

Legalization Analysis and Institutional Conception of the Conditional Openness of Single Women's Frozen Eggs in China

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ABSTRACT

In recent years, the legality of frozen eggs for single women in China has received much attention. Promoting the legalization process under limited conditions will face significant challenges from the current legal system, traditional marriage and family concepts, as well as public order and good morals. This paper starts with the relevant concepts of frozen eggs for single women, combines the latest national policy guidance and population conditions, analyzes the practical difficulties and feasibility of frozen eggs for single women in China, and compares and draws on the provisions of foreign laws to propose a system conception for improving the conditional openness of frozen eggs for single women, providing a basis for legislation and ideas for decision-makers.

Keywords: Single women, Frozen eggs, Conditional openness, Reproductive rights.

1. INTRODUCTION

On July 22, 2022, the first trial verdict of the "Single Woman's Frozen Eggs Case" in China was announced. The court held that the refusal of Beijing Obstetrics and Gynecology Hospital to provide frozen eggs services to the plaintiff was not illegal and didn't constitute an infringement of the plaintiff's general personality rights. Therefore, all litigation claims of the plaintiff were rejected. The second trial of the case was held on May 9, 2023, but the verdict was not pronounced in court. This case has sparked widespread controversy among various sectors of society on how to view issues such as frozen eggs for single women, reproductive rights for single women, delayed childbirth, and human assisted reproductive technology. With the adjustment of China's fertility policy, the transformation of marriage concepts, and the maturity of frozen egg technology, it has increased the possibility for unmarried women to better realize their reproductive rights. Therefore, it is imperative to adjust the lagging legal norms. This paper attempts to propose specific measures to ensure the reproductive rights of unmarried women with a cautious and inclusive attitude.

2. OVERVIEW OF FROZEN EGGS FOR SINGLE WOMEN

2.1 Concept of Single Women

In legal terms, single women refer to women who have reached the legal age of marriage but have not entered into a marital relationship with others, including unmarried, divorced, widowed, and other situations.[1]

2.2 Overview of Frozen Eggs

2.2.1 Concept of Frozen Eggs

Frozen eggs, also known as oocyte cryopreservation, are a process of extracting, freezing, and storing female eggs to preserve their reproductive potential.

Frozen eggs can be divided into frozen eggs for medical reasons and frozen eggs for social reasons. Frozen eggs for medical reasons mean that due to some cancer treatments such as chemotherapy and radiation oncology which may affect the fertility of patients, patients choose to freeze their eggs for the

purpose of preserving fertility. If the freezing of eggs is not for medical reasons, it is called frozen eggs for social reasons.[2]

2.2.2 *Frozen Eggs and Assisted Reproduction*

Under existing technological conditions, in the future, when using frozen eggs, assisted reproductive technology must be used to achieve fertility. There is both a connection and a difference between frozen eggs and assisted reproduction. Frozen eggs are only a preparation step for childbirth, which is fundamentally different from conception and delivery. If a woman wants to conceive after freezing her eggs, she must rely on assisted reproductive technology. However, frozen eggs may not necessarily go to assisted reproductive technology, and the person involved may eventually give up on them due to natural conception or other reasons. According to foreign statistics, less than 10% of frozen eggs are ultimately used for assisted reproduction, and 90% of frozen eggs may be donated (such as to research institutions) or destroyed. It can be seen that frozen eggs and assisted reproduction are two independent medical operations, and assisted reproduction is only one of the possible uses of frozen eggs.

There is no necessary logical correlation between single women's frozen eggs and their use of assisted reproductive technology. The application for frozen eggs by a single woman is not necessarily related to whether she will use frozen eggs for assisted reproduction as a single person in the future. Even if the law prohibits single women from using human assisted reproductive technology, it can't be retrodicted that single women are also prohibited from applying for frozen egg services. The Singapore Women's Development White Paper, released in March 2023, distinguishes between frozen eggs and assisted reproductive technology, meaning that the law allows single women to freeze eggs but prohibits them from accessing human assisted reproductive services. In addition, women who apply for frozen eggs will be informed of necessary information and reminders, such as the invasive characteristics of egg retrieval surgery, the risk of surgery, and the probability of delayed fertility failure.

