

Bioethics and the Crisis of Technology

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Abstract

This study aims to analyze the contemporary issues raised by bioethics in light of scientific and technological advancements, particularly in the fields of genetics, artificial reproduction, and genetic control, and the ethical and philosophical challenges they provoke. The study concluded that the expansion of scientific applications without ethical safeguards has heightened concerns about the future of human dignity and deepened the divide among scientists, philosophers, and religious scholars. The results also highlighted the need to activate a philosophy of values and rebuild legislative and ethical frameworks to ensure a balance between scientific progress and human protection, amid legal gaps and multiple crises threatening the human dimension of medical and biological practices.

Keywords: Bioethics, technological crisis, technology, biomedical ethics, ethics.

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Introduction

The ongoing debate on bioethics today raises profound questions about the expansion of its scientific applications and the evaluation of its achievements. This field has become one of the most significant areas influencing biological and bioethical issues. In recent times, bioethics has generated considerable anxiety due to growing doubts about its intellectual and practical foundations. These concerns have fueled intense discussions among scientists, philosophers, and researchers in medical and biological studies, leading to a sharp divergence in philosophical, scientific, and ethical perspectives regarding its legitimacy. Additionally, the technological breakthroughs in biology, genetics, genetic engineering, and artificial reproduction have triggered crises, urging a reevaluation of the conventional perceptions scientists hold about living organisms. Given that this issue lies at the intersection of biology, medicine, ethics, and technology, can we truly define bioethics, and to what extent has the technological crisis impacted moral values?

In light of the complex interplay between the biological, medical, ethical, and technological dimensions, two main hypotheses can be proposed to understand the contemporary bioethical dilemma. The first hypothesis suggests that the expansion of scientific applications—particularly in the fields of genetics, artificial reproduction, and genetic control—has resulted in a profound ethical and intellectual crisis, making it necessary to revisit the philosophical and moral foundations that gov-

ern biological and medical practices. The second hypothesis argues that this crisis is not merely a consequence of rapid technological breakthroughs, but rather reflects a deeper conflict among divergent intellectual systems—scientific, philosophical, and religious—regarding the concept of the human being. This calls for the activation of a philosophy of values as a mechanism to ensure a balance between scientific advancement and the preservation of human dignity.

1- Bioethics: A Conceptual Approach

It is natural that recent scientific advancements have significantly reshaped the intellectual and epistemological framework concerning living organisms. This transformation has led to the emergence of multiple concepts related to these subjects, making bioethics a central topic in cultural and scientific discourse. In this context, the concept of bioethics did not emerge in isolation from its historical trajectory or detached from its philosophical and scientific dimensions. Rather, it was shaped under the influence of a series of intellectual and historical developments.

These intellectual developments related to bioethics are deeply rooted in successive epistemological advancements and the intensive biological studies that have focused on serious scientific efforts to dispel the metaphysical illusions surrounding the interpretation of living organisms. Biologists, driven by curiosity, sought to understand the structure of living beings through precise experimental methods.

These advancements contributed to the emergence of bioethics, a relatively modern concept that, as Guy Durand states, "has undoubtedly led to multiple definitions" (Durand, 1997, p. 26). This suggests that the concept has taken on diverse and often conflicting forms, shaped by both philosophical and scientific perspectives.

For this reason, the concept of bioethics has gained significant attention among researchers, attracting a wide range of scholars in the fields of biology, medicine, and ethics. It has secured a prominent place in both scientific and philosophical discourse in general, and in the realms of biomedical, medical, and technological studies in particular. As bioethics has become a widely discussed and dynamic concept in contemporary cultural discourse, debates surrounding its content have extended into scientific, philosophical, and religious arenas. The emergence of this concept can be traced back to the United States in the 1960s and 1970s, driven by the complex challenges raised by scientists during experimental procedures on biological phenomena. This period also saw the formulation of hypotheses about the possibility of modifying biological structures, influenced by breakthroughs in biotechnology.

This scientific and historical foundation, which has played a crucial role in the emergence of this concept, provides a clear understanding of its composition. The term bioethics consists of "bio", meaning life, and "ethics", which refers to the concern for moral aspects. It is also referred to as "bioethics," meaning the ethics of biology or life sciences" (Mohammed,

1997, p. 64). As a result, studies and research within this field encompass all living organisms, including plants, animals, and humans. Research in this area has become a primary concern, prompting scholars to rely on empirical frameworks, keep pace with modern technological applications in biological and medical sciences, and strive to translate their intellectual aspirations into practical reality.

