvement by selective mating. Later on, at the beginning of the XX century, the eugenic currents arose again, more strongly, when the theories of genetic inheritance were rediscovered. From this point, an exaggerated idea of genetic determinism towards human physical and mental characteristics, good or bad, was established. Such ideas were applied then to individuals in a society, under the theory of social eugenics or social Darwinism, which aimed to justify the superiority of some humans over others based on their genetic characteristics.

In general, eugenics can be understood from two different points of view: positive eugenics, which would favour the reproduction of people with good characteristics, and negative eugenics, which, contrary, would avoid the reproduction of people with bad or unfavourable characters for the humanity. The implementation of such theories in the practice has been, accordingly, radically opposed.

An example of positive eugenic practices was implemented in Singapore, where the marriage between university graduates was promoted, with the hope to generate better children. Nevertheless, especially dark episodes have been produced along the history regarding negative eugenics. From 1896, the United States applied negative eugenic measures and enacted laws against the marriage and reproduction of mentally ill people and criminals. European countries such as Germany, France or Sweden also adopted eugenic measures, particularly forcing sterilisations on racial and ethnical minorities and mental ill. However, the case where this idea was taken to the extreme was during the Nazism, being one of their main goals to achieve the so-called Aryan race. According to this ideology, only the superior race was allowed to procreate and the inferiors -which included for instance criminals, mentally ill, physically disabled, political dissidents, homosexuals, religious and weak- would be persecuted.

After this horrendous episode, the scientific community and societies realised that behind a theory that may sound positive and enriching for humanity, the practical issues may cause enormous damage. A lot of prevention regarding eugenics has been put and is taken into account nowadays. In fact, from the Nuremberg trials that judged the crimes against humanity occurred during Nazism, several declarations, protocols and laws regarding human protection have been promulgated.
Importantly for this work, I will mention the Universal Declaration on the Human Genome and Human Rights, adopted in November 1997. The first article states that “The human genome underlies the fundamental unity of all members of the human family, as well as the recognition of their inherent dignity and diversity. In a symbolic sense, it is the heritage of humanity”. Moreover, the declaration includes the right of the persons not to be discriminated, in its article 6: “No one shall be subjected to discrimination based on genetic characteristics that is intended to infringe or has the effect of infringing human rights, fundamental freedoms and human dignity”. This declaration situates human being in the centre of fundamental rights and recognises them regardless any genetic characteristic. The use of negative eugenics would be, then, a practice against human rights.

What is the situation nowadays regarding eugenics? The fact is that no direct or evident eugenics practices are being developed, at least in the western countries where transparency is assumed. However, a debate is established regarding the use of new genetic engineering techniques on the human being, particularly around two main practices: pre-implantation genetic diagnostics (PGD) and human enhancement.

The first, PGD, is the study of the human embryo DNA to select those that meet certain characteristics and/or to eliminate those carrying a birth defect. The objective of this technique is, mainly, to prevent the birth of children with diseases or with birth defects. However, it can be also used to choose the characteristics of the baby.

PGD is a technique with enormous potential to avoid unnecessary suffering and pain to individuals that otherwise would have the disease and would be affected their entire life. It is usually applied nowadays in families with high risk of transmitting a hereditary character (cancer, mental diseases, sickle-cell disease, etc). But PGD is also being used to get birth the so-called designer babies, whose characteristics such as hair and eyes colour, and other physical and psychological features have been previously chosen.

The choice of physical and psychological characteristics through PGD to have better children leads us to the topic of human enhancement, which is a topic in intense debate nowadays about the possible future scenario. The human enhancement will be able to improve or enhance basic human capacities and would be able to create a "superior" human race. Examples of enhancement include life extension (the fountain of youth?), physical enhancement (stamina, strength, flexibility, coordination, agility...), mood and personality enhancement (best characteristics to be successful in a certain area) or cognitive enhancement (gaining, processing, storing, and retrieving information). These are examples of the possible future potential of genetics on human enhancement.

Both current PGD and future human enhancement sound at first as something that would improve our lives, and in some aspects, it could be right. However, history has taught us that all that glitters is not gold and, therefore, we should analyse the possible social impact that such practices would cause on societies and individuals.
In a first reflection, we can see that the idea of a modern eugenics could arise from the widespread use of such practices. The will of raising better children and enhancing humans would implicate the generation of a “superior” race, what remains dark situations that history has already seen. Perhaps it would not be reflected in such as extreme as the Nazism and the Aryan race, but anyways it would start creating different strata in the society between the ones who could afford this technology and the ones who could not.

A main social consequence of the widespread adoption of these practices would be the increase of inequality. Of course, the ones who have been designed to stand out over others (think faster, sleep less, live longer) would have more chances to be successful, what may include have a better job, have economic and political power, etc., what would lead to a process of perpetuation and oligarchization of such elite. It would reproduce the class struggle defined by Karl Marx but in a context of race. An additional aspect would be the stigma and pressure to change traits that were previously deemed acceptable, which now would become a sign of being “inferior” and something to be ashamed of. Another serious social consequence, that in fact is being common nowadays, is the selection of the child’s sex. In many cultures such as China and India, the preferred child sex is the male as it is associated with a source of income and support for the parents. The rates of baby girls compared to baby boys are decreasing significantly, what could bring very negative long-term consequences.

An important point of debate that also should be taken into account is the children’s right to be autonomous and be considered and end by themselves, not used as means. If the use of PGD and human enhancement is widespread established, parents will be the designers of their future children, according to their expectations and wishes. But here there is no room to consider the child’s choices. The child might be viewed as a product and, therefore, may generate a situation of domination.

Novel scientific advances in the field of bioscience and genetic engineering are having an enormous impact on how individuals and societies live, develop and interact with each other. Although all the advances are focused on improving people's quality of life and well-being, some advances might have a negative social impact is they are not universally public and free, what would be almost impossible. Humanity has overcome horrendous episodes where some dominant groups felt the power to discriminate others that were considered as "inferiors", by the mere fact of preserving the perfect human race. Fortunately, this extreme eugenics idea is not a practice anymore, however, as we learnt from our past, we should consider every scientific advance related with eugenics as a potential risk. The age of the winners and the losers has been put behind, and now anything that could show a hint of doubt should be scrutinised and analysed by the scientific community and society. At the end, we are all equal in terms of human rights, and no action should be performed against them.
References