3. THE REALISTIC DILEMMA OF FROZEN EGGS FOR SINGLE WOMEN IN CHINA

3.1 *Legal Aspect*

The current laws in China don't provide discriminatory provisions for single women.[3] Article 47 of the Law of the People's Republic of China on the Guarantee of the Rights and Interests of Women stipulates that "Women have the right to have children in accordance with national regulations, as well as the freedom not to have children." In this article, "women" as the subject of reproductive rights are not limited to married women, but also include unmarried women. Article 17 of the Law of the People's Republic of China on Population and Family Planning stipulates that "Citizens have the right to have children and the obligation to implement family planning in accordance with the law." Here, "citizens" include both married and unmarried women. The Human Assisted Reproductive Technology Specification stipulates that "It is prohibited to implement human assisted reproductive technology for couples and single women who do not comply with national population and family planning laws and regulations." That is, the application of frozen egg technology is limited to medical purposes, and the applicable targets are limited to married women who suffer from cancer or infertility. This is clearly inconsistent with the purpose and spirit of the aforementioned legislation. However, the departmental regulation, the Management Measures of Human Auxiliary Reproduction Technology, doesn't prohibit single women from using human assisted reproductive technology. The ban is set by the Human Assisted Reproductive Technology Specification, which is only a specification that doesn't even have a regulatory status.

The assisted reproductive management in China adopts an administrative management model of the competent department, and has not yet entered the true legal regulation stage. Although departmental regulations have filled the regulatory vacuum caused by legal deficiencies, the scope of adjustment is narrow, the legal level is low, and the legal effectiveness is weak. Article 80 of the Legislative Law clearly stipulates that departmental regulations shall not establish norms that diminish the rights or increase the obligations of citizens, legal persons, and other organizations. Therefore, as a lower level technical document, the Management Measures of Human Auxiliary

Reproduction Technology has no right to restrict the reproductive rights of single women. Especially since this technical document was formulated more than 20 years ago, significant and profound changes have occurred in social economy, medical technology, population policies, and more. In such a situation, it is clearly inappropriate for the court to quote the departmental regulation and specification from over 20 years ago in the Xu Zaozhao case.

3.2 Social Aspect

For individuals: (1) Single women's reproduction is prone to social criticism. Xu Zaozhao admitted that when she went to the hospital to consult about frozen eggs, her communication with the doctor was not on the same channel, and she felt like she was finding fault with the doctor. Some people also thought she was a "troublemaker" and was "making trouble out of nothing". (2) Frozen eggs aimed at delaying childbirth may increase the probability of pregnancy of older women and pose higher risks. (3) This will have an impact on women's health. (4) Its impact on future generations. Will frozen egg technology cause damage to eggs and affect children's health?

For society: (1) It will lead to the waste of medical resources and the birth of a black industry chain. To ensure success rate, a woman needs to freeze multiple eggs, which requires a lot of resources. What should be done with the remaining eggs after a woman successfully gives birth? How to prevent eggs from flowing into the black industry chain? (2) It will affect the gender ratio. The gender imbalance and gender discrimination still exist in China. How to avoid artificially choosing the gender of children?

4. LEGAL REGULATIONS AND INSPIRATION ON FROZEN EGGS OF SINGLE WOMEN IN OTHER COUNTRIES AND REGIONS

4.1 The US

The attitude of the US towards frozen egg technology is undoubtedly the most open. In the application field of human assisted reproductive technology, the US not only allows couples with fertility disorders to have frozen eggs, but also allows single women and transgender individuals to apply for frozen egg services. In addition to the

medical industry, other industries are also keeping up with the trend of using frozen eggs as a form of work "welfare". As leaders in the high-tech and Internet industries, Apple and Face Book in the US have established a \$20,000 frozen egg reimbursement policy for their female employees. This was undoubtedly influenced by the 2011 case of Moon v. Michigan Reproductive & IVF Center in the US. The plaintiff Moon, as a single woman, once applied for in vitro fertilization services from the defendant institution, but due to her single status, the defendant refused to provide her with services. The plaintiff Moon then filed a lawsuit under Section 2302 of the Civil Rights Act (ELCRA), which states that "Individuals shall not be unable to fully and equally enjoy goods, services, facilities, privileges, advantages, or accommodation in public places or public service places due to religion, race, skin color, nationality, age, gender, or marital status", accusing herself of discrimination due to being single. The US court ultimately supported Moon's demands.

