

Regulating Reproduction: A Critical Analysis of India's Assisted Reproductive Technology (Regulation) Act, 2021, in Comparative Perspective with the United Kingdom

Shalu Yadav¹ and T. Longkoi Khamniungan²

¹Independent Researcher, Mahendergarh, Haryana, India. E-mail: shalujajam2016@gmail.com

²Associate Professor, Department of Sociology, Central University of Haryana, Mahendergarh, Haryana, India

To Cite this Article

Shalu Yadav & T. Longkoi Khamniungan (2025). Regulating Reproduction: A Critical Analysis of India's Assisted Reproductive Technology (Regulation) Act, 2021, in Comparative Perspective with the United Kingdom. *SAARC Journal of Social Science*, 3: 1, pp. 25-42.

Abstract: Assisted Reproductive Technologies (ARTs) have emerged as a transformative force in the field of reproductive health, offering new possibilities for individuals and couples experiencing infertility. There is a duality in the role of ARTs as both a medical blessing for infertile couples and a source of ethical, social, and legal dilemmas, particularly within the Indian context. While ARTs have proven invaluable in granting the opportunity for parenthood to those previously unable to conceive, their rapid development and accessibility have also paved the way for concerns surrounding exploitation, the commodification of reproduction, and potential violations of human dignity. Against this backdrop, India has responded to these challenges through the introduction of legislative reforms aimed at regulating ART practices and safeguarding the interests of all parties involved. This article aims to examine the legislative reforms in ARTs in India, particularly the Assisted Reproductive Technology (Regulation) Act, 2021. It aims to assess how these legal provisions shape, enable, or restrict women's reproductive autonomy and agency. This article compares India's regulatory framework with the established ART laws in the United Kingdom, aiming to identify gaps, strengths, and areas that need further policy attention. Findings from this critical review suggest that while legislation is a significant step towards ensuring ethical standards and accountability, there remain gaps related to enforcement, transparency, and the prioritization of women's rights and well-being. The article highlights the need for future empirical research to evaluate the actual outcomes of these legislative interventions, paying particular attention to the voices and experiences of women, surrogate mothers, and donors. In conclusion, the regulation of ARTs in India must be continually reassessed considering evolving feminist perspectives and empirical

evidence. Efforts should focus on creating an environment where reproductive autonomy, ethical practice, and social justice are at the forefront of reproductive healthcare policy and practice.

Keywords: Reproductive Health; Human Dignity; Infertility; In-vitro Fertilization (IVF); Motherhood

Introduction

Asia is home to 4.75 billion people, making it the world's largest continent and representing 60 percent of the global population. It is mainly driven by populated countries like China and India, which together account for over 2.8 billion people. The continent's overall annual growth rate stands at approximately 0.55 percent. However, this figure hides substantial regional disparities. Countries in Western and South Asia, like Pakistan, are growing rapidly. Pakistan has a growth rate of 2 percent each year, while India had an increase of 0.6 percent in 2022. This is very different from East Asian countries, such as China, which are seeing slower growth or even a decline in population of -0.06 percent. Asia covers 30% of the Earth's land area and plays a significant role in global trends (World Population Review, 2025).

Infertility is a significant global health issue, affecting 8-12 percent of couples worldwide (World Health Organization, 2024). In South Asia, particularly in India, the situation is more severe, with regional infertility rates estimated to be about 30 percent higher than in other parts of the world. India is believed to account for 25 percent of the global infertility burden, with around 10-15 percent of Indian couples facing difficulty in conceiving. The Indian Society of Assisted Reproduction estimates that 27.5 million individuals in India, both men and women, are affected by this issue. Data from the National Family Health Survey (NFHS) highlight some crucial trends in infertility. Primary infertility has decreased slightly from 2.8 percent in 1992–93 to 2 percent in 2015–16. In contrast, secondary infertility has risen significantly from 19.5 percent to 28.6 percent during the same period, indicating that many individuals and couples are experiencing challenges in achieving subsequent pregnancies. Recent data from the NFHS suggest that the prevalence of infertility rose by 30 percent between NFHS-III (2005–06) and NFHS-IV (2015–16). Currently, according to NFHS-5 (2019–21), the infertility rate is 18.7 per 1,000 women who have been married for at least five years. Regional disparities in infertility rates are significant. Higher rates are reported in southern and western states, particularly in