This intellectual ambition, aimed at developing the concept of bioethics and expanding the understanding of its components, has firmly established itself in the course of scientific and positivist trends, with the goal of dismantling the stereotypical image traditionally held about living organisms and deconstructing the metaphysical understanding of them. This reflects the magnitude of the issues historically associated with the concept. It allowed for the intensification of early research initiated by biological studies, which encouraged experimental approaches that formed the scientific foundation and methodological framework for advanced biological studies. This transformation began with the discovery of human anatomy, starting with Vesalius and later Harvey, who both embodied a strong desire among researchers to explore the internal and external structures of the human body (René, 1986, p. 8). Historically, these anatomical discoveries represented early intellectual breakthroughs that expanded experimental fields, thereby encouraging scientists to develop research in medical and biological aspects.

Researchers' attention in the field of bioethics has focused on exploring the network of scientific concepts within this emerging field. Thus, the significance of this transformation aimed at diagnosing the biological and ethical aspects in their historical depth. These changes did not occur spontaneously but were driven by rapid scientific developments at the physical level, as studies, in general, initially focused on understanding the nature of material bodies before shifting attention to the biological and medical fields. As "the biological was first considered a metaphysical doctrine concerned with the nature of living organs, embodying a metaphysical vision centered around the interpretation of biological phenomena" (Robert, p. 766).

This interpretation laid the groundwork for direct questions about the possibility of moving from the philosophical level to the experimental scientific level. It was, in essence, a pioneering methodological approach that contributed to understanding the true nature of living organisms. The rise of scientific tendencies became a strong indicator, leading to a focus on analyzing the elements of the body rather than merely studying the soul, a domain once explored by metaphysics.

Thus, the term bioethics was established alongside the pathways created by the biological revolution and the transformations it underwent. This occurred with the remarkable expansion of technological applications imposed by new medical concepts, which directly

or indirectly impacted the human entity in terms of its value, destiny, function, and everything surrounding it. With these scientific and intellectual conditions in place, the field of bioethics broadened, distinguishing it from medical ethics, thus paving the way for the entry of this concept into the realm of ethical discussion.

The search for the origin of the term bioethics reveals that it was first used in 1970 by the American physician Van Rensselaer Potter, who considered bioethics to be future-oriented. He did not confine bioethics to medical ethics or ethics related to biological aspects; rather, it is an ethics that takes into account the considerations, connections, and relationships between living organisms. As a result of this development, the field of ethics evolved into an important area of knowledge.

Examining the precise meaning of the term bioethics might lead us to question its content due to the ambiguity that may surround it. However, from the outset, we must fully understand that its essence aims to clarify the techniques applied to the study of living organisms, and it works in its own way to resolve ethical disputes and the issues raised by biological and medical technologies, especially after researchers, scientists, and philosophers became aware of the dangers these applications pose to the system of ethical values.

It has become clear that the importance emphasized by ethical discourse lies primarily in protecting the human entity from any distor-

tions that may affect it and preserving its identity, which comes first. It works to set boundaries free from religious, cultural, and racial considerations. Biologists and doctors are responsible for all developments related to changing the nature of living organisms, including human existence. "Because the major issues in medical ethics revolve around matters of life and death" (Alain, 1990, p. 212). Therefore, the call to focus on the physical and psychological well-being of the patient is not limited to the individual alone; rather, it opens the way for society to engage in ethical matters and contribute to the establishment of the necessary rules and laws that everyone must respect.

This problematic awareness related to the topic of bioethics has allowed those working in the biological and medical fields to understand the ideas associated with it and successfully weave this concept into its content. This coincided with important scientific developments and the growing tendencies of experimental scientists toward providing experimental and realistic explanations, preferring them over metaphysical and religious interpretations. Concepts such as biological intervention, cloning, euthanasia, cancer treatment, and life extension, among others, emerged. These concepts, in fact, emerged alongside the expansion of scientific progress and technological revolutions that delved deeply into unraveling the organic structures of living organisms. This occurred after the formation of an epistemological and realistic vision of the potential to expand technologies derived from biological stud-

ies and biomedical research, in response to the demands of the age of diverse sciences and technologies.

2- The Crisis of Technology:

Technology is defined as the applications and practices occurring in the field of science. Therefore, the intellectual debate that has deeply engaged biological, medical, and ethical issues is not detached from the dilemma left by the technical obsession. This obsession has prompted scientists and philosophers to raise various questions about the legitimacy of maintaining a rational and sound direction for the path of science, and avoiding the trap of undermining experimental scientific work that disregards the principles of respecting human nature and violating the identity of living organisms. There is also an increasing warning about the impact of technology and its negative effects on the future of living organisms in general and human existence in particular, because "there is no balance between the development of science and the reflection on its outcomes, which leads us to overestimate its judgment, considering many of its results to have negative effects on humanity, whereas in reality, we find the opposite" (Lucien, 1994, p. 323).

On the other hand, it has become clear that with the general sense among scientists, philosophers, and religious figures about the depth of the crisis, they realized on their own that they had fallen under the influence of interests that had become more powerful than ever. At the same time, various researches began to clash

with utilitarian and materialistic goals. This led Habermas to assert that most research institutions interpreted the technical-scientific process as being directed towards interests and subject to the wave of political decisions that were either to be implemented or rejected. "Thus, technology and science are no longer separate from the will of the politician. Therefore, these researches no longer become subjects of independent scientific study" (Habermas, 2003, p. 13) , due to the pressures that undermined researchers' confidence in their scientific endeavors.

This intellectual drive led to the solidification of a complete awareness among those working in the biological and medical fields about the need to intensify their intellectual concerns and efforts regarding the possibility of revitalizing the scientific and ethical debate. This debate falls within the context of understanding the limits of technology and its potential consequences and imbalances that could affect human systems at their core. Therefore, the conviction of scientists working in the experimental field was filled with awareness, especially as their will grew stronger regarding the modernization of scientific discourse and the adaptation of technical practices in response to the developments occurring at the biological and medical levels.

The necessity of reconsidering the problems faced by scientists arises during the transition from the theoretical level to the applied

level, which is directly or indirectly connected to human life. This involves examining the content of scientific methodologies in seeking the value and boundaries of scientific knowledge derived from experiments conducted on human life. It aims to embody a critical epistemological perspective primarily directed at the existence of certain objections that affect the technical depth of its multiple scientific applications, without exceeding its limits. Therefore, the call to link technology with ethics and reality is a legitimate issue. As François Dagognet says, "It has indeed been believed that the philosopher must take on this role, in order to dismantle these justifications and reconsider the results of these applications" (François, 1988, p. 164), which left many concerns about the future of experimental research without establishing ethical boundaries for them.

Thus, it became widely believed that applying technology without being aware of its consequences could lead to great dangers and difficult problems that scientists did not anticipate from the beginning. This involves surrendering to a strict will to conduct experiments without considering any ethical framework, and the drift of technology toward practical applications that it forcibly imposed on biological aspects, affecting living beings, including humans. This became a model that defines the civilizational direction of advanced societies in the production of material and intellectual progress, embodying the slogan of loyalty to the

will of knowledge, which will eventually transform over time into the will of power.

To support the anthropological nature of technology, thinkers offer two arguments: the first asserts that it is based on modern natural sciences, and the second considers it one of its tangible applications. Thanks to its groundbreaking inventions, these sciences have become one of the most prominent human achievements, making technology a part of civilization and the humanization project. It can only be assessed by linking its contribution to the development of human culture in the field of biological research. This relationship between them, in one way or another, contributes to enhancing proper experimental performance.

Thus, scientific activity aimed at truth driven by knowledge, pushing the limits of technology to its utmost. This credit goes to the meticulous strategy that scientists developed to change the human condition, enhancing thought and moving it from the stage of unscientific thought to systematic scientific thinking. It involved building a set of laws and understanding the natural phenomena surrounding humanity, and transcending religious and metaphysical states to the positivist stage, as expressed by Auguste Comte. At the same time, science began to refine philosophical, metaphysical, and religious thinking, striving to bring it to stages of maturity and awareness.

Discussing the growth of scientific knowledge and its expanding scope reveals that the pathways followed by technology in its effects on bioethics fall within the framework of

researchers' foresight. They deepened their conviction that the new techno-informatic breakthrough had created the appropriate atmosphere to enter the era of knowledge investment and its connection to artificial intelligence. This came after the eclipse of superstitious and mythical thought, which once constrained scientific reasoning, and the emergence of philosophical and scientific indications regarding the possibility of deeply understanding living beings. "Philosophers go beyond the very essence of the being, even though scientists are bolder, as they tend to examine samples... yet, with life philosophers, we gained a perspective, and even though understanding life wasn't complete, it is logical to start from this gain" (François, 1988, p. 6), which leads to focusing on the philosophical aspects of vital issues.

These transformations occurred after a knowledge expansion became evident in the changing way of understanding living beings. Technology came to be considered one of the fruits of scientific progress, which unveiled a massive scientific project. Its pace increased in recent times as scientists solidified the culture that "every development requires change," which allowed researchers to reconsider issues related to biology and medicine. This was based on the idea that these technologies would contribute to improving the human species, ensuring survival, and resisting nature.

Indeed, there were ambitions that invaded the minds of scientists to expand scientific discoveries and the growing technical and experi-

mental interests that intruded into the fields of medicine, genetic engineering, genetic control, artificial reproduction, and modifications to the human body. As a result, the involvement of technology in various knowledge fields accelerated its impact by expanding the scope of scientific applications and increasing the enthusiasm of scientists to apply it in the biological field, continuing to accompany technological development that reflects the desire to enhance mental capacities in medicine and to challenge beliefs that previously limited the will to experiment. Scientists reached a firm conviction that technology would create a better future for humanity.

It is true that the scientific ambitions held by scientists initially reflected the nobility of intellectual curiosity, the development of human capabilities, and further expansion in achieving the desired goals of research and studies that benefit both humanity and society, easing the troubles encountered in life and elevating the civilization scale. In principle, these are legitimate goals beyond dispute, and there is a need to rescue scientists, who are victims of misguided policies in exploiting their discoveries, and to liberate their research from excessive ideological and political exploitation of their inventions. Therefore, it is essential for them to remain faithful to the scientific spirit in preserving and safeguarding the human aspects from distorting their true image.

However, this scientific investment did not achieve its intended purposes, ultimately revealing an excessive acceleration in the technological and scientific applications undertaken by scientists. This left negative impacts, resulting in the fragility of the spiritual, material, and artistic dimensions of humanity. Consequently, its effects significantly altered the pattern of human life. These factors acted as direct motivators, hastening the transformation of contemporary societies from a state of psychological and biological stability to a stage of disruption that affected their ethical, aesthetic, and religious structures. As a result, ethical issues became one of the major impacts that science has complicated in its efforts to achieve a balance in the spiritual dimension.

3-Disruption of Values:

One cannot ignore the idea that "bioethics" needed the accompaniment of philosophers and ethicists if it were to adhere to the ethical conditions that keep it within the humanistic sphere, considering that humans are regarded as the highest beings in existence. Therefore, at the same time, they are seen as inherently ethical beings, based on the understanding that ethics involves a set of values that address the ideal image of human behavior. However, in reality, values became disrupted and were exposed to the invasion of the material dimension, which plunged the ethical system into a severe crisis. "The crisis that ethics faced in the late

20th century stemmed from the tremendous progress achieved in biology, which placed ethics in a crisis of foundational principles, undermining the rational framework built by the Enlightenment philosopher Immanuel Kant about a century earlier." (Mohammed, 1997, p. 63).

The presence of ethical extension in "bioethical" research was legitimate, out of concern that it might be diverted from the goals that were initially set, especially when it came to experimental issues and the acquisition of knowledge. Therefore, it could not ignore the philosophical principles to which it was historically tied. The concept of "bioethics" was deeply connected to the vital, ethical, philosophical, and religious dimensions, as it was no longer isolated from the nature of human existence, nature itself, and metaphysics. Attempting to exclude the ethical aspect from the wave of disturbances created by technology and its resulting consequences led to significant disruptions that shook philosophical, religious, and social norms.

