

LEGAL IMPLICATIONS AND ROLE OF AI IN EMERGING TECHNOLOGIES OF SURROGACY

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ABSTRACT

The convergence of Artificial Intelligence (AI) with Assisted Reproductive Technology (ART) and surrogacy is transforming reproductive healthcare by improving clinical decision-making, enhancing embryo selection, optimizing surrogate matching, and increasing the success rates of fertility treatments. While these technological advancements offer new opportunities for addressing infertility, they also raise significant legal, ethical, and regulatory concerns relating to privacy, data protection, informed consent, algorithmic bias, genetic intervention, and accountability. This paper critically examines the legal implications of integrating AI into surrogacy and ART within the Indian legal framework. Adopting a doctrinal research methodology based on statutory provisions, judicial developments, policy documents, and scholarly literature, the study analyses the Surrogacy (Regulation) Act, 2021, the Assisted Reproductive Technology (Regulation) Act, 2021, the Surrogacy (Regulation) Rules, 2022, and the evolving data protection regime. It evaluates the role of AI in surrogate selection, reproductive planning, genetic screening, and healthcare management while identifying regulatory gaps in relation to transparency, fairness, privacy, and ethical governance. The paper argues that although India's existing legal framework provides safeguards against commercial exploitation and protects the rights of surrogate mothers and intending parents, it does not adequately regulate AI-driven decision-making in reproductive technologies. The study concludes that a comprehensive AI governance framework specific to reproductive healthcare is essential to ensure accountability, protect reproductive rights, safeguard sensitive medical data, and prevent discrimination. It recommends integrating ethical AI principles, robust data protection measures, human oversight, and transparent regulatory mechanisms to balance technological innovation with constitutional values, human dignity, and reproductive justice in the evolving landscape of AI-assisted surrogacy.

KEYWORDS

Artificial Intelligence, Surrogacy, Assisted Reproductive Technology (ART), Reproductive Rights, AI Governance, Surrogacy (Regulation) Act

1. INTRODUCTION

Technological advancements have increased the number of alternatives available to those trying to have a family, including surrogacy, IVF, AI, and embryo transfer. The Indian government and courts have given their stamp of approval to surrogacy, which might mean that they are open to the idea of providing access to innovative IVF treatments through in vitro fertilisation centers. A wide variety of infertility treatment methods have seen rapid expansion in popularity in the last several years. Concerns over the impact of ARTs on reproductive rights and the allocation of scarce healthcare resources have persisted despite the rapid uptake of new therapies. Society and the country have a major impact on how Assisted Reproductive Technology (ART) approaches are used. Technological progress in the field of ART methods has been tremendous in the last few decades. In India, infertile couples are finding a way to become parents because of the abundance of surrogacy and ART centers.¹

Modern fertility treatments have advanced to include assisted reproductive technology, also called artificial reproductive technology, which allows men and women to control the gestational process externally rather than within the female body.² This allows them to have healthy children. The biological process of reproduction is intricate for both sexes. In vitro fertilisation takes place when sperm from the male travel from the vagina, cervix, and uterus to the fallopian tube, which follows the process of preparing the uterine lining to accept an embryo and releasing an egg from the ovary into the fallopian tube. An individual is deemed infertile if they are unable to conceive after 12 months of engaging in unprotected sexual relations. Infertility affects an estimated 3.9% to 16.8% of the Indian population, according to the WHO. One in six people, or 17.5% of the global population, may experience infertility at some time in their life, according to the WHO.³

In 1990, the Human Fertilisation and Embryology Act was passed by the UK parliament, which formally recognised ART. It was later revised in 2009 and is still in effect today. Parliament in India finally approved ART in 2021 after reviewing its legality since 2008 and making many

¹ Article by Seema Nagar titled "ART and Women's Rights in India" published in the 6th Int. J. of Law Management and Humanities (2023) 2245.

² The Economic Times published an article on April 20, 2026 at 10:09 AM in the "Health" section of their website, which discussed the topic of observable, treated, and avoidable growing infertility.