Goa, Kerala, Tamil Nadu, and Telangana. In contrast, lower rates can be observed in regions like Ladakh, Uttarakhand, and Meghalaya (Agiwal, Madhuri, & Chaudhuri, 2023). Several factors contribute to infertility in India, including delayed marriages and childbearing, sedentary lifestyles, obesity, smoking, alcohol consumption, and medical conditions such as polycystic ovary syndrome (PCOS) and endometriosis in women. Environmental exposure to pollutants and chemicals, along with infections like sexually transmitted infections, further complicates the issue (Bala et al., 2021; Kundu, Ali, & Dhillon, 2023). Additionally, low sperm count in men plays a role (Singh et al., 2022).

Biological Motherhood as Identity and Marital Success: A Feminist Critique

In India, the preference for biological reproduction over adoption is deeply embedded in a complex matrix of cultural, religious, and social ideologies that shape and constrain women's identities. The cultural emphasis on lineage and bloodline continuity, primarily through sons, reflects patriarchal structures that view women primarily as vessels for ensuring family inheritance and performing crucial religious duties such as ancestral rites. Hindu traditions position biological sons as necessary for securing spiritual salvation, thereby intensifying the pressure on women to produce male heirs. This patriarchal imperative not only valorizes biological motherhood but also constructs infertility as a deeply shameful personal and social failure, often leading to marginalization and emotional distress for women (Gangopadhyay & Mathur, 2021; Majumdar, 2022). Further compounding this issue is the concept of the "married body," wherein a woman's corporeal ability to bear children is seen as a public testament to her marital success and worthiness. A woman's inability to conceive is frequently interpreted as a defect, diminishing her social standing and threatening the stability of her marriage. This socially sanctioned expectation effectively denies women autonomy over their reproductive choices and subjects them to continuous scrutiny and blame, reinforcing their subordinate position within the family and community (Bhardwaj, 2023; Madge, 2011).

Adoption, while theoretically an alternative pathway to parenthood, is often stigmatized and perceived as a public acknowledgment of infertility, further entrenching social taboos. The preference for biological children is sustained by concerns about genetic "purity," fears of unknown hereditary traits, and apprehensions about potential health and behavioural issues in adopted children

(Majumdar, 2022). The bureaucratic complexities and inefficiencies within India's adoption system—including long waiting periods, strict eligibility criteria, and a limited number of legally adoptable infants—discourage many couples from viewing adoption as a viable option. Additionally, the preference for male children in adoption reflects the broader gender biases that exist in Indian society (Bharadwaj, 2003; Mitra, Bhaskar, & Bode, 2023).

The rapid rise of assisted reproductive technologies (ARTs), such as in vitro fertilization (IVF) and surrogacy, has further reinforced the dominance of biological parenthood. These technologies are marketed as faster, more controllable solutions compared to adoption, appealing to couples' desires for a genetic connection while simultaneously allowing them to maintain social conformity (Majumdar, 2022). The commercialized ART industry in India takes advantage of cultural anxieties and desires, often prioritizing profit over ethical concerns and the welfare of patients. Women, in particular, face increased physical and psychological risks as they undergo invasive treatments to meet societal expectations of motherhood (Bharadwaj, 2016; Sarojini, Marwah, & Sheno, 2011).

