A Legal Evaluation of Technological and Biological Interventions on the Human Body within the Scope of Transhumanism

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Abstract:

The 21st century indicates that our civilization will face a new confrontation and experience. Transhumanism—which is regarded as a second enlightenment period seeking to build upon the 18th-century Enlightenment movement, envisions the transformation of human nature from biological to bionic, aims for an urban culture dominated by artificial intelligence and cyber-technology, and pursues the deification of humanity—is the key concept for a new conception of the human in this century. It is anticipated that this ideology will give rise to numerous social, political, religious, cultural, and legal problems in the current century. Transhumanism aims to create a new human model through genetic engineering, psychopharmacology, memory-enhancing drugs, anti-aging therapies, wearable computers, and cognitive techniques, and it labels the being it seeks to create the 'transhuman.' 'Perfection' is the central concept defining this aforementioned process. It is projected that through these interventions and enhancements, the transhuman will mark the beginning of a new species, transcending its biological limitations; this idea is often presented as a continuation of evolution. This hope has already begun to drive people to prepare for this anticipated new life. Within the field of cryogenics—a science that developed after the observation during World War II that materials are more resistant to degradation at low temperatures—people are being frozen in liquid nitrogen at -196°C in new 'tombs' called cryo-tubes, awaiting a day they believe they will be reawakened. In this respect, transhumanism should not be regarded merely as an advancement or development within the fields of medicine and genetic engineering. This study aims to identify and discuss the legal issues arising from transhumanism from the perspective of the legal discipline.

Keywords: Transhumanism, Genetic Engineering ,Genetics, Robotics, Nanotechnology, Biotechnology, Neuralink, Law, Medical Treatment.

Introduction

Among the core principles upon which transhumanists concur is the necessity of elevating human abilities and bodily capacities to a superior level, enhancing the quality of life by leveraging technology, and performing all manner of bodily interventions until the targeted goal of immortality is achieved [1]. In this regard, it can be argued that the human body lies at the core of transhumanist endeavors. Transhumanism aims to create a new human model through genetic engineering, psychopharmacology, memory-enhancing drugs, anti-aging treatments, wearable computers, and cognitive techniques, referring to the human it seeks to bring into existence as the 'transhuman'. 'Enhancement' is the central concept that defines this aforementioned process. It is predicted that through such interventions and developments, the

transhuman will mark the beginning of a new species, that it will transcend its biological limits, and this idea is often framed as a continuation of evolution [2].

We are living in an era where our daily lives can now be dichotomized into digital and non-digital realms. It is becoming apparent that the day is approaching when transhumanism aims to apply this very digitalization to the human body itself. The present study will address the applications of transhumanism concerning the human body, examining them as a novel topic of discussion in terms of their compatibility with the principles of Islamic law. The possibility that new discoveries and related debates may emerge even in the time between the writing and publication of this article highlights the topic's timeliness. Simultaneously, it indicates that the scope and dimensions of the discussion are in a constant state of flux.

1. Methodology

This study employs the document analysis method, within which the concept of transhumanism, the subject of this research, has been examined chronologically through primary sources. The contemporary literature on this school of thought has been systematically reviewed and analyzed. In Turkey, there is a limited number of studies discussing the potential problems posed by transhumanism. In addition to these, data has been collected and utilized from Western academic works, including books, articles, and theses. Drawing upon the findings and evaluations, the potential legal issues arising from transhumanism have been identified and discussed. Essentially, this is a qualitative study, a common approach in the social sciences, that focuses on textual analysis.

While Islam comprehensively addresses human life through the three fundamental domains of faith, practice, and ethics, this study will not engage with the philosophical dimensions of transhumanism. Instead, it will address the issues arising from this concept from the perspectives of law and medical ethics. A central question in research on transhumanism concerns the use of medical technology not to remedy a disease, but rather to enhance and alter an otherwise healthy individual who has no diagnosed condition and is not in need of treatment [3].

Transhumanism, as a concept denoting the modification or enhancement of the human body by machines, envisions a future in which the body no longer resembles that of a conventional human. It advocates for the use of technologies that would enable humanity to overcome its physical limitations, including those of the brain, to achieve a "posthuman" existence. Coined by the British biologist Julian Huxley (1887–1975), "transhumanism" can be defined as an ideology of ultimate progress that aims to liberate humanity from the limitations of human nature, including the biological and mortal body [4]. Transhumanism can be described as a project for human self-redesign. The objective of transhumanism is the creation of a new and superior human, engineered through science. It can be readily asserted that the modern meaning, scope, and goals of transhumanism have diverged so significantly from its historical origins as to be almost unrecognizable.

This paper does not constitute a critique of transhumanism; its objective is to establish an early jurisprudential discourse on the activities of transhumanists directed at the human body.

A fundamental conflict exists between the Islamic and transhumanist worldviews: Islam perceives the human being as the pinnacle of creation, whereas transhumanism views humanity as a result of an evolutionary process, advocating for direct human intervention to guide this process and elevate the species. Consequently, this study will interrogate the foundational theses of transhumanism through the lens of Islamic principles, specifically its concept of justice and the prohibition of any non-therapeutic modifications to the human body, which is held to be sacrosanct. The stated goals of transhumanism will be examined against the backdrop of contemporary medical controversies surrounding the alteration of the natural human state. In addition to the public's interest in the deliberate or emergent direction of new technologies and their effects on humanity, it is crucial for the field of law to closely follow these advancements.

2. Discussion

It is necessary to distinguish between the terms transhuman, cyborg, and posthuman. According to proponents of transhumanism, "transhuman" signifies an evolutionary transition for humanity, aiming to slow—and ultimately stop—the aging of humans with limited lifespans, improve cognition, and strengthen the body through genetic interventions [5]. Claims that the current generations represent the last biological human species, along with the efforts of transhumanists, indicate that the objective is to bring about a transhuman generation. This study presents a preliminary assessment, from an Islamic jurisprudential (fiqh) perspective, of the candidates for this aforementioned generation.

Francis Fukuyama [6], known for his opposition to transhumanism, pointed out in a 2004 article dedicated to the subject that it could be one of the "world's most dangerous ideas." He describes it as a movement that aims for more than the Crusaders, civil rights advocates, feminists, or gay rights proponents, and he states that it is not yet easy to delineate the boundaries of the intellectual and moral threat it would pose. Fukuyama perceives transhumanism, which he frames as a challenge to evolution, as a direct attempt to intervene in humanity's biological development, believing that it will corrupt the human species [7].

The promises of transhumanists are currently attracting significant attention; while some derive hope and develop expectations from these promises, for others, they amplify fear and anxiety. A common ground between transhumanists and proponents of utopian views is that the promises of both remain unfulfilled. The most significant difference between them, however, is that while utopians aim to change the existing political, economic, or educational systems, transhumanists believe they can achieve their goals solely through the advancement of technology [8]. Rapid advancements in technology lead many to believe that the goals of transhumanists are attainable. It must also be borne in mind that technology is developed in accordance with the ideology of its creators [9].

Every step taken towards realizing the transhuman—a concept reminiscent of the fantastical scenarios in Marvel films—will become a contemporary legal issue, particularly within the framework of Islamic law. Transhumanism, already a topic of discussion in medical ethics, enters the legal domain due to its interventions aimed at altering human nature—or, in other words, the human fitra [10]. Consequently, the objective of reshaping and re-engineering the human body through a design process termed "technological evolution" [11] will certainly

constitute a key topic of debate for law, a discipline that comprehensively addresses all practical matters. Although transhumanism presupposes external intervention on the human body, the issue must also be examined as a profoundly individual matter concerning a person's right of self-determination over their own body and their corresponding responsibility to protect it.

The sophistication of a legal system is not merely indicated by the capacity of its rules to maintain social order or the deterrent effect of its prescribed punishments. Rather, the criteria for such sophistication include its dedication to normative ideals ("what ought to be"), its role in fostering societal good, and its implementation of preemptive measures to prevent harmful acts and deeds before they occur. Indeed, studies on Islamic legal philosophy frequently emphasize that fiqh (jurisprudence) exists for the well-being of humanity, both in the immediate and ultimate sense [12]. Within its systematic framework, Islamic law not only derives its rulings by considering the five fundamental values that religion aims to protect—namely, reason, life, religion, propert, and progeny—but it also simultaneously seeks to establish the means to embed, reinforce, and develop these values within society. For example, the permissibility of many medical interventions for the preservation of life, even if they involve means that would otherwise be considered illicit (haram), is a manifestation of this philosophy.

It is evident that transhumanism, which aims to present itself as an alternative to all world religions, is poised to introduce new problems to this list of considerations. This philosophy is expected to spark new debates, ranging from profound philosophical and ethical questions to the development of new instruments of military warfare.

A central question this study aims to address is the legal value of leveraging transhumanist thought, which purports to offer possibilities such as eliminating hereditary genetic disorders, delaying the aging process, and achieving a more powerful intellect and a robust immune system. This movement, with its various interventions on the human body and its ultimate aspiration for immortality—potentially signaling the end of the biological human species—raises a critical question: within what limits and principles can its endeavors offer a genuine opportunity or therapy for humanity and the world? This question can only be answered by thoroughly debating the implications of transhumanism [13].

Transhumanism aims to remedy the imperfections of humanity, which it considers inherently flawed, through genetic modification. Consequently, genetic research is of paramount importance within this school of thought[14]. Max More, a prominent proponent of transhumanism, explicitly articulates the non-religious stance of its adherents by asserting, "No more gods, nor more faith, no more timid holding back. The future belongs to posthumanity." This statement suggests that traditional concepts such as religion and a cautious, hesitant attitude have become obsolete, with the future belonging to the posthuman. The transhumanist project envisions the formation of a society independent of religion, morality, customs, and gender.

One of its most appealing aspects is the promise of cures for currently incurable diseases. Moreover, it offers a vision of a more convenient life, featuring seamless access to bank accounts, keyless systems, and improved accessibility in emergencies, thereby simplifying daily routines. Although a complete transhumanist reality does not yet exist, there are plans for

the widespread deployment of robotics in sectors such as industry, medicine, and the military. Furthermore, it is envisioned that a significant number of functions within these areas will be delegated to the control of artificial intelligence. Transhumanists anticipate that the most significant threat to their agenda will come from individuals they term "bioconservatives" or "bio-Luddites"—those who oppose biological interventions and/or mechanization and automation.

As the foregoing illustrates, transhumanists conduct scientific research to realize a set of objectives that extend beyond the mere treatment of patients, and they plan for the widespread application of these technologies to human beings in the near future. The potential legal problems that this aforementioned plan is likely to generate can be enumerated as follows:

1. Mind uploading and the enhancement of human physical and psychological capabilities are among the primary objectives of transhumanists. Through research in genetics, robotics, nanotechnology, and biotechnology, they aim for the biological transformation of the human body, thereby seeking to develop human skills and elevate their capacities. According to them, applications to human genes and the brain can make individuals more intelligent and knowledgeable. Chip technology and the associated Neuralink are being developed to achieve these stated goals.

The transhumanist perception of the human body as a "mere prosthesis" constitutes the foundation for all these aforementioned interventions. According to them, leveraging advanced technology to make improvements in the human genome and brain—in order to make the body healthier, eliminate pathogenic conditions, and enhance cognitive and affective functions—should be the foremost objective for future generations. Indeed, transhumanism rejects the acceptance of diseases and frailties stemming from human biology. The creation of a generation capable of surviving in harsh conditions, such as the poles or deserts, by introducing animal genes into humans is also among the objectives of this worldview [14].

Transhumanism envisions the widespread adoption of a transhumanist educational model. This proposed learning method aims to enhance students' cognitive and sensory abilities, with plans to utilize transhumanist technologies in the process. The abandonment of classical educational methods will be an inevitable consequence of this process, as the goal is to upload knowledge and transfer experience directly into students' brains through these new technologies. It is thought that superior students can be created through pharmaceuticals and the addition of neurons to the brain. Transhumanist education, as in many other domains, will be positioned to supplant religious education and will endeavor to cultivate a godless generation. The establishment of a brain-computer interface to directly access knowledge and experience in various fields is another of this worldview's core tenets. It is believed that with the use of new technologies, the post-human will possess broader cognitive capabilities and more refined emotions. All these proposed interventions targeting the human body—their objectives, consequences, and scope—must be examined within the boundaries established by the Islamic understanding of medical treatment. Interventions that cannot be classified as treatment, on the other hand, should be debated on the basis of the principle of maslaha (public

interest), within the context of the jurisprudential categories of needs: necessities (ḍarūrīyāt), needs (ḥājīyāt), and improvements (taḥsīnīyāt).

2. Among the proximate goals of genetic engineering is to prevent diseases that cause premature death and to delay the aging process. The ultimate objective for transhumanists, concerning the human body, is the achievement of immortality. To realize this aim, they envision the use of organ transplantation, cloning, and genetic engineering. Central to this philosophy is the idea of creating a new generation by genetically modifying humans—much like genetically modified organisms (GMOs)—to counteract aging, disease, and genetic predispositions. To this end, interventions on the fetus in utero are planned in an effort to create "healthy" embryos. Transhumanists assert that since aging leads to unnecessary suffering and eventual death, scientific advancements can soon enable longer, more productive, and healthier lives. Julian Huxley and Nick Bostrom are prominent proponents of this thesis. In his 1986 work, Eric Drexler identified nanotechnology-based cell repair machines as a suitable tool for intervening in the aging process. Transhumanists seek to treat not just the symptoms but the very source and biological process of aging itself. The fact that the body is ultimately mortal, regardless of how long it lives, has led them to the idea that immortality can be achieved by transferring intelligence from the body to computers. Thus, the human brain, freed from its body, could continue to exist in machines and subsequently be transferred to new bodies [15].

The creation of children with genes from multiple parents, engineered to be more intelligent and healthier, or the development of individuals who can run faster or remain underwater for longer periods, are among the experimental endeavors observed today, with more extreme examples anticipated in the near future. However, biotechnological efforts to become stronger, smarter, and longer-lived have not been scientifically proven.

Any effort or intervention aimed at altering human nature (fitra) is a matter that Islamic jurisprudence (fiqh) must address. Transhumanists, continuing an evolutionary-based approach, aspire to achieve a "transhuman" state with capabilities and traits that surpass the current human form. In this context, it is worth recalling the Nazi plan to create a superior German race of blond, blue-eyed, and tall individuals, which instead resulted in the birth of disabled children who were deaf, blind, and mentally ill. Critics of transhumanism, such as Leon Kass, Francis Fukuyama, Bill McKibben, and Jeremy Rifkin, argue for the importance of preserving our humanity as it is—even if it means being susceptible to disease and short-lived—rather than transforming into a transhuman state [16].

Properly debate the activities that transhumanists describe as human enhancement or improvement, the concept of "improvement" must be clearly defined. Ronald Cole, who discusses this issue, points out that an enhancement that strengthens an athlete at the cost of their health, or a memory that retains traumatic experiences with perfect clarity when they should fade over time, cannot be considered a true improvement. While treating a disease or healing a wound falls within the scope of this improvement, whether the use of the same medical techniques for cosmetic surgery constitutes an improvement is a debatable point. Cole uses the refusal of health insurance companies to cover cosmetic procedures as an argument that it is not considered a genuine improvement [17]. The Islamic perspective on cosmetic surgery will

be discussed below. Opponents of transhumanism argue that our existing genes define the boundaries of humanity and that our genetic makeup is what requires us to be accepted as fully human. They contend that any intervention in this regard would undermine the very essence of being human.

3. It is predicted that the increasing adoption of transhumanist technologies, particularly within the service sector, will exacerbate inequalities among individuals, render the pre-existing socioeconomic divide more stark, and give rise to a new caste system through an emergent transhuman generation. Critics of transhumanism contend that this prospective scenario would contravene the principle of equality, a cornerstone of Western thought since the French Revolution. It is also foreseen that the possession of certain biological advantages could impel transhumans toward a "new racism" or a form of genetic discrimination. The fundamental objectives of this philosophy include the development of pharmaceuticals and treatments to enhance the strength and endurance of athletes, and the endeavor to radically empower humans through technology, pushing them far beyond their natural potential.

A transhuman possessing genetic superiority would create an insurmountable competitive advantage over those who lack the means for self-enhancement, particularly in realms such as professional life, physically demanding tasks, and athletic competitions. Furthermore, it is conceivable that this technology could pave the way for scenarios in which industries demand individuals tailored for their specific needs, or even where so-called "superior races" might demand the services of "inferior races".

4. The development of a technology that allows for easy intervention in genes will lead to a multitude of different demands from individuals regarding both themselves and their unborn children. In this context, it should be discussed within the framework of legal science whether parents possess the right to intervene in the genetics of their unborn children. Changing circumstances of the era will likely encourage parents to utilize these technological possibilities as part of their responsibilities toward their children's education. The rights of parents to enhance their children’s abilities and memory through interventions on their brains rather than their genes should be a subject of discussion in this context. The rights of parents to intervene in their children's brains by using the technologies mentioned fall within the purview of transhumanism [18]. The existence of children born to three parents today indicates that genes not belonging to the mother or father are being utilized in genetic interventions or enhancements. Proponents of transhumanism argue that parents are free to develop the genetic characteristics of their children.

The arrival of more intelligent and capable children, as intended, could generate numerous new problems in the relationships between them and their parents. The further advancement of this technology may create issues in a child's relationship with a sibling who has a genetically superior makeup. While currently there are few examples apart from several experiments, and despite the fact that it may seem distant from our perception, it can be readily asserted that if this technology yields the desired results, wealthy individuals will likely engage in a competition to have such children. Furthermore, parents who formerly opposed genetic intervention might also lean toward utilizing this technology in an effort to enhance their

children's competitive edge under current conditions [19]. This scenario could lead to the transformation of the aforementioned technology into a significant commercial activity.

Among those who advocate for transhumanism, there are a few notable exceptions that place considerable emphasis on this issue. Researchers like Bill Hibbard predict that the desire for greater intelligence may escalate into a significant conflict, suggesting that those who promote this idea may render society unstable and insecure. The general stance of transhumanists tends to ignore the unequal conditions surrounding access to this technology, focusing instead on its individual benefits. Proponents of enhancing physical and cognitive traits through genetic manipulation view this as a matter of personal choice and freedom. In their view, such practices should be legal, provided they do not harm others [20].

5. Within the scope of transhumanism, the implantation of microchips into the body is understood to be one of the primary and initial interventions targeting the human form. Although these chips can theoretically be implanted anywhere in the body, it is generally envisioned that they will be placed subcutaneously in the area between the thumb and index finger of the left hand. The primary advantage of implanting this chip, described as being the size of a grain of rice, in the left hand is the convenience it offers, allowing for easy interaction with scanners and ensuring user-friendliness.

It is asserted that these chips will have a wide range of applications and significant benefits, from the keyless operation of various machines and enabling contactless payments, to controlling smart homes, replacing travel cards, and storing medical records in the healthcare sector. Currently, it is reported that a significant number of individuals have already undergone this procedure. These implants are poised to become an advanced dimension of wearable technology, evolving beyond commonly used devices like smartwatches.

A principal objection raised by opponents of this application is the belief that "tagging" humans in a manner akin to domestic animals is an affront to human dignity. Another significant criticism involves the perception of the human being as a source of data, raising concerns that a vast amount of bodily information could be accessed through these chips [21].

Arguably, the ultimate objective of chip technology is the development of memory chips. These chips are planned for use in both augmenting existing memory and acquiring pre-loaded memories that are not one's own. Among the promises of this technology is the ability to possess a memory containing pleasant experiences that one has not lived, or to acquire skills that have not been earned through personal effort. Furthermore, memory chips are also envisioned for the purpose of memory transference.

6. The integration of mechanical limbs into the human body to create superior and more resilient soldiers, in terms of perception, movement capacity, communication, and weapon usage, is among the primary objectives of transhumanism, particularly in military contexts.

7. Goals pursued within transhumanism include the neutralization of gender, the control of fertility leading to the proliferation of bisexual women, the production of organs using advanced technology, and the allowance of individual choice regarding these matters, along with future

efforts aimed at enabling men to give birth through implanted wombs. It is necessary to delineate the boundaries of human bodily interventions on the basis of Islamic jurisprudence, which advocates for the protection of human dignity and honor, as well as the sanctity of life and lineage, and to discuss the aforementioned interventions.

8. It is observed that various mediums such as cinema, websites, social media, and novels are employed to disseminate, instill, and promote the ideas of transhumanism. The monitoring, supporting, and effort to counter any activities aimed at spreading this understanding within the Islamic world is an issue that should be addressed from the perspective of Islamic jurisprudence.

9. Although transhumanism fundamentally operates with goals directed at humanity, the developed genetic technologies will also be utilized on animals. The creation of a new species using genes from animals possessing different characteristics is among the plans pertaining to animals. The issue of consuming meat from cloned animals or genetically modified animals will, from this perspective, generate new legal discussions.

10. It is anticipated that new professional fields will emerge in conjunction with transhumanism. Individuals specializing in areas such as robotics, coding, machine learning, and deep learning will be expected to contribute to this domain. From the perspective of Islamic jurisprudence (Fiqh), should the enhancement and bodily intervention methods developed by transhumanism not be deemed permissible, the religious-legal status (hukm) of working in these professions and developing such technologies to serve this paradigm will consequently become a contentious issue.

11. Arguably, transhumanism will introduce a range of new debates, spanning from concepts of privacy to methods of burial. Technologies, particularly chip implants, will pave the way for the commodification of personal data, including shopping and daily life habits, which will be sold as a commercial asset. This will clearly lead to the violation of personal privacy. The use of cryogenics to freeze bodies at extremely low temperatures as an alternative to traditional burial, influenced by the spread of transhumanist thought, will inevitably raise related questions within the Islamic world. The fact that many wealthy individuals, anticipating the future possibility of mind uploading, are already paying to have their brains preserved is a sign that new challenges concerning funerary rites await the field of Fiqh. Companies established for this purpose can preserve brains for many years through chemical processes. It can be asserted that the promises of immortality offered by transhumanist thought are already captivating individuals.

The vast majority of these issues projected to arise from transhumanism remain largely in the realm of speculation. The absence of tangible outcomes from this ideology is the most significant impediment to its comprehensive evaluation from the standpoint of Islamic law. It is a fundamental principle of Fiqh to issue a religious ruling (fatwa) on a matter only after assessing the consequences of an act—its potential benefits versus its harms. Fukuyama also alludes to this, stating that it is impossible to foresee the ultimate consequences of all these interventions on human nature at this stage [22]. It can be argued that prominent opponents of transhumanism in the West are attempting to protect humanity from the potential catastrophic failures of such interventions.

I believe that when the era arrives in which transhumanism intervenes in human life in all its dimensions, three dominant attitudes will emerge. The first group will consist of those who view the "possibilities" offered by transhumanism as a blessing and attempt to ground these in religious texts and classical sources. Emerging as one of the attitudes in the Islamic world in the modern era, this perspective maintains a wholly positive view of technological developments, believing they will enable Muslims to live a good life and meet their needs until the days come when they will achieve dominance.

The second group will comprise individuals who propose the acceptance of certain interventions by establishing some general principles derived from the opportunities presented by modern life, thereby allowing for limited "utilization" in a manner that does not contradict these principles. The third group consists of those who prefer to preserve the existing state of affairs without even discussing this issue, essentially adopting an attitude of ignoring it. This group, which chooses to continue classical jurisprudential discussions and safeguard tradition, will likely remain silent in the face of proposed interventions and changes that transhumanism plans to present as an "opportunity" or a "necessity/imperative" of our time.

Prophet Muhammad was not a person who provided detailed information on medicines and treatment methods but conveyed the essential rules necessary for healthy living and taught his companions about easily obtainable plants and foods that affect various ailments. The prophetic traditions (hadiths) related to preventive medicine, which can be referred to as the prophetic medicine (tıb-i nebevi), primarily compile those hadiths that encompass therapeutic information. The writing of the first independent surgical text known by Ibn al-Kūf (d. 685/1286), developed through translations from Greek and Indian medical traditions, serves as an example of the pinnacle reached by the Islamic medical tradition. In surgical interventions concerning the body, it can be said that the fundamental principles of Islamic medicine are aimed at alleviating ailments that could lead to death or protecting an organ from becoming dysfunctional.

At the heart of jurisprudential discussions concerning medicine lies the question of whether a given medical procedure constitutes a form of treatment. Scholars who advocate for seeking treatment in the face of illness base their arguments on hadiths that encourage such actions, as well as on the universal principles of Islamic jurisprudence (fiqh) aimed at the preservation of life. In its 1992 conference, the International Islamic Fiqh Academy ruled that it is obligatory (fard) to treat conditions that could lead to a person's death, the loss or incapacitation of an organ, or are contagious in nature [23]. Furthermore, the treatment of debilitating illnesses is mandated. However, they have deemed it reprehensible (makruh) to undergo a treatment if its side effects are more harmful than the existing illness itself [24].

Certain medical interventions are permitted out of necessity (darurah) to preserve life. An extreme example of this is the fatwa permitting the use of a porcine-derived heart valve for a patient who requires a valve replacement as a last resort. Within the scope of this necessity, the use of a prohibited (haram) substance or a medication derived from it is also allowed if no licit (halal) alternatives are available. A fundamental criterion in determining this necessity is to obtain the opinion of a competent and trustworthy medical expert [25].

As is evident, for a prohibited substance to be utilized, a state of necessity must exist, and a reliable expert must be consulted on the matter. For instance, for married couples with genetic disorders seeking to have children via in vitro fertilization (IVF), it is possible to perform genetic testing on embryos before uterine implantation to select healthy ones. However, if this genetic disease is present in all embryos, the use of new technologies to edit the genes of individuals desiring a healthy child could, in principle, be considered within the scope of necessity. Yet, the potential unintended consequences and the harm that germline genome editing could cause to patients have not yet been fully identified or monitored. In this regard, it can be argued that it is premature to debate the permissibility of this application. Should a technology developed by transhumanists be the only effective remedy for a disease for which no existing treatments are beneficial in the future, this matter would need to be re-evaluated within the context of its surrounding circumstances.

Genetic cloning refers to the production of another organism with the same genetic makeup, or DNA structure. It has been suggested that genetic cloning could offer numerous benefits, such as the development of permanent treatments instead of relying on medication, the production of suitable tissues and organs from animals for use in human treatments, thereby simplifying and streamlining organ transplants; the development of medications with fewer side effects; enabling women to conceive at advanced ages; preventing memory impairment and dementia; and resolving issues arising from tissue incompatibility. However, it is essential not to overlook the potential harms that may arise from this technology. Notable negative consequences of cloning technology include the reduction of genetic diversity in the gene pool, the facilitation of women's ability to bear children without the need for a family, and the resulting disruption and confusion of lineage. A significant issue arises regarding whether the child born from a person seeking their genetic clone should be regarded as a son or a sibling of that individual. In this regard, cloning possesses aspects that undermine family structure, kinship relations, and social stability. Additionally, it must be noted that errors and unintended outcomes can occur during the cloning process.

Islam ties the proliferation of generations to marriage conducted through a valid contract (nikah). A child born through natural means inherits chromosomes from both parents, while in cloning, all chromosomes are acquired from a single source. This situation also contradicts the laws of creation. The human being, created in the best stature (ahsen-i takvim), is being subjected to the status of a technological product via these methods.

The conception of another human possessing the same genetic structure as another individual through genetic cloning produces an outcome that, although often overlooked in science, does not align with the principle of human dignity, even in cases where lineage remains distinct and fixed. For instance, the necessity for a cloned specimen to be brought into the world or viewed as a mere substitute in the event of health deterioration of the individual from whom it was cloned present circumstances that contradict human dignity and honor. Proponents of permitting human cloning only under necessity argue that the ovum and sperm should be obtained from a married couple, that these should be combined during the period of their valid marriage, and that this should only occur when no alternative methods are available. Cloning

activities conducted for commercial purposes to provide spare organs are deemed impermissible (haram), as no part of the human body may be bought or sold.

The decoding of the human genome now enables the identification of an individual's predisposition to certain diseases due to genetic defects. This development necessitates a forthcoming debate within Islamic jurisprudence (fiqh) concerning the permissibility of individuals with such genetic predispositions undergoing preemptive medical interventions, such as surgery on currently healthy organs, before any disease manifests. This raises a parallel to the parable of Khidr, where a ship was damaged to save it from a tyrannical king and a child was killed to prevent future transgression and disbelief. Following this logic, should a currently healthy organ be similarly sacrificed? This profoundly difficult question must be addressed within the framework of the legal principle of Sadd al-Dhara'i (blocking the means to evil).

DNA tests conducted on thousands of genes provide a probabilistic risk assessment, expressed as a percentage. It must not be overlooked that these percentages contain a margin of error, given the absence of absolute certainty in science. It is not possible to definitively state that these defective genes will inevitably cause illness in the future. Precautionary measures such as abstaining from detrimental habits, adopting a healthy lifestyle, and proper nutrition may prevent the onset of these diseases. Furthermore, it is also possible that a cure for a potential future illness could be developed in the intervening years, or that the individual may pass away from other causes before reaching the age of onset. Considering that even healthy genes can contribute to various diseases, it is evident that there is a lack of the certainty required to permit such preemptive medical interventions. The human body, with its genes and soul, constitutes an integrated and indivisible whole. Each part is honored and inviolable. It cannot be subjected to any form of commodification or treatment that violates human dignity.

A significant portion of the interventions proposed by transhumanism are not therapeutic in nature, nor are they designed to resolve diseases with a strong likelihood of leading to death. Therefore, the use of transhumanist technologies cannot, in many cases, be considered under the category of necessities (daruriyyat). The fundamental question regarding transhumanism is whether its interventions can be evaluated within the frameworks of needs (hajiyyat) or improvements (tahsiniyyat). The use of technologies such as CRISPR-Cas9 for treating genetically-based diseases may be permissible if their therapeutic benefit is highly probable. However, such technologies, whose therapeutic efficacy has not been scientifically proven, whose long-term consequences are unknown, and which entail significant risks and potential side effects, cannot be deemed permissible even for therapeutic purposes. This is because such treatments carry numerous potential risks, including incomplete or incorrect gene editing, the treatment becoming uncontrollable, causing permanent harm instead of the desired outcome, and the possibility that an erroneous modification to the genes could lead to other diseases, such as cancer.

Transhumanism, at its core, does not aim for therapy but rather for intervention in the human genome to achieve a "superior human," as indicated earlier. It is argued that such interventions could lead to highly probable consequences, such as disrupting the balance of nature, causing a transformation of the human species, and turning the body into a biological

weapon. All these activities are considered to fall under the category of "altering God's creation" (taghyir khalq Allah). A minority of scholars who permit research on the human genetic structure, even considering it a collective obligation (fard al-kifayah), can be found. One of their primary arguments is the verse in Surah al-Ankabut (29:20), which encourages God's servants to travel the earth and observe the process of creation. However, the verses that urge the study of God's signs of creation on earth do not simultaneously provide a basis for human intervention in this creative process[29].

One of the crucial points that should not be overlooked in the discussions surrounding transhumanism is the high costs associated with these endeavors. The primary motivation of individuals and institutions supporting these projects is often driven by commercial objectives, namely the desire for profit. Each intervention aimed at the creation of a transhuman represents a commodity obtainable at a significant financial cost. The fact that the intelligence that destroys forests is the same as that which aims to restore them for increased industrial supply, or that which seeks to find cures for diseases while simultaneously consigning patients to lifelong dependency on their medications, illustrates the likelihood that transhumanism could become a commercial enterprise.

Conclusion

From a legal perspective, the topic of transhumanism appears to be one of the most significant and broad issues expected to arise in the coming decade. Preserving the nature of human beings, regarded as dignified entities, is one of the fundamental objectives of religion. The advancements in medical and genetic sciences, which allow for the reorganization of genes to treat genetic disorders, could be validated as a means of finding healing, and, if successful, might be recognized by jurists (faqih) as a legitimate form of treatment. A review of modern discussions regarding medical interventions, ranging from organ transplantation and the use of porcine heart valves to aesthetic procedures, treatment with prohibited substances, gender reassignment surgeries, and abortion, reveals that the fundamental principle in these matters is the preservation of the natural and innate structure of humanity. Interventions and the use of substances typically considered impermissible under normal circumstances are permitted under necessity to restore human health. However, the fundamental principle in any engagement with the human body is the respect for human dignity.

Transhumanism, which does not merely aim to address discomforts related to the human body or the treatment of rare genetic diseases, but rather aspires to create a genderless, superior race composed of stronger and more intelligent individuals, involves activities inconsistent with the core principles of religion regarding the protection of life and progeny. Jurisprudential science anticipates measures to safeguard human life, health, and lineage, and necessitates the prohibition of actions and practices that may cause harm even before they are initiated. This movement aims to produce "super humans" with superior traits by intervening in the human genome, offering parents the prospect of pre-planned children with desired personality and physical characteristics. Innate attributes such as eye color, skin tone, height, and muscle structure should not be commodified within a commercial sector. These characteristics fall within the domain of human dignity that must be protected. Furthermore, should permission be

granted for such activities, significant class disparities that surpass the rich-poor dichotomy could arise within society. The ideal of possessing the most favorable physical characteristics according to the expectations of modern life, or embodying the attributes celebrated by current standards of beauty, are not among the goals that religion seeks to achieve in the worldly life. Islamic thought and ethics, which emphasize privacy, modesty, and piety, actively seek to prevent any excesses in these matters even with the current means available. The prohibition of aesthetic surgeries, except in cases of necessity, serves as a clear indication of this principle.

The overwhelming majority of medications proposed by modern medicine carry the potential for side effects, and surgical interventions can lead to complications as severe as mortality. The consequences of all bodily interventions resulting from transhumanism remain largely unknown and unmeasured. If, akin to other medical interventions, the procedures carry therapeutic implications and contribute to remedying a hereditary condition or mutation, such practices can be viewed as permissible. However, there appears to be insufficient knowledge and research to support discussions surrounding the necessary application of gene-related technologies. It is conceivable that such treatments could result in fatal outcomes or produce adverse effects on future generations. For a matter to be evaluable from the perspective of jurisprudence and to warrant a legal ruling (fatwa), it is essential to observe the consequences. Thus, it may be premature to discuss this issue in terms of cost-benefit analysis. On the other hand, the activities of transhumanism, which threaten to obliterate the institution of family, the innate and natural composition of humanity, the genders created as male and female, the concepts of privacy and modesty, and ethical considerations, do not seem amenable to permissibility without necessity. Coming days and years are likely to witness intense debates surrounding transhumanism. Adopting a stance that considers both the worldly and spiritual objectives of religion will be the most prudent approach.

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