4.2 Israel

Israel's legal system is deeply influenced by the Anglo-American legal system and combines the advantages of the continental legal system and Jewish legal tradition, belonging to a jurisdictional country with multiple legal sources coexisting. Influenced by the tradition of having multiple children and grandchildren, as well as the Halakhah tradition, Israel's attitude towards frozen eggs for single women is extremely open, and test-tube baby, paid egg donation, and free surrogacy services are common. By cooperating with the Surrogacy Agreement Law and the Egg Donation Law through government control models, the needs of the domestic egg market can be guaranteed. Excess eggs from single women can even be donated after being reviewed, whether driven by understanding the inherent value of reproduction or economic benefits. In the mid-1990s, Dr. Susan M. Kahn from Harvard University focused on studying the cultural significance of artificial assisted reproductive technology, egg donation, and surrogacy for single Israeli women, demonstrating the significant international status of Israel's experience in legal regulations of frozen eggs.

4.3 Italy

Italy is more cautious about frozen eggs for single women. Although frozen eggs for single women in Italy are legal, the government doesn't

encourage them to freeze eggs because of protecting personal privacy and respecting natural fertility laws. According to the law, frozen eggs must be restricted to personal use (those who agree to donate are excluded) and can't be used for embryo research or surrogacy. Single women who have no difficulty conceiving can go to a private hospital to complete the frozen process. In the process of continuously improving its legal policies, Italy has always respected the autonomy of single women, and the country has a positive attitude towards the issue of frozen eggs for single women, rather than avoiding it.

4.4 Singapore

In Singapore Women's Development White Paper released on March 28, 2022, the ban on frozen eggs for women was relaxed, and two restrictions were added: Firstly, the age limit for frozen eggs is implemented, which means that all women aged 21 to 35, regardless of their marital status, can choose to freeze eggs. The second is the limitation of the use of eggs, which means only legal couples can use frozen eggs for reproduction. In Singapore, which is predominantly Chinese and culturally conservative, the openness of frozen eggs for single women is undoubtedly a revolution that promotes the protection of women's rights and the rule of law. Singapore's legislation clearly distinguishes between the two independent medical operations of frozen eggs and human assisted reproduction, encouraging eligible and even single women to apply for frozen egg services through the law, while only prohibiting the use of human assisted reproductive technology in the backend.

4.5 Other Countries

Japan's attitude towards frozen eggs is synchronized with that of the US. In 2013, the Japan Reproductive Medicine Association relaxed the policy of frozen eggs for single women and issued relevant guidelines to address the low birth rate and aging phenomenon. At the same time, numerous policies have been introduced to subsidize single women for fertility preservation. In 1991, the UK passed the Artificial Fertilization and Embryo Act, which allowed all citizens to use human assisted reproductive technology. Many single women chose to freeze eggs to delay childbirth. As a country with a liberal attitude towards assisted reproductive technology, Spain promulgated the Biomedical Law in the early 20th century, which clearly stipulated that "Women over

the age of 18 can use assisted reproductive technology within the legal scope." [4] The first in vitro fertilization baby in France was born in 1982, sparking a legislative fever. The following year, the Bioethics Law was enacted to respond to the regulation of human embryos and the legal attributes of embryos. Later, the Bioethics Law was incorporated into the Public Health Law, allowing single women to use human assisted reproductive technology in 2020.

4.6 Hong Kong, Macao, and Taiwan Regions in China

4.6.1 Hong Kong

The attitude towards frozen eggs for single women in Hong Kong is relatively open, and there is a specialized supervisory body - the Human Reproductive Technology Authority. The frozen egg model in Hong Kong is similar to that in Singapore, and the purpose of frozen eggs is to assist in fertility rather than delay it. That is to say, the front-end law allows single women to freeze eggs, but prohibits single women from using human assisted reproductive technology. According to the Human Reproductive Technology Regulations, except for egg retrieval procedures, reproductive technology procedures are only available to married individuals.

4.6.2 Macao

Like mainland China, Macao doesn't allow single women to freeze eggs. Only sick and married women are allowed to freeze eggs, and medical institutions are not allowed to provide frozen egg services for single women. According to Macao laws, the application of human assisted reproductive technology should be carried out in medical institutions for medical purposes. The 2003 Human Assisted Reproductive Technology Specification explicitly prohibits the implementation of human assisted reproductive technology for couples and single women without reproductive disabilities.

4.6.3 Taiwan

The Artificial Reproduction Law in Taiwan doesn't stipulate that single women are not allowed to freeze their eggs. In social practice, medical institutions with corresponding qualifications can provide frozen egg services, which are supervised by the Department of Health of the Taiwan

Executive Yuan. The topic of "legalizing surrogacy" in the revision of Taiwan's Artificial Reproduction Law in 2020 has sparked heated discussions, and may even promote the lifting of restrictions on the use of human assisted reproductive technology by single women.

5. JUSTIFICATION OF CONDITIONAL OPENNESS OF FROZEN EGGS FOR SINGLE WOMEN

5.1 Forward Justification

5.1.1 To Protect the Realization of the Reproductive Rights of Single Women

Frozen eggs, as an important auxiliary means for realizing the reproductive rights, should be discussed within the scope of rights, whether they are related to the claims or the legitimacy justification of their limitations.[5] Reproduction, as a right, is not innate. It has gone through a natural and compulsory stage before developing to the current stage of rights.[6] The process of reproduction transforming from natural behavior to basic human rights reflects the development process of human society from the agricultural era to the industrial era.[7] The interpretation of the reproductive rights should be combined with the current era background and social culture. The reproductive rights can't be isolated and applied to other basic human rights standards, but should take into account traditional Chinese culture and social acceptance.

The reproductive rights themselves have long been freed from the shackles of marital status and have become an independent right. The reproductive rights have the attribute of personality rights, and the object of personality rights is personality interests, emphasizing more on equality. Human assisted reproductive technology is constantly satisfying people's preferences for achieving reproduction, and even without considering ethical issues, reproduction no longer requires a sexual relationship, which is a powerful reason to support single women in freezing eggs. At the same time, men and married couples are also beneficiaries of reproductive rights. According to the judgment that the reproductive rights are a personality right, they should be equal, that is, both genders have equal access to reproductive rights, and the reproductive rights of both spouses in a marital relationship are also equal. Therefore, the restriction of individual

subjectivity on single women by frozen egg technology doesn't meet the requirements of equality of personality rights. In the human rights framework of the United Nations, the reproductive rights of individuals and women are protected by human rights.

The revised Women's Law in 2022 stipulates: "Women have the right to have children in accordance with the law, as well as the freedom not to have children." The "women" referred here include all women of married and single women. The revised Law of the People's Republic of China on Population and Family Planning in 2021 stipulates: "Citizens have the right to have children and the obligation to implement family planning in accordance with the law. Both spouses have a common responsibility in implementing family planning." The concept of citizens is clearly broader than that of spouses. If understood in this way, the reproductive rights of Chinese women are in line with the provisions of the United Nations' Convention on the Elimination of All Forms of Discrimination against Women.

5.1.2 To Meet the Needs of China's Population and Fertility Policy Adjustments

According to statistics, China's infertility rate has increased from 3.5% in 1997 to 16.4% in 2019, and is expected to increase to 18.2% by 2023.[8] In this situation, the conditional openness of the application of assisted reproductive technologies, including frozen eggs, actually helps more groups with fertility intentions to lift the objective constraints on reproduction, which is undoubtedly a beneficial attempt to improve social fertility rates. According to data from the National Bureau of Statistics, the number of births in China in 2021 was 10.62 million, a decrease of 1.38 million from the previous year. This was not only the fifth consecutive decline since 2017, but also the lowest recorded birth rate of 7.52 ‰. According to the 2021 Optimizing the Family Planning Policy to Promote Long-term and Balanced Development of the Population jointly issued by the Central Committee of the Communist Party of China and the State Council, one of the purposes of implementing the three-child birth policy and supporting measures is to unleash fertility potential and slow down the aging process of the population. The composition of births in recent years released by the National Bureau of Statistics and the National Health Commission also indicates that the

two-child policy can't increase the one-child birth rate. The three-child policy is a similar fertility incentive measure to the two-child policy, and can only briefly increase the non-one-child birth rate. Encouraging more women to have one child is the long-term strategy. The positive effects of allowing single women to freeze their eggs are in line with the vision of current fertility policies and are conducive to fundamentally promoting long-term balanced population development.

5.1.3 To Make Response to the Changes in Traditional Family Structure and Marriage Patterns

In traditional society, childbirth relied on natural sexual reproduction, and the support of a marriage system of gender cooperation was needed to raise children. Previously, under the influence of Confucianism, women could only obtain a source of livelihood through marriage. During the May Fourth Movement, a trend of celibacy emerged among intellectual women. The 1954 Constitution established gender equality, and social ideology continued to progress with the development of productive forces. With the rapid development of the national economy, women have more opportunities for independence and autonomy, which provides them with more diverse choices in their way of life. Marriage is no longer a necessity for women's survival. They seem to no longer attach so much importance to marriage and nurturing new life. Human assisted reproductive technology has changed natural reproductive methods and traditional family patterns. Many women no longer feel anxious about not having a suitable marriage partner due to their age, and some even hope to be able to independently conceive and raise children in the future.

5.2 Backward Justification

5.2.1 Frozen Eggs Can Cause Harm to Women's Bodies

Any medical technology carries risks, and the risk of frozen eggs lies in: (1) The risks associated with the use of fertility drugs. The use of injectable fertility drugs to stimulate egg retrieval may lead to ovarian swelling and pain after ovulation or egg retrieval (ovarian hyperstimulation syndrome). Signs and symptoms include abdominal pain, bloating, nausea, vomiting, and diarrhea. (2) Complications of egg retrieval surgery. Using a suction needle to remove eggs can cause bleeding,

infection, or damage to the intestines, bladder, and blood vessels. However, multiple studies have shown that the above situation doesn't occur frequently. If frozen eggs are used for reproduction, the risk of miscarriage mainly depends on the age at which the woman's eggs are frozen. Older women have a higher miscarriage rate, mainly due to older eggs. Regarding the potential risks to children, there is currently no research showing that frozen eggs will increase the health risk of infants, and the risk of birth defects is not greater than that of naturally conceived infants.

5.2.2 Single Women's Frozen Eggs Are Not Conducive to the Growth of Their Descendants

The traditional view is that single women who give birth deprive their children of the right to enjoy fatherly love in a complete family, which is not conducive to the growth of minors. Single women can't deprive their children of the right to a complete family life, which is unfair to their children and does not meet the requirements of intergenerational equality. This idea is based on the traditional Chinese practice of parental care, where Chinese people subconsciously believe that parental care is superior to single parent care. For a long time, China's social environment has placed too much emphasis on the appearance and form of families, neglecting that an ideal family should bring love and warmth, which is not necessarily based on parental care. Married couples can't guarantee that their children will receive good training and growth in parent-child relationships, mental health, and adaptability after birth, nor can they impose unreasonable responsibilities and obligations on reproductive behavior achieved through artificial assisted reproductive technology.

With the development of society, the principle of "best interests of children" has gradually replaced the principle of intergenerational equality and becomes the primary consideration for confirming the custody relationship of children. For example, in China's first case of surrogacy custody dispute, the court ruled that the defendant had custody of the child based on the principle of "best interests of the child", that is, whether considering the age and guardianship ability of both parties, the child's living environment and emotional needs, or the impact of family structural integrity on the child, it was more in line with the principle of the best interests of the child to assign custody to the defendant. In modern society, raising children

together by parents is only a normal model, not the optimal one. It doesn't mean that other parenting models, such as single parent parenting, are necessarily detrimental to the healthy growth of children. Otherwise, the freedom to divorce will violate the principle of the "best interests of children". Combining the previously mentioned "frozen eggs and assisted reproduction are two independent medical operations", allowing single women to freeze eggs and realize their reproductive rights doesn't infringe on the interests of their children.

5.2.3 Aggravating Illegal Trading of Eggs and Surrogacy

The biggest difference between buying and selling eggs and frozen eggs for single women is that frozen eggs for single women is carried out through formal medical institutions, following formal procedures for extracting and storing eggs for their own use, rather than obtaining financial benefits. Strict crackdown on illegal egg trading requires the coordination and cooperation of relevant departments to investigate and punish various black intermediaries and clinics. For the management of egg banks in public hospitals, more sophisticated institutional design is needed to prevent eggs from flowing into underground markets at the institutional level. There is no direct correlation between the sale and freezing of eggs of single women, and their purposes are completely different and can't be confused.

Due to its complexity and ethical controversies, surrogacy has always been prohibited by Chinese law. The reason for strict prohibition is that it violates public order and good morals, infringes on the personal dignity of pregnant women, and there is suspicion of buying and selling babies. For a long time, single women in China have not been allowed to freeze their eggs, but surrogacy has always existed and has formed a mature chain. In fact, even though surrogacy is strictly prohibited in China, many people still go to countries that allow surrogacy for surrogacy. Frozen eggs and surrogacy are not related and do not have a necessary causal relationship, which can't be a reason to oppose frozen eggs.

6. SYSTEM CONCEPTION OF FROZEN EGGS FOR SINGLE WOMEN IN CHINA

6.1 Developing the Human Assisted Reproduction Law as Soon as Possible

Due to the unique nature of human assisted reproduction in various fields of life, it is highly technical and professional. China has so far failed to formulate a complete, rigorous, unified law or administrative regulation. As a result, two management methods, "technical norms, basic standards and ethical principles" and "law" have no way out. To completely solve the application problems of assisted reproductive technology related to single women's frozen eggs, postmortem reproduction, surrogacy, etc., it is ultimately necessary to rely on legislative means. The report of the 20th National Congress of the Communist Party of China proposes to "strengthen legislation in key areas, emerging areas, and foreign-related fields". In accordance with these important requirements, the formulation of a unified Human Assisted Reproduction Law is not only an inevitable requirement for implementing the report of the 20th National Congress of the Communist Party of China, but also an important measure to optimize China's population development strategy.

The basic framework and structural system of the Human Assisted Reproduction Law should include: (1) General Provisions; (2) Management System for Medical Institutions to Implement Assisted Reproduction; (3) Protection of Germ Cells (Gametes) and Embryos; (4) Legal Status of Assisted Reproductive Children; (5) Storage, Management, and Utilization of Relevant Data; (6) Penalty Provisions.

6.2 Improving Legislative Content

6.2.1 Clarifying the Scope and Conditions of Applicable Subjects

Firstly, it is important to clarify that single women are the subjects of frozen egg technology, whether they are frozen eggs for medical reasons or frozen eggs for social reasons. Secondly, the subject conditions should be strictly limited: (1) The subject must be a woman who has reached the legal age of marriage, is single, unmarried, or has divorced and decided not to get married, and has the ability to conceive and raise children. The age range for frozen eggs in single women should be

limited to 20-35 years old, as studies have shown a significant decrease in the live birth rate of frozen eggs over 35 years old, as well as a decrease in the recovery rate, fertilization rate, and pregnancy rate after freezing, which may cause harm to women's bodies and waste of resources. (2) The subject has healthy physical conditions. Single women who choose to freeze their eggs don't have any legally prohibited reproductive diseases. The types of diseases that should be restricted from childbirth can be specifically identified in accordance with the provisions of the Marriage and Family Section of the Civil Code.

6.2.2 Standardizing the Entire Process of Technical Implementation

Before implementing frozen egg technology, single women should fully report their physical condition to the doctor and actively cooperate with the doctor to conduct necessary examinations before freezing eggs. Doctors need to carefully examine the physical condition of women, including routine blood tests, six estrogen tests, AMH and transvaginal ultrasound, to ensure that all aspects of the woman's body meet the standards for frozen eggs. They should develop a dedicated ovulation induction plan based on the hospital's frozen egg technology implementation standards. Doctors also need to explain the surgical procedure and related risks to the patient, and the patient needs to sign an informed consent form. Only after obtaining clear consent can the frozen egg technology be implemented.

6.2.3 Strictly Limiting the Conditions for Egg Preservation and Thawing

The preservation time of eggs should be strictly limited. The preservation period should be two-year as the time quantum, not exceeding ten years. Strict restrictions should be imposed on thawing conditions, among which thawing frozen eggs for non-medical reasons should adopt the method that has the least impact on traditional Chinese concepts, that is, requiring medical institutions to thaw eggs with documents such as marriage certificates and medical examination reports, which is not only conducive to the realization of the reproductive rights of single women, but also does not violate China's current marriage system and basic ethics.

6.2.4 Strengthening the Management of Eggs

In recent years, although the number of women choosing frozen eggs worldwide has been increasing, the utilization efficiency of frozen eggs is not high, with data showing that the utilization efficiency is only among 3.1% to 9.3%. The country should not only improve the egg management system, encourage medical institutions to strengthen innovation, increase investment in technological research and development, continuously improve frozen egg technology, and preserve the vitality and quality of eggs as much as possible, but also establish corresponding egg activity evaluation systems to constrain women who want to conceive, have already frozen eggs, and whose egg activity meets the standards to retrieve eggs again, in order to reduce resource waste. For eggs that have expired and are surplus after childbirth, they can only be donated free of charge to couples with fertility disorders and can't be used for other purposes.

6.2.5 Increasing Legal Sanctions for Illegal Assisted Reproductive Behaviors

Strict precautions need to be taken and the administrative and legal penalties for illegal reproductive behaviors need to be increased. It is particularly important to clarify the criminal responsibility for the misuse of assisted reproductive technologies such as frozen eggs and their derivatives. This study suggests adding "crimes of illegal assisted reproductive technology" through amendments to the Criminal Law, including "crimes of abusing assisted reproductive technology", "crimes of illegal sperm collection and supply", "crimes of illegal freezing of eggs", "crimes of illegal buying and selling of sperm, eggs, fertilized eggs or embryos", etc.

6.3 Improving the Diversified Regulatory System and Preventing Abuse of Rights

Technology has always been a double-edged sword. Without a reasonable range of applications and corresponding regulatory requirements, technology can also cause harm to society and individuals except for helping people.[9] The country should strictly regulate the market access of medical institutions with qualifications for artificial assisted reproductive technology, formulate specific standards for frozen egg technology, clarify the rights and obligations of medical institutions, and

establish a mechanism for citizens to respond to opinions on artificial reproductive technology. Patients should actively exercise their right to information and supervision, be aware of the egg retrieval and freezing plans of medical institutions, and protect their own rights and interests. Medical institutions should fulfill their responsibilities, standardize the implementation of frozen egg technology, develop reasonable egg retrieval plans, and accurately evaluate the activity and quality of eggs. The Medical Ethics Committee should also conduct appropriate ethical supervision and form a diverse regulatory system to prevent medical institutions from abusing their rights.

6.4 Ensuring the Rights and Interests of Children Born from Frozen Eggs

At present, there is no clear evidence to suggest that single women giving birth will inevitably have adverse effects on their children's growth. However, single mothers may face many practical difficulties in raising their children, such as difficulties in settling down and going to school. Therefore, based on the principle of maximizing the interests of children, children born through human assisted reproductive technology can settle down with single mothers, receive equal treatment in policies, enter school smoothly, receive care from families and society, and enjoy their rights.

7. CONCLUSION

Having offspring is not only a matter within the private sphere, but also a major event related to the economic and social development of the country. Frozen eggs, whether for medical or non-medical purposes, should receive equal respect and protection from the whole society. It is feasible and necessary to recognize the use of frozen egg technology to ensure the reproductive rights of single women. The country should accelerate the relevant legislation in the field of human assisted reproductive technology, regulate all parties involved, achieve the reasonable and legal application and development of frozen egg technology, fully leverage the positive side of this technology, and scientifically respond to the impact of ethics, traditional concepts, and social risks, which will also improve the quality of reproduction and people's lives in China.

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