From a feminist perspective, these cultural, social, and technological dynamics underscore how deeply patriarchal values continue to govern women's reproductive roles. The elevation of biological motherhood as the ultimate marker of feminine success reinforces a narrow and oppressive conception of womanhood, marginalizing infertile women, those who choose not to have children, and those who might otherwise embrace adoption (Gangopadhyay & Mathur, 2021; Majumdar, 2022). Challenging these norms requires reimagining motherhood beyond biological determinism, advocating for reproductive justice, and promoting supportive policies and social attitudes that respect diverse pathways to family building and affirm women's autonomy over their bodies.

Assisted Reproductive Technologies (ARTs): Definition, Types, and Growth

The global ART market has expanded significantly since the first successful IVF pregnancy in 1978. The International Committee for Monitoring Assisted Reproductive Technology (ICMART), the global body responsible for collecting and sharing data on ART, defines these procedures comprehensively.

According to ICMART, ART is defined as,

“All treatments or procedures that include the *in vitro* handling of both human oocytes and sperm, or embryos, for the purpose of establishing a pregnancy.”

This definition covers a wide range of techniques, including standard methods like IVF, where fertilization occurs in a lab dish, and Intracytoplasmic Sperm Injection (ICSI), which involves directly injecting a single sperm into an egg. It also includes the crucial steps of embryo transfer into the uterus and the cryopreservation of gametes or embryos for future use. Additionally, specialized procedures such as Preimplantation Genetic Testing (PGT), Gamete Intrafallopian Transfer (GIFT), Zygote Intrafallopian Transfer (ZIFT), and Tubal Embryo Transfer (TET) fall under this umbrella. The definition further extends to the use of oocyte and embryo donation, as well as gestational surrogacy, when the intended parents' gametes or embryos are used. Importantly, ICMART explicitly clarifies that assisted insemination (like artificial insemination) is *not* considered ART, as it does not involve the *in vitro* manipulation of both eggs and sperm or embryos (Baker et al., 2025) and reported ART cycles increased significantly, growing from approximately 140,000 in 1991 to over 3.2 million by 2018. This growth reflects advancements in technology and rising demand for these services. Additionally, the number of countries reporting ART data to the ICMART has expanded, indicating a widespread global adoption of these technologies. In economic terms, the global ART market was valued at USD 28.33 billion in 2023 and is projected to reach USD 55.09 billion by 2032, with a compound annual growth rate (CAGR) of 7.68 percent. Furthermore, projections indicate that the market could grow to USD 80.51 billion by 2034, representing a strong CAGR of 9.80 percent from 2025 to 2034 (Patrizio et al., 2022).

The key drivers of growth in the fertility market include rising infertility rates among both men and women, technological innovations such as PGT and advanced IVF techniques, and evolving societal norms that embrace diverse family structures. Additionally, there is increased awareness of available fertility treatments, along with a trend of delayed parenthood (Schmidt et al., 2012). Supportive government policies, such as subsidized ART in countries like Israel and France, further boost demand. IVF remains the most widely used ART procedure globally, with North America and Europe leading the market, while the Asia-Pacific region is emerging as a significant area of growth (Birenbaum-Carmeli, 2023).

Growth of Assisted Reproductive Technology (ART) in India

In India, the ART sector has experienced exponential growth, positioning the country to become a global leader in ART cycles potentially. The Indian Society

for Assisted Reproduction (ISAR) maintains a national registry (NARI) to monitor ART practices and outcomes. Factors contributing to this surge include delayed marriages and childbearing, lifestyle changes leading to higher infertility rates, increased public awareness, and rapid technological adoption, including methods like egg freezing and ICSI (Bala et al., 2021; Kundu, Ali, & Dhillon, 2023). In a patriarchal society like India, which enforces strict gender norms and emphasizes reproduction as a marker of women's worth, there exists a significant dilemma regarding whether to invest in a career or in raising children (Bharadwaj, 2003; Mitra, Bhaskar, & Bode, 2023). While neo liberalization has empowered women to pursue aspirations like those of their male counterparts, they still face a competitive landscape, limited resources, and persistent gender bias, which leave them with very few choices. This delay in decisions about family and career can lead to age-related declines in fertility. Additionally, prominent levels of occupational stress contribute to a low success rate for fertility treatments. An unforeseen consequence of infertility is that it can disrupt the supply of future human capital. Furthermore, a lack of institutional support and the ongoing pressure of traditional gender role expectations often compel women with children to withdraw from the labour market (Bhowmick, 2025).

In India, ART, including IVF, has become a widely adopted treatment for infertility. In 2022 alone, the country recorded 210,753 ART procedures, with intrauterine insemination (IUI) being the most common, followed by IVF. Annually, India performs around 250,000 to 300,000 IVF cycles, with overall success rates ranging from 35% to 40% per cycle, though these rates can rise to 50–70% for women under 35, and drop to 20–30% for those over 40. The Indian ART market is expanding rapidly, projected to grow from USD 1,410.11 million in 2025 to USD 4,915.01 million by 2034, reflecting a CAGR of 16.23%. Factors such as the woman's age, the couple's overall health, and the clinic's expertise significantly influence outcomes. Despite its growing prevalence, ART in India remains costly, with IVF cycles ranging from ₹1.25 to ₹2.50 lakhs, excluding medications and other associated expenses, making affordability and accessibility ongoing challenges (GlobalData, 2023; Grand View Research, 2024). Despite this progress, challenges persist, including a lack of standardization and regulation, excessive costs that limit accessibility, social stigma, and ongoing ethical debates regarding genetic selection and equitable access.

Need for Legislative Reforms and Assisted Reproductive Technology (ART) in India

The rapid expansion of ARTs in India has created new opportunities for individuals and couples struggling with infertility. However, it has simultaneously raised pressing ethical and social concerns. The largely unregulated growth of ART clinics, driven by commercialization and profit motives, has led to issues including patient exploitation, misleading success rates, unethical handling of gametes and embryos, donor exploitation, and inadequate transparency. Additionally, practices like implanting multiple embryos increase health risks for mothers and infants. These challenges underscore the critical need for comprehensive legislative intervention to ensure ethical standards, patient safety, and accountability (Chakravarthi, 2016; Kashyap & Tripathi, 2024). The Assisted Reproductive Technology (Regulation) Act, 2021, represents an important step toward establishing such oversight; however, its success depends on practical implementation and enforcement mechanisms.

This article aims to examine the legislative reforms in ARTs in India, particularly the ART (Regulation) Act, 2021. It aims to assess how these legal provisions shape, enable, or restrict women's reproductive autonomy and agency. This article compares India's regulatory framework with the established ART laws in the United Kingdom, aiming to identify gaps, strengths, and areas that need further policy attention. This comparative analysis seeks to uncover underlying gendered assumptions within the laws and contribute to broader discussions on reproductive justice and governance. The United Kingdom has been chosen for comparison because it offers one of the most comprehensive and well-established legal frameworks for assisted reproductive technologies worldwide. Its regulatory model, guided by the Human Fertilisation and Embryology Act, provides a valuable benchmark to evaluate and critically reflect on the strengths and limitations of India's ART Act, 2021. Through this comparative analysis, the article seeks to inform policy discussions and advocate for strengthened governance that balances accessibility to ART services with ethical integrity and patient welfare.

Legislative Reforms in India: Provisions of the ART(Regulation) Act, 2021

The rapid growth of ARTs, particularly IVF and surrogacy, has garnered significant attention from policymakers and stakeholders within the health sector. This increasing prevalence has highlighted the need for comprehensive legislation aimed

at ensuring transparency and ethical practices in these fields. As public awareness of these technologies grows, there is a pressing demand to address exploitative practices that can occur, particularly concerning the rights and welfare of surrogate mothers and the ethical complexities surrounding gamete donation. Initial regulatory attempts began with the Indian Council of Medical Research (ICMR) issuing guidelines in 2005 for the accreditation, supervision, and regulation of ART clinics (Kashyap & Tripathi, 2024). While these guidelines established an ethical framework, they lacked legal enforceability. Recognizing the limitations of voluntary guidelines, the Law Commission of India submitted a report in 2009 recommending specific legislation to regulate ARTs and surrogacy arrangements. Between 2008 and 2020, multiple bills were introduced to address these issues, culminating in the ART (Regulation) Act, 2021, and the Surrogacy (Regulation) Act, 2021. Together, these acts represent a significant step towards comprehensive, enforceable oversight of ART services in India (X).

The ART (Regulation) Act, 2021, received presidential assent on December 18, 2021, marking a significant step in regulating the rapidly expanding ART sector in India. The Act, which came into effect on January 25, 2022, aims to regulate and supervise ART clinics and banks, prevent misuse, and promote safe and ethical practices while addressing reproductive health issues through technological methods. It defines ART as all techniques that attempt to achieve pregnancy by handling sperm or oocytes outside the human body and transferring gametes or embryos into a woman's reproductive system. Central to its governance are the National Assisted Reproductive Technology and Surrogacy Board (the National Board) and the National Registry. The National Board is responsible for advising the central government on policy matters, monitoring the implementation of the Act, establishing codes of conduct, and overseeing registration standards. The National Registry functions as a central database, collecting detailed information on clinics and banks to inform policy, track outcomes, and support research.

Under the Act, no clinic or bank can operate without mandatory registration, which must meet strict standards for infrastructure, equipment, and qualified staff. Registration is valid for five years and can be renewed, with provisions for suspension or cancellation in cases of non-compliance, ethical violations, or data discrepancies. Clinics are required to obtain informed written consent from all parties involved, and strict criteria regulate the eligibility of commissioning couples and donors,

including age limits and medical screening. The Act also mandates comprehensive counselling on medical risks, success rates, legal issues, and costs to ensure fully informed decisions. Confidentiality of patients and donors is strictly maintained, except under specific legal or medical circumstances.

Furthermore, the Act bans sex selection and sex determination practices by the Pre-conception and Pre-natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994. The act prohibits practices such as sex-selective ART, commercial surrogacy, and the sale or trafficking of gametes and embryos, with severe penalties including fines up to ₹25 lakhs and imprisonment of up to ten years for violations. It also criminalizes activities such as selling or trading embryos and gametes, exploiting donors or commissioning couples, and other forms of commercial misuse. Specific guidelines limit the number of oocytes or embryos transferred during a cycle, prohibit mixing gametes from different individuals, and restrict the retrieval and use of gametes and embryos to ethically approved and medically justified situations. The Act's provisions establish that the legal parentage of children born through ART is exclusively with the commissioning couple, while donors give up all parental rights. Enforcement mechanisms include inspection powers, grievance redressal systems, and strict penalties for violations. Although the Act marks progress in protecting patients and regulating a highly commercialized sector, feminist critiques point out potential limitations in ensuring women's reproductive autonomy, bodily integrity, and equitable access, especially considering cultural and socioeconomic contexts in India (Jana & Kotiswaran, 2025).

United Kingdom and Legislative Approaches to ARTs

The legal landscape of assisted conception in the United Kingdom is primarily governed by the Human Fertilisation and Embryology Act (HFEA) 1990, introduced in response to the Warnock Report's recommendations to address ethical, scientific, and social concerns arising from reproductive technologies, further strengthened by the 2008 amendment (UK Public General Acts, 1990). The Human Fertilisation and Embryology Authority (HFEA) is an independent statutory body tasked with licensing, monitoring, and ensuring ethical compliance in ART services and human embryo research. This comprehensive statute regulates the creation and use of embryos outside the human body, the utilization of donated gametes and embryos, and embryonic research. Three distinct types of licenses exist under this

regime: treatment licenses (covering IVE, intracytoplasmic sperm injection [ICSI], pre-implantation genetic diagnosis [PGD], donation, and surrogacy), storage licenses (for cryopreservation of gametes and embryos), and research licenses (allowing tightly regulated research on embryos for approved scientific purposes). Certain activities are strictly prohibited, including using embryos beyond 14 days of development or after the formation of the primitive streak, implanting embryos in non-human animals, human cloning, and genetic modification of embryos. The HFEA maintains a comprehensive registry recording all treatment cycles and births resulting from assisted conception, ensuring robust oversight and long-term data collection. Individuals conceived through assisted reproductive technologies can request information about their conception upon reaching the age of 18. The framework emphasizes the importance of consent: using, storing, and researching gametes requires explicit and documented permission from the donor, including provisions for posthumous use. Confidentiality is strictly maintained, with a clear separation between fertility treatment records and general medical files, and there are severe penalties for any unauthorized disclosure.

Clinics are required to provide patients with comprehensive and accessible information about treatment options, success rates, associated risks, and their implications. This information is supported by guides and online resources published by the HFEA. Additionally, individuals who use or donate gametes must be allowed to access counselling. This is particularly recommended in cases involving donor gametes to help address potential psychological and familial implications. A crucial element of the UK legal approach is the statutory duty to consider the welfare of any future child before commencing treatment (Dobson,2005).

In 2008, the law was changed to include all embryos created outside the body, including those mixed with human DNA for research. The update also made major changes, such as recognizing same-sex couples as legal parents. It replaced the requirement for a father with a new standard focusing on the need for supportive parenting. UK has remained adaptive to scientific and social developments, exemplified by its 2015 approval of mitochondrial donation (“three-parent IVF”), making it the first country to legislate this advanced technique. The UK’s approach to donor anonymity and the introduction of parental orders for surrogacy now includes single individuals, as of 2018. This shows the UK’s commitment to inclusivity and ensuring that its laws stay relevant for the future (HFEA, 2023).

Table 1: Comparative Legislative Framework for ARTs in India and the United Kingdom

Aspect	India (ART Act 2021 & Surrogacy Act 2021)	United Kingdom (Human Fertilisation and Embryology Act 1990 & 2008)
Regulatory Body	National and State ART & Surrogacy Boards	Human Fertilisation and Embryology Authority (HFEA)
Objectives	- Prevent misuse and unethical practices - Protect rights of women, children, and donors - Ensure safe, ethical ART services	- Regulate creation, storage, and use of embryos and gametes - Ensure ethical standards in treatment and research - Define legal parentage clearly
Clinic Regulation	Mandatory registration, adherence to national standards and code of conduct, and inspections are required.	HFEA must license clinics and labs and ensure compliance with the detailed Code of Practice.
Gamete & Embryo Donation	Allowed; donors have no parental rights; strict identity protection (anonymity currently retained)	Allowed; donors have no parental rights; offspring can request identifying information at 18
Parentage & Legal Rights	Commissioning couple recognized as legal parents; donors excluded from parental rights.	The legal framework clarifies parentage in cases of donor conception and surrogacy.
Surrogacy	Only altruistic surrogacy allowed; no commercial surrogacy; reimbursement of reasonable expenses only.	Altruistic surrogacy allowed; reasonable expenses reimbursed; parentage transferred via court parental order.
Sex Selection	Prohibited except for prevention of severe genetic disorders (regulated under PCPNDT Act, 1994)	Prohibited except to avoid severe inherited conditions
Embryo Research	Limited, governed mainly through ICMR guidelines; the ART Act does not detail research extensively.	Allowed under strict license; research up to 14 days post-fertilization (14-day rule)
Penalties for Violations	Heavy fines and imprisonment for violations; cancellation of registration	Fines, license revocation, and possible imprisonment

The author has compiled the provisions of both Indian and UK legislations. India — ART (Regulation) Act, 2021 and Surrogacy (Regulation) