A Restatement of the Ethical View on Human Genetic Research Based on the Constitution

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Abstract: *The establishment of a sound science and technology ethics governance system is an inevitable requirement for national modernization. Faced with the development of human gene technology and the chaos in research activities, the ethical standards and legal positioning of human gene research activities urgently need to be clarified. The human rights ethics view has value inclusiveness and value fundamentality, and includes three levels of connotations: content dimension, relationship dimension, and obligation dimension. It should serve as the ethical standard for human gene research activities. Based on the provisions of China's Constitution, the human rights ethics view on human gene research, as a constitutional ethics view, can elucidate different levels of rights content, such as human dignity, life and health, and research freedom. It also addresses the weighing of basic rights conflicts and the dual obligation subjects of public and private nature. Relying on the constitutional value embedding of the research ethics view to form ethical consensus, improving ethical review through framework legislation for human rights interests, and implementing ethical responsibility through the human rights-oriented interpretation of ethical legal norms are the three pathways to realizing the human rights ethics view on human gene research.*

Keywords: ethical view on human gene research ♦ research freedom ♦ basic rights ♦ human rights ethics view ♦ constitutional interpretation

Introduction

In terms of scientific research, human genetic technology has reached a stage where it can alter human biological traits by editing human genes in reproductive or somatic cells. While this advancement has sparked significant public interest, it also raises concerns about the potential misuse of technology. The infamous case of genetically edited babies serves as a wake-up call for ethical governance in human genetic technology. The question of "what ethical view should be used to guide human genetic research activities" has become increasingly important. The ethical view on human genetic research determines the boundaries of researchers' conduct, the direction of scientific development,

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and the prospects for technological applications. Different ethical views provide varying guidance to research entities and lead to different motivational effects. Both practitioners and theorists are striving to clarify the core connotations of the ethical view on human genetic research.

In practice, ethical governance in science and technology has garnered significant attention from the state, with the establishment of a robust system in this regard becoming an essential requirement for national modernization.[1] Article 18, Clause 2 of the *Measures for the Ethical Review of Biomedical Research Involving Humans* enacted in 2016 stipulates that biomedical research involving humans must "prioritize the personal safety and health rights and interests of participants over scientific and social interests." In 2022, the General Office of the Central Committee of the Communist Party of China (CPC) and the General Office of the State Council issued the *Guidelines on Strengthening Ethical Governance in Science and Technology*, emphasizing the principle of "ethics first." This principle underscores the need to integrate the requirements for ethics in science and technology throughout the entire process of scientific and technological activities, including scientific research and technological development, and promote coordination and positive interaction between scientific and technological activities and ethical standards to achieve responsible innovation. Similarly, Article 17, Clause 1 of the *Measures for the Ethical Review of Life Science and Medical Research Involving Humans*, passed in 2023, reiterates that "the scientific and social interests of research shall not outweigh considerations for the personal safety and health rights and interests of research participants." The *Ethical Guidelines for Human Genome Editing Research*, issued by the Ministry of Science and Technology in 2024, further clarifies the fundamental principle of respecting humans, i.e., "research activities involving human genome editing should respect human dignity and safeguard the fundamental rights and interests of research participants, including the right to be informed, the right to privacy, and the right to self-determination." These measures indicate that China has strengthened the regulation of ethics in science and technology at the practical level. Currently, China's ethical review norms for science and technology focus on the social benefits of scientific research, stipulating that scientific interests must not override personal safety and health rights and interests. However, in practice, existing ethical norms primarily treat scientific research as a form of public social benefit, without adequately addressing the fundamental rights aspect of research freedom. It should be recognized that research ethics are inherently grounded in freedom, and research freedom

[1] In 2019, the Fourth Plenary Session of the 19th Central Committee of the Communist Party of China explicitly proposed to "improve the system for ethical governance in science and technology." In 2020, the Fifth Plenary Session of the 19th Central Committee of the Communist Party of China reiterated the importance of "improving the science and technology ethics system."

provides a foundational rights basis for research entities. Exercising research freedom is not only ethically justified but is also intrinsically linked to human dignity and health. These rights are included in the constitutional framework of fundamental rights and human rights at the level of positive law. China's current practice of ethical governance in science and technology relies on departmental regulations and normative documents to restrict the freedom of human genetic research, so its effectiveness is limited. Restrictions on the freedom of human genetic research need to consider the constitutional implications of fundamental rights and the ethical guarantees provided by the state's overall institutional framework. This requires a high-level, coordinated approach that integrates constitutional human rights perspectives to refine theoretical standards and interpret ethical norms in practice, so as to enhance the legal enforceability of the ethical view on human genetic research.

In theory, a minority of scholars adhere to a freedom-based ethical view on research, arguing that freedom is the ultimate value of ethical norms.[2] They believe that scientists and doctors are striving for transcendent goals, such as extending human lifespan, enhancing human capabilities, and achieving greater accomplishments, and advocate that such efforts should not be hindered unless there is conclusive evidence of danger. [3] However, this freedom-based ethical view can lead some researchers to pursue research freedom while neglecting the rights of participants and public interests. In practice, ethical review systems serve as a mechanism to restrict this freedom-based perspective. The vast majority of scholars uphold the research ethics view that research behavior should be subject to restrictions. Ethical scholars primarily focus on issues such as ethical evaluation and principles,[4] ethical boundaries,[5] and ethical governance[6] in discussing the legitimacy of human genetic research ethics. Legal scholars, on the other hand, concentrate on topics such as the rights foundation of human genetic technology,[7] the rule of law in ethical regulation,[8] the legal boundaries and responsibilities of research freedom,[9] and human

[2] Gan Shaoping, *The Ethics of Freedom Liberty* (Guiyang: Guizhou University Press, 2020), 31.
[3] Ronald Dworkin, *Sovereign Virtue: The Theory and Practice of Equality* (London: Harvard University Press, 2000), 452.
[4] Qiu Renzong, "The Argument of 'Playing the Role of God'," *Studies in Ethics* 2 (2017): 90-99.
[5] Chen Xiaoping, "A Discussion on Ethical Boundaries of Gene Editing for Humans: The 'He Jiankui Event' Viewed from Moral, Philosophical and Religious Perspectives," *Journal of Dialectics of Nature* 7 (2019): 1-13.
[6] Kewal Krishan, Tanuj Kanchan and Bahadur Singh, "Human Genome Editing and Ethical Considerations," *Science and Engineering Ethics* 22 (2016): 597-599.
[7] Wang Kang, "The Civil Rules of Genetic Right: Its Background, Principle and System," *Science of Law* 6 (2013): 59-69.
[8] Zhao Peng, "The Legalization of Ethical Regulation in Biomedical Research," *China Legal Science* 6 (2021): 38.
[9] Zhu Xiaofeng, "The Legal Boundaries and Liability of the Freedom of Human Gene Editing Research," *Wuhan University Journal (Philosophy & Social Science Edition*) 4 (2019): 21-31.

rights protection in gene editing[10] in their discussion about the limits and rules of human genetic research activities. Notably, some jurisprudence scholars have recently pointed out that "many debates have not treated human rights as the key value in judging genetic technology or have merely acknowledged their limited analytical significance."[11] They emphasize the normative dynamism of human rights as the jurisprudential boundary of genetic technology ethics. Overall, existing research approaches can be categorized into three kinds, namely ethics, specialized legal studies, and jurisprudence. The ethical research approach avoids addressing the positivist legal basis of human genetic research ethics and lacks necessary communication between ethical concepts and the values of established laws. The specialized legal studies approach treats research freedom as part of the general freedom of action under civil law and argues that the legal boundaries of gene editing research freedom lie in public interests and human health. However, it does not explore the ethical boundaries of the freedom of human genetic research from the constitutional human rights perspective. While the jurisprudential research approach considers human rights as the key value in judging the ethical legitimacy of genetic technology, it has not revealed the constitutional ethical implications of human rights or interpreted the normative efficacy and realization paths of the human rights ethics view from a constitutional perspective. Different from existing studies, this paper focuses on restating the ethical view on human genetic research from the viewpoint of constitutional human rights.

Based on the aforementioned ethical norms and the status quo of research, this paper employs the method of constitutional hermeneutics to propose the "human rights ethics view" as a solution to the issue of "what ethical view should human genetic research activities follow." By clarifying the connotation of the human rights ethics view in human genetic research, it provides a constitutional interpretation of the perspective. Specifically, it seeks to elucidate the constitutional implications of the human rights ethics view on human genetic research through the norms and values embedded in China's *Constitution* and further explores the pathway for realizing this ethical view.

I. The Theoretical Connotations of the Human Rights Ethics View on Human Genetic Research

The human rights ethics view is composed of the concepts of "human rights" and "ethics." As for human rights, they are pre-existing and foundational compared to legal norms, representing a multifaceted concept that encompasses multiple values such as freedom, equality, and welfare. Human

[10] Shi Jiayou and Hu Xinping, "Human Rights Protection in Genome Editing," *Human Rights* 5 (2022): 1-29.

[11] Zheng Yushuang, "Legal Delimitation of Gene Technology Ethics: A Human Rights Perspective," *Contemporary Law Review* 3 (2023): 78.

rights not only involve philosophical issues, such as the principles underlying human rights, but also reflect various practical issues in social contexts related to human dignity.[12] As for ethics (*lunli*, 伦理), conceptually, *lun* (伦) refers to human relationships, specifically the rules of conduct within particular social relationships, while *li* (理) refers to the principles and rules that things ought to follow. Ethics generally refers to "the rules to be followed in handling different relationships between people."[13] Given its inclusiveness and fundamental nature, the concept of human rights, human rights should serve as the value foundation for the ethical view on human genetic research.

A. The three dimensions of human rights as an ethical view

Human rights ethics is commonly understood as "the fundamental ethics and morals inherent in human rights themselves, as well as the morality, values, ethical relationships, and moral principles or norms reflected in all human rights systems and activities."[14] This generalized definition highlights two key dimensions of human rights ethics, namely the content dimension (the fundamental ethics inherent in human rights) and the relational dimension (the ethical relationships reflected in human rights). Moreover, "human rights" as a substantive term, ethical guideline, and legal concept, requires a basic, objective, and practical interpretation to be clarified and realized amidst ambiguity.[15] "Human rights are the shared ideals and value standards of humanity, as well as the inalienable rights of individuals as human beings. Respecting and safeguarding human rights is the obligation of every sovereign state."[16] This understanding implies that, beyond the content and relational dimensions, human rights ethics must also include a duty-oriented dimension that is directed toward practical implementation. Together, the content, relational, and duty dimensions form the threefold framework for understanding the connotations of human rights ethics.

The content dimension refers to the structure and elements of the human rights ethics view. The distinction between absolute ethics and situational ethics in human rights ethics provides a typological lens for understanding the nature and significance of human rights ethics. Absolute ethics emphasizes the universality and inviolability of human rights, viewing them as transcending individuals and society and as having originated from a supernatural existence.

[12] Qi Yanping and Yu Wenhao, "The Multidisciplinary and Practical Characteristics of Human Rights Law Study in China," *Journal of Shandong University (Philosophy and Social Sciences Edition)* 2 (2012): 74.
[13] Yu Shilin, *Introduction to Ethics* (Beijing: The Ethnic Publishing House, 2004), 4.
[14] Zhang Zhibing, "Preliminary Discussion on Human Rights Ethics," *Theory and Reform* 5 (2009): 133.
[15] Liu Zhiqiang, "Reinterpreting the 'Three Fundamentals' of Human Rights Jurisprudence in China," *Peking University Law Journal* 3 (2023): 571.
[16] Human Rights Theory Research Group of Guangzhou University, "An Outline of the System of Socialist Human Rights Theory with Chinese Characteristics," *Chinese Journal of Law* 2 (2015): 56.

It advocates for the absoluteness of ethical rules and principles, focusing on the relationship between individuals and these transcendent rules. In contrast, situational ethics highlights the cultural relativity and variability of human rights, asserting that human rights are tied to specific social and cultural contexts. It holds that ethical norms arise from human interactions and are shaped by particular cultural and social conditions, emphasizing the relationship between social norms and individuals.[17] Correspondingly, absolute human rights ethics refers to the inherent inviolability of human rights, including the essence and dignity of being human and the sanctity of human life. Situational human rights ethics, on the other hand, pertain to the rights and interests or freedoms entitled to individuals under specific political, economic, and cultural conditions, including fundamental political, economic, and cultural rights. While absolute human rights ethics should remain unaffected by objective conditions, situational human rights ethics depend on specific social circumstances.

The relational dimension of the human rights ethics view encompasses two aspects: the relationships between elements and the relationships between subjects. Regarding the relationships between different elements, the content of human rights ethics exists at varying orders of hierarchy. Similar to legal frameworks, reference to a more authoritative definition of higher-order rights helps avoid confusion regarding the effectiveness of different rights. These more authoritative rights, expressed through such terms as "human rights," "fundamental rights," "basic freedoms," or "constitutional rights," convey a mandatory expectation, giving greater weight to the fundamental values of society reflected by them than ordinary rights.[18] Within human rights ethics, the content also exhibits differences in hierarchy and efficacy. Based on their impact on human survival and development, absolute human rights ethics hold a higher level of hierarchy and effectiveness compared to situational human rights ethics. Regarding different subjects, since individuals must acknowledge and respect the rights and freedoms of others in exercising their rights and freedoms,[19] human rights ethics must address the conflict between different subjects in rights. The *Universal Declaration of Human Rights* emphasizes that all individuals are equal in dignity and rights, and every person is a subject of human rights. This necessitates the existence of boundaries for human rights, so that individuals should respect the rights of others while exercising their own rights to avoid infringement upon others' rights and interests. Given that situational human rights ethics are dependent on specific social conditions and

[17] Daniel Warner, "An Ethics of Human Rights: Two Interrelated Misunderstandings," *Denver Journal of International Law and Policy* 24 (1996): 398-399.
[18] Ashwini Raj, "Law and Ethics of Human Rights," *International Journal of Law Management & Humanities* 6 (2023): 2038.
[19] Article 29, Clause 2 of the *Universal Declaration of Human Rights*.

objective factors, the boundaries of human rights are more characteristic within situational human rights ethics.

The duty dimension of human rights ethics pertains to the minimum behavioral constraints that responsibility-bearing entities must undertake to realize the human rights ethics view. A widely accepted human rights theory holds that human rights and duties are inseparable, asserting that "duties are fundamental concepts in the realm of ethics."[20] Recognizing certain rights while neglecting corresponding duties undermines the conditions and limitations necessary for exercising those rights, making it impossible to distinguish between lawful and unlawful behavior and potentially leading to the abuse of rights. Therefore, it is essential to impose related duties and limitations on the exercise of rights. These limitations should not be interpreted as privileges granted to others but rather as measures within the framework of equality to prevent the misuse of rights. From the perspective of safeguarding individual or collective interests, legally defined duties and restrictions in the exercise of certain rights primarily aim to ensure the rights and freedoms of others.[21] The primary entity responsible for fulfilling human rights obligations is typically the state, which serves as the principal duty-bearer in the realization and protection of human rights. In the context of social change, other entities beyond the state may also infringe upon human rights. Particularly in cases where entities possess absolute advantages in political or economic spheres sufficient to influence absolute human rights ethics, specific private entities outside the state that pose threats to humanity, dignity, and life should also bear the obligation to respect human rights.

B. The conceptual framework of the human rights ethics view on human genetic research

As discussed above, the human rights ethics view is characterized by both value inclusiveness and value fundamentality. Grounded in fundamental humanity, it views humans as entities endowed by nature with reason and willpower, as well as the capacity for moral actions. It regards human dignity as an innate and supreme value, independent of any specific attributes or conditions.[22] Human genetic research, to some extent, can influence human nature, threaten human dignity, and endanger life and health. Therefore, the human rights ethics view is essential for regulating human genetic research activities. Without its support, the ethics of life science would be reduced to

[20] Xie Zhiyong, "Construction of Bioethics Law," *Journal of Comparative Law* 1 (2024): 5.
[21] Ramona-Gabriela Paraschiv, "The Ethics of Imposed Human Rights Exercise Limits," *Multidisciplinary Research Journal* 7 (2015): 93-94.
[22] Ludger Honnefelder, "Human Rights and Democracy in the Face of Scientific and Medical Developments — Defending Scientific, Medical and Technological Ethics," *Nordisk Tidsskrift for Menneskerettigheter* 22 (2004): 37-38.

mere rhetoric.[23] It is now necessary to clarify the connotations of the human rights ethics view on human genetic research. The clarification not only serves as the contextualization of the human rights ethics view within a specific domain but also represents a process of theoretical examination and strengthened application of this perspective in human genetic research activities.

First, the content dimension of the human rights ethics view on human genetic research encompasses bioethics and professional ethics. Depending on the degree of association between ethical content and specific social conditions, the human rights ethics view on human genetic research can be categorized into absolute ethics and situational ethics. The absolute ethical content within the human rights ethics view on human genetic research is closely tied to the ultimate goals of human genetic technology. Seen from its positive impact, human genetic research is mainly aimed at enabling scientists and researchers to achieve breakthroughs in treating various severe diseases, thereby improving human health.[24] Enhancing health and freeing individuals from diseases are undoubtedly important ways to improve quality of life, foster self-respect, and gain the respect of others. Bioethics, which encompasses humanity, dignity, and life and health, is the fundamental and most significant ethical norm in life science and medicine, and it constitutes the absolute ethics within the human rights ethics view. Unlike the absolute ethical status of bioethics, professional ethics, which includes research freedom, falls under situational ethics. The professional ethics followed by human genetic researchers pertain to professional interests, including the freedom to conduct human genetic research. However, this research freedom is not absolute; it is constrained by cultural, technological, political, and economic conditions. Seen from the negative impacts of human genetic research, such an act may diminish or deprive human subjects and embryos of their status as autonomous entities, thereby exceeding the limits of humanity, threatening human dignity, or jeopardizing the life and health of subjects or future life forms. To prevent these adverse effects, professional ethics must uphold bioethics. This requires that efforts to improve life and health through human genetic research must serve to enhance the life and health of subjects or future life forms. Throughout this process, researchers must maximize the protection of the integrity of life forms, avoiding arbitrary genetic editing, modification, or integration that could undermine humanity or degrade dignity.

Second, the relational dimension of the human rights ethics view on human genetic research addresses the resolution of conflicts of interest between

[23] George J. Annas and Michael A. Grodin, "Medical Ethics and Human Rights: Legacies of Nuremberg," *Hofstra Law and Policy Symposium* 13 (1999): 123.
[24] Madhumita Dhar Sarkar and Belayet Hussain Mazumder, "Human Gene Editing and Its Inherent Conundrums: Legal Perspectives," *Indian Journal of Law and Justice* 13 (2022): 47.

different stakeholders. Some scholars argue that human rights are tied to autonomy, which requires capability, and capability depends on technological support. Based on this, they assert that human rights merely incentivize people to "play God" and cannot prevent the dangers posed by technology.[25] This view emphasizes only the situational ethical aspect of human rights while neglecting the absolute ethical aspect. It highlights the importance of research freedom and its associated benefits within the framework of human rights, but fails to consider the relational dimension of human rights ethics view. The complexity of human genetic research consists in its involvement of multiple stakeholders with differing interests, including the parental expectation of giving birth to healthy children as subjects, the dignity and health interests of future life forms affected by human genetic research activities, and the research interests of human genetic researchers. These interests are interdependent yet often in conflict. The division of human rights ethics into absolute ethics and situational ethics provides a fundamental framework for prioritizing these interests. While research interests contribute to safeguarding the dignity and health of future life forms and the expectations of subjects, the realization of research freedom must not come at the expense of individual dignity, life, or health. Under the guidance of the human rights ethics view on human genetic research, dignity and life and health hold a higher hierarchical position than research freedom.

Finally, the duty dimension of the human rights ethics view on human genetic research requires both the state and human genetic research entities to fulfill minimum obligations of protection and non-violation. On the one hand, the state, as the primary guarantor of human rights, bears specific obligations concerning the diverse human rights interests implicated in human genetic research activities. For research subjects and future life forms, the state has a negative obligation to refrain from infringing upon their life, health, dignity, and legitimate expectations. Meanwhile, the state has a positive obligation to safeguard these fundamental and paramount interests. Therefore, the state must establish minimum protection mechanisms to shield relevant subjects from harm caused by other entities. Additionally, since research freedom occupies a situational ethical position, the scientific activities of researchers should also be consistent with the human rights ethics view. As a result, the state has an obligation not to excessively interfere with the activities of human genetic research entities and must create favorable conditions to support their research. On the other hand, human genetic research entities, compared to general subjects (research participants), possess absolute technological advantages and can exert irreversible physiological effects on the specific traits of future life

[25] Pei Yu, "New Dimensions in Human Rights Studies in Ethics: A Summary of the Fifth Forum on Human Rights and Ethics," *Studies in Ethics* 2 (2016): 138.

forms. Research entities must also bear the minimum obligation of non-violation toward research participants. With regard to the rights and interests of future life forms, researchers are justified in altering their genetic sequences only for health-related reasons. Any intervention beyond the limits of normal health considerations constitutes unnecessary genetic modification of future life forms. Such interventions are deemed improper interference with the autonomy and natural essence of future life forms and are considered an infringement of their dignity.

II. Constitutional Interpretation of the Human Rights Ethics View on Human Genetic Research

The human rights ethics view on human genetic research represents the integration of specific ethical values into human rights ideology. Incorporating values into human rights is of critical importance. Only when human rights serve the realization of real-world values can those values exert practical influence on positive law.[26] From the perspective of legal positivism, once human rights are formally recognized by authoritative institutions through official norms, they become part of the social order.[27] The recognition of human rights by a national constitution indicates that the Constitution encompasses a human rights-based ethical order, where human rights exist not only as a set of values but also as constitutionally binding norms. From the practical significance of human genetic research ethics, this perspective not only constrains the individual choices of research entities but also impacts legal rights and interests and has broader social effects. The human rights ethics view on human genetic research is not merely an issue of ethical norms but also a constitutional matter concerning the values and positioning of human rights within the constitutional framework. This view derives its constitutional implications from specific constitutional norms on which it is based. The constitution inherently requires the shaping of human genetic research ethics through human rights principles. This intrinsic connection constitutionally justifies the human rights ethics view on human genetic research. Therefore, the interpretation of the ethical view on human genetic research cannot be separated from the constitution. Such an interpretation based on the norms and values of China's *Constitution* is essential for clarifying this view's connotations and strengthening its legal enforceability. Using the constitutional norms of China as the basis for interpretation allows for a clearer understanding of the status and connotations of the human rights ethics view on human genetic research within the constitutional framework while reinforcing its legal effect.

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[26] Marko Trajkovie, "Moral Values as the Binding Force of the Human Rights," *Annals of the Faculty of Law in Belgrade-International Edition*, 2015, page 133.
[27] Ashwini Raj, "Law and Ethics of Human Rights," 2038-2039.

A. Content dimension: rights at different levels

Although the concept of "human rights" is highly abstract, it holds specific meanings within the domains of ethics and philosophy. Broadly speaking, human rights encompass not only notions of freedom, order, and justice centered on the individual but also the inherent dignity of human beings.[28] As a "thick concept" in the constitution, human rights are rich in connotations and inclusive of multiple value dimensions, capable of encompassing fundamental rights of varying natures. This inclusiveness also endows human rights with a stronger interpretive capacity for defining the ethical boundaries of human genetic research. Through a systematic interpretation of several science and technology related provisions in China's *Constitution* — Article 47, which guarantees citizens' freedom of research; Article 33 (Clause 3), which has a general human rights clause; and Articles 20 and 21, which outline the state's policy on developing natural sciences — it can be observed that the constitutional concept of human rights provides a positive legal basis for the rights content encompassed by the human rights ethics view on human genetic research.

First, the human rights ethics view on human genetic research includes the view on the right to research freedom. Article 47, Sentence 1 of China's *Constitution* stipulates that citizens shall enjoy the freedom to engage in scientific research. This provision is an empowering clause that establishes research freedom as a constitutional fundamental right and is included in Chapter II of the *Constitution*, titled "Fundamental Rights and Obligations of Citizens." It not only affirms the constitutional status of research freedom as a fundamental right but also highlights its freedom-oriented dimension, emphasizing that research entities exercise their subjective initiative to engage in scientific exploration and demonstrate creative value. Article 47, Sentence 2 of China's *Constitution* states that the state shall encourage and assist creative work that is beneficial to the people of citizens engaged in science, technology, and other cultural activities. This clause limits state-supported scientific research to activities "beneficial to the people." However, the requirement of being "beneficial to the people" does not serve as an internal limitation on the fundamental right itself.[29] Rather, it is a condition for the state to encourage and support such research activities. This reflects the state's expectation of the

[28] Zhao Tingyang, "'Credit Human Rights': A Non-Western Universal Human Rights Theory," *Social Sciences in China* 4 (2006): 21.

[29] According to the theory of internal limitations on fundamental rights, the scope of a right is defined from the outset, and the protected right inherently has certain boundaries. If the limitations on the freedom of human genetic research are considered internal restrictions of rights, it implies that only the freedom of human genetic research that "benefits the people" qualifies as a fundamental right. This inherently precludes certain behaviors from the scope of fundamental rights. For further discussion on the theory of internal limitations, see Wang Kai, "Defining the Protection Scope of Fundamental Rights," *Chinese Journal of Law* 5 (2020): 117.

social impact of the fundamental right to research freedom, which, in turn, embodies the human rights values enshrined in the constitution. From the perspective of the relationship between fundamental rights of the constitution and human rights, "fundamental rights are not merely the institutionalization of human rights; instead, they always include an orientation toward human rights, aiming to realize them to the greatest extent possible."[30] The provision on research freedom, which confines the nature of research activities, is a manifestation of the state's effort to maximally realize the requirements of human rights. The view on the right to research freedom embodied in human rights ethics view on human genetic research emphasizes not only the freedom-oriented dimension of the right but also the importance of utilizing research to achieve outcomes that are "beneficial to the people."

Second, the human rights ethics view on human genetic research encompasses human dignity.[31] Human rights are manifested as the freedoms or qualifications inherent to individuals as human beings, and are essentially respect for the dignity of individuals as human beings. Although Article 38 of the *Constitution*, which states that "personal dignity shall not be violated," has been the subject of debate as a normative basis for constitutional protection of human dignity[32], it is widely agreed that human rights in the *Constitution*, as interpreted through the general human rights clauses, include human dignity.[33] Dignity is often used as a standard for assessing the impact of human genetic technology on individuals. Originally, it means being "worthy of respect and esteem." While dignity is an intrinsic value belonging to all individuals, its application to bioethics is neither clear nor definitive. For example, while life science and technology can serve human dignity by enhancing the characteristics that make humans worthy of respect, they may also undermine human dignity by making individuals overly dependent on others' technological applications.[34] Human dignity lies in exercising a freedom of choice that may not always be free to negate and reshape a self that may not truly be one's own, implying that we are morally responsible individuals.[35] If

[30] Zhang Yan, "On the Relationship Between Human Rights and Fundamental Rights — Against the Background of German Law and General Legal Theory," *The Jurist* 6 (2010): 17.
[31] Han Dayuan, "Normative Analysis of 'Human Rights Provisions' in the Constitutional Text," *The Jurist* 4 (2004): 9.
[32] For the interpretation of human dignity from Art. 38 of the Constitution, see Lin Laifan, "Human Dignity and Personal Dignity — On the Interpretative Framework of Article 38 of the Chinese Constitution," *Zhejiang Social Sciences* 3 (2008): 47-55.
[33] Li Haiping, "Normative Analysis of Human Dignity in the Constitution," *Contemporary Law Review* 6 (2011): 27-33; Wang Xu, "Constitutional Theory of Dignity and Its Systematization," *Chinese Journal of Law* 1 (2016): 37-55.
[34] Adam Schulman, *Bioethics and the Question of Human Dignity* (South Bend: University of Notre Dame Press, 2009), 6-10.
[35] Charles Rubin, "Human Dignity and the Future of Man," in *Human Dignity and Bioethics President's Council on Bioethics,* Barbara T. Lanigan ed., 2008, page 155-170.

research entities conducting human genetic research integrate their own design philosophy into the genetic modification of subjects and future life forms, this could restrict the autonomy of future life forms and thus harm their dignity. It should be noted that dignity is typically understood as applying to existing individuals. However, in cases where technological advancements have irreversible and critical effects on future humans, human dignity becomes a way of thinking about the future. Future life forms should also be regarded as subjects of dignity and be afforded protection accordingly.

Third, the human rights ethics view on human genetic research includes the concepts of safety and welfare. Human rights are rich in connotation, encompassing multiple dimensions such as freedom, equality, and safety.[36] The human rights ethics view on human genetic research similarly boasts value inclusiveness, incorporating not only the concepts of freedom and dignity but also those of safety and welfare. Article 20 of the *Constitution* stipulates: "The state shall develop the natural and social sciences, disseminate scientific and technological knowledge, and commend and award research achievements and technological discoveries and inventions." The terms "natural sciences" and "scientific and technological knowledge" encompass human genetic technology, while "disseminate," "develop," and "commend and award" reflect the state's supportive attitude toward scientific undertakings. From a reverse interpretation, the state's "development" is not an unbounded or unconditional endorsement; the specific rules followed can be supplemented by other provisions. Given that human genetic technology is primarily positioned as serving medical services, and medical and health care is the primary application domain of genetic technology, Article 21 of the *Constitution* is directly relevant to Article 20. Article 21 states: "To protect the people's health, the state shall develop medical and health care..." A systematic interpretation of these two provisions reveals that the state is obligated to support and develop human genetic technology that promotes the health and well-being of the people. Since the misuse of human genetic research activities can endanger human life and health, which are fundamental aspects of human rights, the state's development and encouragement of natural scientific undertakings aimed at improving public health essentially constitute a human rights requirement to promote health through natural science studies (including human genetic research). The provisions on the development of natural sciences and the protection of public health in the science and technology policy clauses inject the concepts of safety and welfare into the human rights ethics view on human genetic research.

In summary, human rights are reflected not only as constitutional principles with binding effects on public authority but also as the overarching

[36] Guo Daohui, *On Human Rights* (Beijing: Law Press • China, 2015), 36-38.

values of the state and general fundamental rights encompassing specific rights content.[37] The human rights ethics view is of greater significance than general ethical norms, not only because it holds enforceable power within constitutional norms but also due to the fundamental nature of its content. This foundational aspect establishes the constitutional ethical positioning of the human rights ethics view on human genetic research.

B. Relational dimension: conflict of rights and balancing measures

The freedom of human genetic research stems from the right to self-realization, the right to pursue a free profession, and scientific freedom. However, genetic research may infringe upon the rights protected under the Constitution, including human dignity, the right to informational self-determination, the prohibition of discrimination, privacy, and life and health.[38] The human rights ethics view on human genetic research must address conflicts among constitutional rights, such as research freedom, life and health, and human dignity. Seen from a purposive interpretation of Article 33, Clause 3 (clause on general human rights), Article 47 (clause on citizens' research freedom), and Article 51 (clause on basic rights limitations) of China's *Constitution*, it is evident that the constitutional human rights framework provides a mechanism for balancing rights conflicts within the human rights ethics view on human genetic research. Some scholars argue that constitutional interpretation is theoretically appealing but practically challenging to produce a precise method for ensuring rational and scientific conclusions.[39] In reality, principles of legal ethics, which "express the meaningful connection between order and the concept of law," play a crucial role in resolving conflicts between rights and interests oriented toward different constitutional values. Analyzing such conflicts through legal ethics principles requires consideration of the extent to which positive law reserves space for a given principle, the scope of its application, and the interactions within the "internal system" of law and the "reasons of law."[40] For the constitution, ethical principles are not only reflected as constitutional values and constitutional principles but also point toward positivized rights.

When addressing conflicts between the rights of different stakeholders in human genetic research activities, we should uphold the fundamental constitutional principle of respecting and safeguarding human rights. The general human rights clause provides the basis for protecting various types of

[37] Han Dayuan, "Normative Analysis of 'Human Rights Provisions' in the Constitutional Text," 9-10.
[38] Juri Raidla, Ants Nomper, "The Estonian Genome Project and the Human Gene Research Act," *Baltic Yearbook of International Law* 2 (2002): 56.
[39] Roger Brownsword, "Regulating Human Genetics: New Dilemmas for a New Millennium," *Medical Law Review* 12 (2004): 14-38.
[40] Karl Larenz, *Methodology of the Legal Sciences*, translated by Chen Ai'e (Beijing: The Commercial Press, 2003), 211-214.

human rights. Based on objective considerations, the degree of respect and protection for different types of human rights may vary. The essential and core aspects of human rights should be given a higher level of protection than other human rights content. Seen from the perspective of the rights system and hierarchy, human dignity is the most important of spiritual rights, while life and health are fundamental among material rights. Within the framework of absolute ethics, life and health, as well as human dignity, hold a higher value priority compared to the situational ethics of research freedom. Article 51 of the *Constitution*, which addresses the limitation of fundamental rights, provides a direct basis for restricting the freedom of human genetic research. The human rights ethics view on human genetic research adheres to a principle of limited research freedom, recognizing the legitimacy of research freedom for research entities while emphasizing the human rights content of other stakeholders. This reflects the constitutional approach to balancing conflicts between fundamental rights, which involves two types of balancing: value-priority balancing and non-absolute restriction balancing. The former applies to fundamental rights that fall within the domain of absolute human rights ethics and require constitutional prioritization in protection, while the latter applies to fundamental rights within the domain of situational human rights ethics that are subject to limitations. This constitutional balancing approach defines the threefold connotations of the relational dimension of the human rights ethics view on human genetic research.

First, human dignity holds constitutional value priority. The value centered on human nature and dignity pertains to the intrinsic worth of individuals. It holds a higher priority compared to the auxiliary value of research that serves human health and dignity. This human rights-based ethical order is particularly significant in the context of human genetic research, where conflicts between fundamental rights are prevalent. One of the key ethical concerns in human genetic research is the respect for individuals as autonomous subjects capable of self-determination. Respecting self-determination means recognizing that "only an individual's subjective consciousness is regarded as the source of morality and the foundation for its application."[41] Individuals whose genes are edited should be protected from the risk of being treated as mere objects. Even embryos, which do not yet exist in human form, retain the potential to develop into human beings and should be treated as autonomous subjects. Therefore, embryos must be strictly distinguished from objects that can be arbitrarily subjected to human genetic research. For human embryos, the concept of human dignity should be extended or traced back to its origins. This extension serves to justify limited

[41] Kurt Bayertz, *Gene Ethics: Technological Intervention in Human Reproduction as a Philosophical Problem*, translated by Ma Huaiqi (Beijing: Huaxia Publishing House, 2000), 230.

human genetic editing research based on safeguarding the inviolability of human dignity.[42]

Second, life and health receive constitutional priority over research freedom in protection. Life and health, along with human dignity, are fundamental components of human rights. However, the two are not in opposition to each other. Particularly in the context of human genetic technology, health is an essential aspect of safeguarding dignity. Life and health serve as the precondition for citizens to enjoy other rights, and they hold a higher position than research freedom in terms of ethical hierarchy, constitutional value hierarchy, and rights hierarchy. Given that human genetic research activities are constitutionally constrained by the purpose of protecting life and health, the right to research freedom in such activities must not override the life and health of research participants. Accordingly, when the human rights ethics view on human genetic research encounters conflicts between research freedom and life and health, efforts should be made to prioritize the protection of life and health while seeking a balance between different types of human rights interests. This principle is reflected in Article 17 of the *Measures for the Ethical Review of Life Science and Medical Research Involving Humans*, issued in 2023, which stipulates that research interests must not surpass health rights and interests. The researchers in the gene-edited baby incident, who placed research freedom above the life and health of others, violated the human rights ethics view on human genetic research and should be legally held accountable.

Third, research freedom is not absolutely restricted despite its lower value hierarchy. The principle of value-priority balancing indicates that the protection of research freedom should be subordinate to the protection of life and health. However, this does not negate the need to respect and safeguard the right to research freedom. Therefore, based on the constitutional protection of human rights, actions that pose a threat to the rights and interests of other subjects are not automatically excluded from the scope of fundamental rights protection. Instead, they must be balanced against other constitutionally protected values. This reflects the constitutional approach to resolving conflicts between fundamental rights within the human rights framework. Research freedom, as a constitutional right, possesses the characteristics of a subjective right, enabling it to serve as a defense against state power.[43] This requires that when the state imposes restrictions on research freedom on the grounds of protecting the rights and interests of other subjects or public interests, it must adhere to the formal principle of legal reservation and the substantive principle

[42] Zhu Zhen, "Is Gene Editing Necessarily Against Human Dignity?," *Law and Social Development* 4 (2019): 178-180.
[43] Zhang Xiang, *Legal Construction of Fundamental Rights Norms* (Revised Edition) (Beijing: Law Press · China, 2017), 70.

of proportionality. In China, there is a multi-layered system of ethical norms, including laws, departmental regulations, and departmental normative documents. Where restrictions on the fundamental right to research freedom are involved, the relevant documents should undergo legality review, reasonableness review, and even constitutional review. While human genetic research activities are fraught with ethical controversies, research freedom remains a component of human rights. Consequently, the state's obligation to respect and safeguard human rights equally applies to human genetic research activities.

In conclusion, the constitutional value of human rights anchors the ethical order of human genetic research. The human rights ethics view places human dignity at the core of ethical values and uses it as the foundation for maintaining ethical order. By emphasizing the protection of human dignity, human rights ethics establishes the hierarchical value relationships within its internal structure.

C. Duty dimension: dual obligation subjects of public and private nature

International conventions have made some explorations into human rights ethics in biomedical research involving human subjects, such as the *Nuremberg Code*, which emphasizes the principles of autonomy, beneficence, non-maleficence, and justice in human experimentation, and the *Declaration of Helsinki*, which appeals to human dignity to interpret the ethical essence of human experimentation, reflecting a more open human rights ethics view.[44] However, human rights are often severely underestimated in applied ethical practices, particularly in fields such as the discussion about genetic knowledge. Moreover, the theoretical application of human rights in applied ethical practices remains significantly underdeveloped.[45] This is primarily due to the insufficient implementation of the human rights ethics view in the ethical practices of individual countries. The interpretation of the duty dimension of the human rights ethics view on human genetic research can enhance the binding force of ethical norms. Through a textual interpretation of Article 33, Clause 3 (clause on general human rights) and Article 51 (clause on basic rights limitation) of China's *Constitution*, it becomes clear that the constitutional requirements for human rights establish dual obligation subjects of public and private nature for the human rights ethics view on human genetic research. Both the state and human genetic research entities are duty-bound to safeguard human rights in the context of genetic technology.

On the one hand, the Constitution explicitly requires the state to respect and safeguard human rights, making the state the natural duty-bearer for human

[44] Tian Haiping, "The Concept of Humanity and the 'Human' in the Concept — Exploring Human Rights Ethics from the Nuremberg Code to the Declaration of Helsinki," *Studies in Ethics* 5 (2012): 11-12.
[45] Matthias Kettner, "Applied Ethics, Human Rights, and the Governance of Big Science," *Jahrbuch fur Recht und Ethik* 7 (1999): 286.

rights protection. Article 33, Clause 3 of the *Constitution*, which states that "the state shall respect and protect human rights," provides a direct normative basis for the state as an obligated entity. "The increasing complexity of society leads to conflicts and divisions within civil society, requiring state regulation to resolve such internal issues."[46] Human genetic technology alters the natural genetic causal laws, enabling the natural processes and predetermined outcomes of life development to be artificially intervened and modified through "gene design," resulting in irreversible changes to specific traits of life forms. The artificial intervention in the genetic-level natural development of humans not only has biological significance but also exerts deeper impacts on human nature. Since natural endowment is an integral part of humanity, the alteration of human life's natural development by genetic technology also alters human natural endowment. This organic and natural capacity of humanity directly affects individuals' self-perception as subjects and redefines the normative self-image of humanity.[47] The natural endowment of humanity forms the foundation of the human rights ethics view and is a critical component of absolute ethics. Once it is destabilized, the ethical order of human genetic technology faces a significant challenge. In such cases of ethical disorder in science and technology, state regulation becomes necessary, and the institutions and organizations supporting the realization of the human rights ethics view on human genetic research require state protection. However, caution is needed to ensure that state intervention in the scientific and technological domain through public authority remains within limits. The state's restrictions on research freedom must neither be too lenient, to prevent research freedom from harms to the rights and interests of other subjects, nor too stringent, to avoid excessive limitation on the space for research freedom and hence the obstacles to the welfare potential of human genetic technology. To ensure that the state effectively safeguards the life, health, and dignity of research participants without unduly infringing on research freedom, the state should adhere to the principle of proportionality and maintain appropriate and necessary limits based on constitutional balancing in regulating human genetic technology.

On the other hand, human genetic research entities bear the obligation to refrain from infringing upon the dignity and life and health of research participants and future life forms. Article 51 of the *Constitution* sets the conditions for citizens to exercise freedoms and rights, establishing the obligation that the exercise of research freedom must not harm the rights and interests of others. Specifically, it states that citizens "shall not undermine the

[46] Li Zhongxia, "Social Logic and Chinese Model of Constitutional Function Transformation," *Chinese Journal of Law* 2 (2022): 3.
[47] Ludger Honnefelder, "Human Rights and Democracy in the Face of Scientific and Medical Developments," 39-40.

interests of the state, society or collectives, or infringe upon the lawful freedoms and rights of other citizens." This clause, which establishes a system of reasonable limitations on fundamental rights, is an integral part of the fundamental rights protection framework.[48] In the field of human genetic research, it requests that research entities should not infringe upon the life, health, and other rights and interests of research subjects. The exercise of the right to freedom of human genetic research must stop where the rights and interests of others begin. Human genetic research activities that infringe upon the life, health, or dignity of others exceed the boundaries of permissible behavior and should be restricted. This clause reflects the constitution's objective value in safeguarding human rights, requiring respect for the legitimate rights and interests of other subjects. It also demonstrates that norms are neither purely factual nor purely value-based, but rather represent a positivized value requirement, embodying both the "ought to be" and the "is."[49] The objective value of constitutional fundamental rights regulates the behavior of the state, society, and individuals, imposing constraints on public authority in the public domain, including both state power and social public power.[50] In the field of human genetic technology, genetic research entities, compared to ordinary citizens, possess technical advantages that enable them to infringe upon the fundamental human rights of research participants. Therefore, fundamental rights must also apply to them[51] and require them to respect human rights. Specifically, in dealing with the impact of human gene editing technology on humanity, the autonomy of individuals is increasingly dominated by those wielding the "genetic scalpel." Through technological manipulation, embryos that have the potential to develop into life may be reduced to "objects," and humanity itself risks being transformed into a modifiable object of technology. Human genetic research entities must fulfill their human rights obligations by respecting human dignity and refraining from conducting clinical research on human embryos in the developmental process. This is necessary to avoid "reducing the unique characteristics of humanity to disposable components, turning the natural essence of humanity into a subsidiary of technological engineering, and ultimately diminishing or even erasing the awe for the miracle of life."[52]

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[48] Shi Wenlong, "On the Development of the System of Limitations on Fundamental Rights in China: The Comparison Analysis between the Article 51 in China's Constitution and the Article 19 in German Basic Law," *Journal of Comparative Law* 5 (2014): 161.

[49] Hans Kelsen, *General Theory of Law and State*, translated by Shen Zongling (Beijing: Encyclopedia of China Publishing House, 1995), 429.

[50] Li Haiping, "Reflection and Reconstruction of Objective Order of Values of Fundamental Rights Theory," *Peking University Law Journal* 4 (2020): 1077.

[51] Li Haiping, "On the Direct Effectiveness of Fundamental Rights on Social Public Power Subjects," *Political Science and Law* 10 (2018): 110-112.

[52] Shen Xiuqin, "The Challenges of Gene Technology to Human Dignity and the Constitutional Solutions,"

III. The Realization Path of the Human Rights Ethics View on Human Genetic Research

Ethical views typically fulfill the "internalization" function of ethical governance in science and technology through ethical education and advocacy, whereby "individuals internalize viewpoints they see, hear, and think into a cognitive system with objective value through introspective practice."[53] While ethical education and advocacy are among the primary means of promoting ethical consensus, this approach can only "normalize" ethical consensus as common knowledge and cannot strengthen the legally binding force of ethical views. However, the human rights ethics view on human genetic research carries constitutional implications, and specific constitutional provisions substantiate it as a constitutional ethical view. This means that the human rights ethics view on human genetic research should not merely serve as abstract and hollow principle-based guidance but should act as a value judgment standard under the rule of law, exerting binding force on human genetic research activities. As a kind of constitutional ethics, the human rights ethics view on human genetic research must be implemented within the legal order through constitutional mechanisms to achieve ethical consensus, ethical review, and ethical accountability.

A. Ethical consensus: embedding the constitutional value of research ethics view

To ensure the substantive binding effect of the human rights ethics view on human genetic research activities, it is necessary to "promote the structured integration of ethical considerations into the process of scientific and technological development."[54] The implementation of the human rights ethics view on human genetic research at the national institutional level requires leveraging the ethical function of the constitution to form a constitutional consensus on human genetic technology. This involves embedding constitutional values into the research ethics view through the normative force of constitutional values.

First, leveraging the ethical function of the constitution. Embedding constitutional values into research ethics requires fully utilizing the ethical function of the constitution. While the economic, political, and cultural functions of the constitution have received significant attention in academia[55], its ethical function has been rarely discussed. Due to the substantial logical

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Journal of Shandong University (Philosophy and Social Sciences Edition) 6 (2012): 16.

[53] Li Xinzhe and Lu Xiao, "'Constraint' and 'Internalization': Research on the Paths to Improve the Ethics Consciousness of Scientific Researchers," *Studies in Science of Science* 3 (2024): 451.

[54] Zhao Peng, "Legal Implications of the 'Ethicalization' of Governance in Science and Technology," *Peking University Law Journal* 5 (2022): 1201.

[55] Liu Maolin and Yang Lei, "A Three-dimensional Interpretation of the Concept of Constitutional Realization," *Academic Journal of Zhongzhou* 11 (2023): 64-66.

differences between legal governance and ethical governance in science and technology in terms of principles and methods, the connection between the constitution and ethics has not been sufficiently emphasized. Recent studies have gradually focused on the relationship between law and ethics in science and technology, recognizing the "value-laden nature of law," which has led to the gradual refinement of the rule-of-law approach to ethical governance.[56] "The normativity of law itself originates from ethics, while ethics are formed from the fundamental expectations within social life."[57] As an objective value order, one of the normative sources of the constitution is ethics, and the ethical connotation and function of the constitution need to be fully explored. The constitutional embedding of the human rights ethics view on human genetic research, as an ethical consensus, inevitably requires the activation of the ethical function of the constitution. "As the fundamental law of the state, the constitution is part of the overall society, holds an important position within it, and exerts influence on society as a whole as well as its various components."[58] Ethics is a domain within society, and the constitution plays a functional role in ethics. The distinctiveness of life science ethics lies in its connection to the essence of human life. A human rights ethics view encompassing life, health, and human dignity can delineate a reasonable and operable boundary within the scope of human genetic research, thereby safeguarding life and health, maintaining the autonomy of individuals, and balancing individual and public interests. The ethical function of the constitution is not to completely replace the autonomous values of the ethical domain with constitutional values but to make moderate corrections to disordered ethical orders through constitutional values.

Second, ethical review must adhere to the constitutional ethical requirements. "In the face of uncertainties in the development of science and technology, greater emphasis should be placed on the integrative function of constitutional consensus."[59] Ethical norms should be applied in conjunction with the human rights ethics view on human genetic research, which constitutes constitutional ethics. Article 4 of the *Measures for the Ethical Review of Life Science and Medical Research Involving Humans* explicitly stipulates that ethical review work and relevant personnel must comply with China's *Constitution*, laws, and relevant regulations. Compliance with the constitution by ethical review personnel inherently includes adherence to the

[56] Zhao Peng and Xie Yaowen, "The Ethical Dimension of Governance in Science and Technology and Its Legalization," *Academic Monthly* 8 (2022): 91.
[57] Zheng Ge, "The Trolley Problem and Ethical Considerations in Algorithm Design for Automated Vehicles," *Zhejiang Social Sciences* 12 (2022): 40.
[58] Lü Ning, "On the Functions of the Constitution," *Hubei Social Sciences* 4 (2009): 133.
[59] Han Dayuan and Qian Kun, "On Scientific and Technological Consensus and Constitutional Consensus," *Journal of Renmin University of China* 1 (2024): 114.

constitutional ethics of the human rights ethics view. Regarding the placement of the clause explicitly mentioning the constitution within the normative document, it is located in Article 4 of the "General Provisions" as an overarching behavioral norm. However, the constitution is not included in the basis for formulation listed in Article 1. This indicates that the intention behind explicitly mentioning the constitution is not to declare the constitutional legitimacy of this departmental normative document formulated by relevant state organs, but to emphasize the substantive intention of leveraging the ethical function of the constitution. The development of human genetic technology must not sacrifice human subjectivity; it should ensure that individuals exist as ends in themselves and not be reduced to objects deprived of autonomy. As a constitutional value, the human rights ethics view on human genetic research carries constitutional binding force and must be strictly observed by relevant research entities. According to Paragraph 13 of the Preamble of China's *Constitution*: "The people of all ethnic groups, all state organs and armed forces, all political parties and social organizations, and all enterprises and public institutions in the country must treat the constitution as the fundamental standard of conduct; they have a duty to uphold the sanctity of the constitution and ensure its compliance." The constitutional ethical positioning of the human rights ethics view determines its binding force, and adherence to this perspective by research entities reflects the implementation of constitutional values and principles.

Finally, the integration of constitutional values into the principles of life science research. In practice, the path to incorporating scientific consensus into constitutional consensus lies in the integration of constitutional values into the principles of life science research. The *Measures for the Ethical Review of Life Science and Medical Research Involving Humans* establishes beneficence, non-maleficence, and justice as principles to be followed in life science and medical research involving humans. Although the review measures do not explicitly list respect for human rights as a principle for human genetic research, the principles of beneficence, non-maleficence, and justice reflect the constitutional implications of the human rights ethics view on human genetic research. Through interpretation, it can be concluded that human rights ethics should be integrated into the principles of life science research. Specifically, "beneficence" aligns with the Article 47 of *Constitution*, which emphasizes being "beneficial to the people," underscoring that research activities should help to improve human health. "Non-maleficence" can be interpreted to reflect Article 51, which stipulates that citizens "shall not undermine the interests of the state, society, or collectives, or infringe upon the lawful freedoms and rights of other citizens." "Justice" demands overall fairness and equity, including respect for human dignity. Respecting human dignity inherently carries ethical legitimacy and is consistent with the claims of naturalistic ethics

that intrinsic value exists within certain natural attributes.[60] The report *Human Genome Editing: Recommendations* released by the World Health Organization also emphasizes the need for caution in the development of human gene editing technologies. It requested that efforts be made to maximize benefit, minimize harm, balance benefit and harm, safety and speed, innovation and access, and avoid unethical and unsafe genetic research activities.[61] "Maximizing benefit," "minimizing harm," and "avoiding unethical activities" correspond to the principles of beneficence, non-maleficence, and justice outlined in the aforementioned ethical review measures, reflecting clear constitutional values. The connection between the principles of life science research and constitutional values demonstrates that the principles of life science research inherently encompass the human rights ethics view. The integration of constitutional values into the principles of life science research provides interpretive clarity.

B. Ethical review: framework legislation to safeguard human rights interests

The implementation of the human rights ethics view on human genetic research hinges on ethical review procedures. Ethical review is a necessary mechanism to ensure that researchers comply with scientific, technological, and social norms. It helps safeguard the safety of participants while minimizing potential harm, ensuring the protection of participants' rights and the ethical execution of the research.[62] Ethical review should extend beyond the application of technology to encompass the scientific research phase and fully consider the value sensitivity of human genetic technology. In China, the scope of ethical review has expanded from "biomedical research involving humans" to "life science and medical research involving humans," thus including human life science research within its purview.[63] China has largely established an ethical review system for the scientific research phase. The 2016 departmental regulation *Measures for the Ethical Review of Biomedical Research Involving Humans*, issued by the former National Health and Family Planning Commission, and the 2023 normative document *Measures for the Ethical Review Life Science and Medical Research Involving Humans*, jointly formulated by departments including the National Health Commission, Ministry of Education, and Ministry of Science and Technology, provide

[60] G.E. Moore, *Principia Ethica*, translated by Chen Dezhong (Beijing: The Commercial Press, 2017), 45.
[61] WHO Expert Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing, *Human Genome Editing: Recommendations,* World Health Organization, 2021, page vii.
[62] Madhumita Dhar Sarkar and Belayet Hussain Mazumder, "Human Gene Editing and Its Inherent Conundrums: Legal Perspectives," 51-52.
[63] National Health Commission, "Interpretation of the Document Measures for the Ethical Review of Life Science and Medical Research Involving Humans," accessed November 17, 2023, http://www.gov.cn/zhengce/2023-02/28/content_5743660.htm.

detailed provisions on the subjects, procedures, and requirements of ethical review. However, regarding the ethical review's protection of rights and interests, these documents only briefly mention that the key focus of ethical review includes "whether the research involves conflicts of interest." This necessitates that ethical review responds to the dilemmas of conflicts of interest arising from human genetic research activities. Given that ethical review alone cannot fully resolve the conflicts of interest in real-world human genetic research, scholars have proposed the establishment of more specific, targeted legislation for ethical governance in genetic technology.[64] The rationale for this proposal lies in its reflection of the state's legislative obligation to safeguard human rights in the field of human genetic technology. The state has a duty to protect the basic rights of autonomy and human dignity in human genetic research activities. Furthermore, the higher the legal interests sought to be protected by fundamental rights, the greater the burden on the state to fulfill its protection obligations.

However, the proposal for more specific and targeted legislation faces insurmountable obstacles in terms of both necessity and feasibility. From the perspective of necessity, the legal constraints on ethics should be limited to situations where the ethical system is unable to resolve the negative externalities of human genetic research activities. If detailed and exhaustive legislation is enacted for ethical issues in human genetic technology, it could undermine the coherence of the ethical system and lead to the arbitrary imposition of law over ethics. Laws should provide moderate corrections to ethics rather than fully replace them. Furthermore, at this stage, China has already established a preliminary framework for human genetic research ethics. As a result, there is no legislative vacuum regarding the overall regulation of the ethical review of genetic technology, reducing the necessity for the state to enact specific legislation in this area. From the perspective of feasibility, regarding the specific legislation for ethical governance in genetic technology, countries around the world are faced with the challenge of constructing a well-developed and thoroughly considered ethical governance system for human genetic technology.[65] In this context, entirely new and specific legislation would involve excessively high institutional costs, making it difficult to implement. Enhancing ethical review standards aligned to the human rights ethics view on human genetic research and establishing framework legislation for its protection is both necessary and more feasible.

In terms of the content of ethical review, it is urgent to supplement the

[64] Shi Jiayou and Liu Zhongxuan, "The Rule of Law Path of Ethical Governance of Science and Technology: Taking the Governance of Genome Editing as an Example," *Academia Bimestris* 5 (2022): 190-191.

[65] Eisuke Nakazawa, Keiichiro Yamamoto et al., "Regulations on Genome Editing of Human Embryos in Japan: Our Moral Moratorium," *Cambridge Quarterly of Healthcare Ethics* 27 (2018): 360-365.

standards of human rights interests and implement framework legislation to safeguard human rights interests. Ethical regulation imposes higher demands on regulatory authorities, requiring them to provide clear, precise, and flexible rules and guidelines.[66] The focus of ethical review of technology includes activities that may impact individuals' legitimate rights and interests or pose risks to life and health.[67] Framework legislation for ethical review should address the types of human rights conflicts involved and the standards to be followed during the review process. Considerations in ethical review should include the life and health, autonomy, and human dignity of research participants, as well as the research freedom of research entities. Based on the value hierarchy of absolute ethics, which prioritizes human nature and dignity, the dignity and life of research participants and future life forms should be safeguarded as a priority. However, this should not result in excessive restrictions on the research freedom of research entities. Therefore, framework legislation for human rights interests should include limits on the protection of rights and interests. While the human rights ethics view on human genetic research advocates for respecting the rights and interests of research participants and the moral beliefs of the majority in society, its fundamental principle is to provide human rights guidance for research freedom rather than to safeguard the absolute moral status of humans at the expense of research freedom. Interventions in human genetic research activities of private entities must be based on the necessity and importance of protecting others' legitimate rights and interests and public interests with minimal harm. Particular caution is needed to avoid using abstract public interests as a pretext to infringe upon the research freedom of research entities. Public interests are conceptually indeterminate, including uncertainties in the scope of interests and the beneficiaries. Unrestrained expansion of public interests could impose excessive restrictions on the freedom of human genetic research, leading to regulatory dilemmas.[68] The limited scope of public interest serves as a safeguard for the protection of citizens' fundamental rights. Only when the expansion of public interests is necessary and can be reasonably justified does it gain legitimacy. Framework legislation for human rights interests establishes human rights as the foundation for applied ethical practices, enhancing the

[66] Melodie Nöthling Slabbert, Michael Sean Pepper, "A Global Comparative Overview of the Legal Regulation of Stem Cell Research and Therapy: Lessons for South Africa," 8 *South African Journal of Bioethics & Law* 8 (2015): 12-21.

[67] The Ministry of Science and Technology: "Promoting Technology for Good and Steering the 'Ethics Wheel' in the Right Direction — An Interpretation of the *Interim Measures for the Ethical Review of Technology* by a Relevant Official of the Ministry of Science and Technology," accessed November 19, 2023, https://www.most.gov.cn/xxgk/xinxifenlei/fdzdgknr/fgzc/zejd/202310/t20231010-188399.html.

[68] Dieter Grimm, "The Issue of Prevention in the Constitutional Perspective," translated by Liu Gang, in *Risk Regulation: Theories and Practices in Germany*, Liu Gang trans. and ed. (Beijing: Law Press · China, 2012), 113-115.

critical and reflective governance goals of applied ethics.

C. Ethical responsibility: a human rights-oriented interpretation of ethical legal norms

Accountability is the baseline for researchers engaged in human genetic research to conduct responsible research and innovation. The research and application of cutting-edge technologies should adhere to fundamental principles of responsibility, which necessitate the establishment of clear responsibility systems in both technological development and application.[69] However, ethical governance in science and technology often manifests as adaptive governance and soft regulation, where the enforcement and effectiveness of ethical responsibility in regulating research behavior remain limited. It is therefore necessary to enhance the efficiency of ethical governance through moderate legal institutionalization and to improve the formalization of ethical governance in science and technology via legal norms.[70] Strengthening the regulatory effectiveness of ethics through legal measures requires exploring paths to legal institutionalization from the perspective of responsibility as a baseline. From the relationship between law and ethics and morals, legal norms can embody specific ethics and morals. Incorporating ethical elements such as rationality, rules, and public will, along with moral elements like sentiment, action, and character cultivation[71], into legal norms can enhance the legitimacy and acceptability of such norms. Within ethical legal norms, specific ethical responsibilities are also embedded within legal responsibilities. While in certain cutting-edge fields like data technology, "limited legal provisions may not provide sufficient support for the legalization of ethics,"[72] in the field of life science, China's relevant legislation offers a broad interpretative scope and promising application prospects for the legal institutionalization of ethical responsibilities.

Since the gene-edited baby incident, China's legislative bodies have actively enacted laws regulating human genetic research activities, emphasizing the importance of compliance with ethical principles. In civil legislation, Article 1009 of the *Civil Code of the People's Republic of China* stipulates: "A medical and scientific research activity related to human genes, embryos, or the like, shall be done in accordance with the relevant provisions of laws, administrative regulations, and the regulations of the state and shall not endanger human health, offend ethics and morals, or harm public interests."

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[69] Zhang Jiyu, "Taking Science and Technology Ethics and Legal Principles Seriously," *Law and Social Development* 2 (2020): 2.

[70] Xie Yaowen and Zhao Peng, "Mechanism for Ethical Governance in Science and Technology and Its Moderate Legalization Development," *Science & Technology Progress and Policy* 16 (2021): 109-113.

[71] Yao Xinyu, "Three Comparative Meanings of the Concepts of 'Ethics' and 'Morality'," *Studies in Ethics* 4 (2006): 23-24.

[72] Li Siqi, "Research on Legalization of Data Technology Ethics," *China Legal Science* 4 (2022): 126.

In criminal legislation, the *Amendment (XI) to the Criminal Law of the People's Republic of China* includes provisions regulating the behaviors involving "implanting genetically edited or cloned human embryos into human or animal bodies, or implementing genetically edited or cloned animal embryos into human bodies," if such actions are deemed "serious" or "especially serious." In administrative legislation, Article 34 of the *Biosecurity Law of the People's Republic of China* broadly requires adherence to ethical principles, stating that "biotechnology research, development, and application shall follow ethical principles." Article 40 further mandates that "clinical researches on new biomedical technologies shall pass ethical review." Based on the prominent ethical considerations inherent in human genetic research activities, these laws use ethical compliance as a standard for legal attribution. For such abstract norms with strong ethical considerations, compliance with ethical standards dictates whether ethical responsibility and corresponding legal responsibility should be borne. The abstract standard of ethical compliance requires supplementation through the human rights ethics view on human genetic research. In this sense, philosophical interpretation and constitutional interpretation are intrinsically connected. The interpretation of "ethics and morals" in specific legal provisions involves not only understanding abstract philosophical concepts but also interpreting human rights clauses within constitutional norms. The philosophical approach asserts that any responsible method of constitutional interpretation must engage in philosophical reflection and choice. The resources for determining constitutional meaning include the essence of the matters signified by the terms and the optimal understanding of the concepts corresponding to those terms. Additionally, due consideration should be given to literal meaning, intent, and structure.[73] A human rights-oriented interpretation of ethical legal norms is a necessary means to implement ethical responsibility and achieve the legal institutionalization of ethical responsibility. It embodies the requirement for implementing the human rights ethics view.

The following aspects should be considered in the human rights-oriented interpretation of ethical legal norms. First, the health aspect of scientific and technological development, which examines whether human genetic research activities contribute to overcoming technological challenges in genetic technology. Human genetic research has a clear functional orientation, that is, it aims to address foundational theoretical and clinical trial challenges in the field of genetic technology.[74] The ethical sensitivity of human genes can only

[73] Sotirios Barber and James Fleming, *Constitutional Interpretation: The Basic Questions*, translated by Xu Shuang and Huan Shengkui (Beijing: Peking University Press, 2016), 84 and 230.

[74] The European Group on Ethics in Science and New Technologies emphasizes that with regard to human genome editing, "access to clinical studies, and once approved, to clinical application in healthcare is granted according to the principle of social justice and without discrimination." See Kewal Krishan,

be mitigated when their significance is realized at a more critical level of practical application. Ultimately, human genetic research activities should serve to improve human health and well-being. If the objective of human genetic research activities is not aimed at solving technological development challenges to enhance human health, it does not align with the human rights ethics view. Second, the dignity of autonomous decision-making, which weighs whether human genetic research activities impede the autonomous development of individual life forms. Although abstract conceptually, dignity can be assessed by determining whether, and to what extent, future life forms are free and voluntary in deciding their key physiological traits. If human genetic research applies experimental technologies directly to human embryos and causes irreversible effects on future life forms, it violates the principles of autonomy, human dignity, and the human rights ethics view. Third, the open-ended risk aspect, which evaluates whether human genetic research activities can avoid other potential ethical risks. Aside from health and dignity considerations, human genetic research activities also involve open-ended risks. For instance, the use of identifiable personal genetic information during research may lead to the disclosure of sensitive biological data associated with genetic relatives.[75] Ethical risks manifest in various forms within society, and even if they do not cause physical harm to specific individuals, they should still fall under regulatory scrutiny. Therefore, the anticipation of key ethical risks is also a critical consideration within the human rights ethics view.

Conclusion: The Constitutional Hermeneutic Approach to Resolving Ethical Issues

Human rights, as a "thick concept" encompassing values such as life and health, human dignity, and freedom of research, should serve as the ethical standard for human genetic research activities. Human rights are not only a value orientation but also carry profound constitutional significance. By interpreting constitutional norms to establish the human rights ethical standards for human genetic research, this paper attempts to explore the "doctrinal legal approach to resolving ethical issues"[76] — more precisely, the "constitutional hermeneutic approach to resolving ethical issues." This leads to a more complex theoretical question: the relationship between the Constitution and ethics. While the constitution and ethics appear to operate under distinct logics

Tanuj Kanchan and Bahadur Singh, "Human Genome Editing and Ethical Considerations," 4.

[75] Gail E. Henderson and Eric T. Juengst et al., "What Research Ethics Should Learn from Genomics and Society Research: Lessons from the ELSI Congress of 2011," *The Journal of Law, Medicine & Ethics* 40 (2012): 1010-1017.

[76] Li Zhongxia, "National Security and Human Dignity: The Doctrinal Legal Approach to Resolving Ethical Issues — A Commentary on the Federal Constitutional Court's 'Aviation Security Act' Decision," in *Review of Constitutionalism and Administrative Rule of Law*, vol. 5, Wang Guisong ed. (Beijing: Renmin University of China Press, 2011), 102-106.

and exert different forms of constraint, they share a fundamental value connection. The constitution reflects a consensus on social values, while ethics is imbued with value assumptions. Human rights, as a fundamental value of human society, provide a communicative bridge between the constitution and ethics. The ethical order of humanity is shaped by prevailing social values, while the human rights ethics view embedded in the constitution influences and shapes these values. The human rights ethics view on human genetic research is the result of the mutual interpretation between the constitutional principle of human rights and the value of human rights in ethics. Incorporating the ethical value of human rights of life science into constitutional norms enables the resolution of ethical disputes through constitutional balancing and reinforces the binding force of human rights ethics at the level of positive law. Similarly, integrating the constitutional principle of human rights protection into ethical norms ensures that human genetic research activities are subject to constitutional constraints, thereby enhancing the ethical governance function of the constitution. The interactive coherence between the constitution and ethics is inseparable from the methodology of constitutional hermeneutics. constitutional hermeneutics offers a new perspective for addressing issues of scientific and technological ethics. The implementation of the human rights ethics view on human genetic research requires iterative interaction among constitutional norms, ethical norms, and research practices. The interpretation of the constitutional implications of the human rights ethics view on human genetic research not only enhances the intrinsic legitimacy and legal institutionalization of ethical regulation — thereby addressing the limitations of insufficient binding force in ethical norms of human genetic technology and the lack of effectiveness in constitutional norms, but also facilitates governance in human genetic research activities through the constitution. Moreover, it provides constitutional boundaries for the construction of bioethics law. The theoretical derivation and practical application of the human rights ethics view on human genetic research will further deepen the constitutional hermeneutic approach to resolving ethical issues.

(Translated by *QIAN Chuijun*)