³ One in six people throughout the world struggle with infertility, according to the WHO(<https://www.who.int/news/item/04-04-2023>). At 10:09 AM on April 20, 2026.

revisions to the law.⁴ The ART (Regulation) Act, 2021 protects the lives and liberty of infertile couples who choose to use ART. The secure provisions of the legislation provide insurance coverage for twelve months, which is beneficial for both the surrogate mother and the oocyte donor. Although there is still a lot of shame behind ART in some parts of the world, the number of IVF-ICSI cycles done in India increased from 5,500 in 2000 to 21,500 in 2006 and then hit 110,000 in 2007.⁵

2. DEFINITIONS OF ASSISTED REPRODUCTIVE RIGHTS

All methods used to induce a pregnancy in a female through the external manipulation of gametes (embryos or sperm) and subsequent introduction into the female's reproductive system are collectively referred to as "assisted reproductive technology" under **the ART (Regulation) Act of 2021**.⁶

National Cancer Institute Lexicons (NCI): A treatment employed to address infertility, as per the NCI. The majority of assisted reproductive methods employ in vitro fertilisation (IVF). In vitro fertilisation involves extracting eggs from a woman's ovaries and subsequently combining them with sperm in a regulated setting. The subsequent stage involves either implanting the embryos into a woman's uterus or cryopreserving them for future use. The use of donated sperm or ova is prevalent in assisted reproduction technology procedures. Individuals who cannot conceive may utilise a woman who consents to gestate and deliver their child as a surrogate. Assisted reproductive methods, including "Gamete intrafallopian transfer (GIFT)" and "Zygote intrafallopian transfer (ZIFT)", are hardly utilised. Also referred to as ART⁷

Definition by Centers for Disease Control & Prevention (CDC): "Any reproductive methods that involve alterations to eggs or embryos. Most ART procedures include extracting ova from a woman's ovaries, combining them with sperm in a laboratory setting, and subsequently either reintroducing the combination into the woman's body or transferring it to

⁴ The article "Regulating ART'S in India" was written by Nehaa Chaudhari and published on 12 November 2015 in the Oxford Human Rights and Health Blog. It was accessed on April 20, 2026 at 10:09 AM.

⁵ This is a positive development: the ART(Regulation) Act, 2021, written by Amwal and Yadav. The article is published in the Indian Association of Preventive and Social Medicine's official J. of comm.. med. (48(1), 4-6) in March 2023. Doi: 10.4103/ijcm.ijcm_169_22

⁶ Section 2(c) of Act 42 of 2021, which regulates ART,

⁷ Additional information on ART may be found at the following link: <https://www.cancer.gov/publications/dictionaries/cancerterms/def/assisted-reproductive-technology>.

another woman. Certain therapies encompass intrauterine (or artificial) fertilisation, which just utilises sperm, and approaches wherein a woman administers medication to induce ovulation without the intention of egg retrieval.”⁸

3. RESEARCH METHODOLOGY

A study technique comprises the systematic procedures that researchers adhere to ensure the integrity of their study. This study employed a theological research methodology. It examines existing literature on the issue, including research from various groups and international publications.

4. THE LEGAL STATUS OF COMMERCIAL SURROGACY IN INDIA

Surrogacy may engender the idea of newborns as commodities, hence eliciting ethical dilemmas. Surrogacy may also lead to mental health complications. Surrogacy may also lead to mental health complications. The Indian government strictly forbids commercial surrogacy and has instituted rules for more than 3000 IVF facilities for many fundamental reasons. India has enacted laws regulating surrogacy.

- The Surrogacy Regulation Act, 2021
- The Surrogacy Regulation Rules of 2022
- Recent Amendments

Surrogacy (Regulation) Act, 2021

Surrogacy (Regulation) Act, 2021, was signed into law by the Indian government. The nation's parenthood regulations are governed by a significant statute. The purpose of this legislation is to protect the rights of surrogate mothers and guarantee the well-being of the children involved. It is designed to prevent surrogacy from becoming a substantial commercial enterprise. This regulation prohibits all forms of commercial parenting. As a result, the surrogate mother is prohibited from receiving any compensation in addition to the reimbursement of her pregnancy-related medical expenses.

The surrogate mother must be between the ages of 25 and 35, married, and possess a biological child. During her lifespan, she is permitted to undergo only one surrogacy. The legislation

⁸ Malhotra, Shah, Pai, Pai, H. D., and Bankar did an analysis of three years of data on ART in India. Press, 235–240. J. of Human Reproductive Sciences, 6(4). 2024. DOI: 10.4103/0974-1208.126286

necessitates the establishment of surrogacy committees at both the federal and provincial levels to oversee ethical behaviour. These entities are accountable for the oversight of surrogacy centers, the prevention of violations, and the enforcement of regulations. Legislation is in place to protect surrogate mothers from coercion or exploitation. Individuals who violate the Surrogacy (Regulation) Act, 2021 will be subject to severe penalties, such as incarceration and monetary sanctions. The Indian government's objective is to promote ethical parenthood and protect the rights of all individuals by implementing this regulation. India has implemented legislation to protect the rights of women by addressing the ethical, legal, and societal concerns associated with surrogacy. The following components are included in this legislation:

- The Bill's objective is to limit in vitro fertilisation to married couples in India who have been together for a minimum of five years. An "Indian couple" is defined in Article 2(g) as an Indian man and woman who are lawfully married and have exceeded the ages of 21 and 18, respectively. Surrogate mothers are prohibited from being married to individuals of the same sex, cohabiting with companions, or being foreign nationals.
- To effectively utilise surrogate services, the couple must have a medical certificate that certifies their inability to conceive a child. Impotence is defined in Clause 2(p) of the Bill as the inability to conceive after five years of unprotected sexual activity or as a result of a medical condition that precludes conception.
- The ages of the males range from 23 to 50, while the females range from 26 to 55. Regardless of whether they are biological or adoptive, individuals who are pursuing marriage should refrain from having any children together. The couple may apply for surrogacy services if their current child has a medical certificate that indicates a physical or mental disability or a life-threatening illness.
- A woman is permitted to act as a surrogate mother only once during her lifespan. In the appropriate format, surrogate mothers are required to provide written informed assent. The National Surrogacy Board is established by the aforementioned statute. The Board is accountable for ensuring that the law is adhered to. They offer guidance to the Central Government regarding surrogacy policy.

The Assisted Reproductive Technology Act, 2021

Married Indians can legally use surrogacy to have a family. However, regardless of marital status, the ART allows unmarried women of any age or nationality to access and utilise reproductive technologies. In accordance with this statute, the National Board will be

established under the Code of Civil Procedure with the authority of a civil court. Less than a thousand surrogacy facilities are in the country, according to our health minister. And yet, ART is available at more than 40,000 clinics across the country. India is experiencing a surge in medical tourism due to the presence of these ART clinics. Options for couples looking to establish a family include sperm transfer, in vitro fertilisation, intrauterine insemination, intrauterine spacing, intracytoplasmic sperm injection, and intrauterine ultrasound. The truth is that there aren't many ART centers in India at the moment. Despite moral, physiological, and legal concerns, the Lok Sabha approved a regulation that regulates and oversees ART facilities and ART banks. The proposed regulation will address all aspects of a woman's reproductive journey. The implantation of a gamete or egg into a female reproductive system from outside the body. Banks that provide and deliver ART are defined under the Act. Men and women must be at least fifty-five years old, which is the legal marriageable age, to utilise these services.

The Surrogacy Regulation Rules, 2022

In 2022, the federal government put out the rules for surrogacy. Surrogacy clinics that are approved must follow the rules and limits that are written in them. These hospitals must have at least one embryologist, gynaecologist, anaesthesiologist, and therapist working for them. It's possible that ART Level 2 schools will lead to more job possibilities. For this to work, the doctor must have a master's degree in obstetrics or gynaecology and have experience with ART. Surrogacy centers must register with the right officials and pay the fees that come with it.