After technology became the main driver of many practices related to vital and biological issues and the ability to absorb new knowledge in science, the intensity of the ethical concern could not escape its consequences. Over time, rational and philosophical legislations were generated to protect ethical laws from the various infringements that might affect human life due to this very technology, touching the human aspect at the core of its dignity, which requires the principle of respect. This was particularly

evident after the question of the fate of living beings turned into a fertile question regarding its essence. Therefore, it became clear that chasing after scientific and technological aspects without considering the ethical principle could divert life from its precise concept and make the scientific, biological, and experimental reading of the living organism dominant. This would make it more liberated from all spiritual and religious constraints, undermining the ethical dimension, which would later paralyze the spiritual and philosophical dimensions of humanity, paving the way for the dominance of material incentives.

The awareness of the dangers threatening ethical aspects and the consequences of scientific progress, particularly in relation to technology, led those working in ethical matters to feel the need to expand the philosophical discussion about its impact. This is especially true when its direction began to threaten the human being at its very core and foundations. Therefore, the fundamental issues concerning life in its natural concept became of particular importance, especially when the matter extended to the issue of intervening to establish genetic modifications on the biological level of humans, which could deprive them of the freedom to maintain their natural characteristics. "Experiments on humans have become an integral part of medical and biological practice. However, medical and biological ethics view them with suspicion and caution, calling for limits to be placed, as well as ethical rules and legal principles that should not be exceeded" (Omar, 2011,

p. 130) (Omar Bouftas, *Bioethics*, p. 130), while also considering respect for social norms and religious considerations.

The involvement of technology in various fields of knowledge raised the idea of reconsidering its content, both as a subject based on scientific aspects on one hand, and as a subject containing philosophical value dimensions on the other. Therefore, the goal of those who were enthusiastic about and embraced scientific achievements without ethical support was to strongly encourage the continued application of biotechnology. However, the principles of ethical action in practice urge us to be cautious, which risks undermining its natural essence.

In this context, it cannot be ignored that medical practices, throughout their history, have included ethics in dealing with patients. The medical profession requires doctors to adhere to ethical principles that go beyond spontaneity, which, over time, evolved into rules and laws that doctors must respect, willingly or unwillingly. Medical ethics also drive practitioners to understand the psychological conditions that must be present in practice and to take on a purely human dimension. Since the matter concerns illness and health, it does not exclude the existence of a close connection between medicine, philosophy, and ethics. This is where philosophical questions about the ethical value of medical technologies arose, eventually becoming practical ethics par excellence.

It has been shown that the importance emphasized by ethical discourse lies primarily in protecting the human being from any distortions that may affect it, safeguarding its identity, which comes first, and drawing boundaries away from religious, cultural, and racial considerations. Biologists and doctors are responsible for all developments related to changing the nature of living beings, including human existence, indicating that the philosophy of ethics has effectively entered the field of biology. "As for bioethics, it has remained related to the deviations and scandals associated with biological and medical research" (Antoine, 2004, p. 79). Therefore, calls for attention to the patient from both a physical and psychological perspective do not concern the individual alone but pave the way for society to engage in ethical matters and contribute to the establishment of the necessary rules and laws, which everyone must participate in shaping and respecting.

Conclusion

The emphasis on the value of the topic of "bioethics" signals the presence of human issues fraught with risks, which have been felt by those concerned with its intellectual and ethical elements. In contemporary times, it has transformed into a major concern, creating a strong sensitivity that has expanded the ongoing debate among scientists, philosophers, religious scholars, and sociologists. This has led to a complex dispute, charged with deep ideological

residues, which has even influenced political levels. It has affected the way its topics, which carry both philosophical and scientific characteristics, are addressed, as well as its impact on the ethical, religious, social, and legal dimensions. This has occurred after technology opened the door to conducting experiments and opening research laboratories, prompting scientists to expand in various fields of its applications and discoveries.

This technology, which emerged in scientific imagination, has over time transformed into a chronic problem, troubling many who work in the field of "ethical research," particularly ethicists and philosophers. It entered a phase of crisis due to the negative consequences it left at the practical level, exacerbating ethi-

cal issues through the dominance of utilitarianism, legal gaps, and medical errors resulting from a lack of awareness regarding the responsibility of protecting patients. This problematic situation led philosophy to advocate for rationality and wisdom, qualities that scientists and doctors must embody. From here, its role was reinforced in the emergence of legislation and laws that regulate experimental activities in medical and biological practices, especially when it concerns the human aspect. This became a strong foundation for philosophers to pursue the activation of the philosophy of values, focusing on the role of protecting human dignity and seeking to achieve actual harmony between the spiritual and material aspects.

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