There will be proof of registration sent to you after you are accepted. Make sure it's easy to see on the clinic grounds. The application has 30 days from the time they are told they were rejected, cancelled, or put on hold to use the stated appeal form and send it in. Authorised groups can check surrogacy clinics' buildings, tools, and papers without warning, as long as they don't harm the saved gametes or eggs. For surrogacy to be legal, the surrogate mother must agree to it of her own free will. You will only be able to use a surrogate three times. Many times, the gynaecologist will only let one egg go in, but sometimes they may let up to three go in. According to the Medical Termination of Pregnancy Act of 1971, the surrogate mother must follow the steps set out in case she wants to end the pregnancy. To go ahead with the surrogacy process, the intended parents must also have health insurance that covers the surrogate for at least 36 months.

5. CHALLENGES POSED BY AI IN SURROGACY

It's not clear from the Surrogacy (Regulation) Act, 2021, what worries people have about the safety of AI-related data. It is very important to include parts of India's Personal Data Protection Bill, 2019, to keep data safe from theft and mistreatment. AI can be used to find surrogates and keep an eye on their health during pregnancy, which can help people who are having trouble getting pregnant. Strong laws are needed to protect people from being exploited and encourage good behaviour because of this. The Act already sets up surrogacy boards, but they should be able to handle AI technology, too. They should be able to make rules for how AI can be used in surrogacy, make sure they are followed, and make sure that AI-driven processes are open to everyone.

- **Legal Considerations of AI in Surrogate Selection and Matching:** There are several legal implications stemming from the fact that AI has a substantial impact on surrogate selection and matching procedures. AI algorithms look through huge files to match intended parents with surrogates based on things like medical background, genetic compatibility, and personal tastes. Some laws are hard to understand, though, because they don't make it clear how AI-driven decision-making systems should work. For example, issues of fairness and equality might arise in court if an AI computer exhibits bias against specific persons or groups. AI decision-making processes must also be open and responsible so that humans may examine the reasoning behind AI choices. To make sure that surrogates and AI are paired fairly, without bias, and openly, laws need to be changed.
- **The lawful implications of AI-driven genetic modification:** There will be far-reaching legal ramifications from using AI for genetic alteration. New developments in artificial intelligence allow for more accurate DNA testing and the possibility of alterations to protect against genetic diseases or improve certain traits in newborns. These abilities have tremendous medical value, but they also present a number of difficult legal questions. The ethical and legal limits of genetic alteration are often ignored by the current surrogacy rules. Potential genetic effects, foetal rights, and the social consequences of genetic changes in the long run must all be carefully considered.

Also, it's crucial to figure out who's liable for the unintended effects of genetic modifications.⁹

- **Issues regarding privacy and data security in AI-assisted surrogacy:** When AI is used in surrogacy, a lot of private medical and personal information from the surrogates and the intended parents is gathered and analysed. Concerns about privacy and data security are heightened by this. The complicated issues of data security in AI applications may go unaddressed by current surrogacy rules. All AI systems must follow data protection rules, such as the “General Data Protection Regulation (GDPR)” in Europe. “Data breaches, illegal access”, and the wrong use of personal data could lead to legal problems and a loss of public trust in IVF methods that are driven by AI. To protect people's privacy and personal information, we need strict rules about how data can be used, stored, and shared, as well as laws that make sure data is always safe.

6. CONCLUSION

As we move into a time when AI and reproductive tools are becoming more connected, the future of surrogacy laws will have both good and bad outcomes. AI could help with things like surrogate matches, genetic editing, and making things run more smoothly, but it could also cause a lot of private, legal, and moral problems. The rules that are in place now don't cover all aspects of AI in IVF, but they do cover some important ones. If we want these models to work well with AI, we need to work hard to make clear rules that protect everyone, make things clear, and hold people accountable. We need to do more than just change the rules to make policies that are accepted around the world. We also need to promote unity between countries. We need to change the rules so that creative ideas can coexist with moral concerns in the future. We can be sure that the benefits of AI are being fully used while the risks are being curbed in this way. Surrogacy laws need to be changed right away and quickly to include new artificial intelligence technology. This is because surrogacy is a cutting-edge area of reproductive science that needs strong laws that protect rights and support moral behaviour.

⁹ In his 2023 article "Artificial Intelligence in Human Reproduction: Charting the Ethical Debate Over AI in IVF," Sivan Tamir examines the use of AI in assisted reproductive technology.)

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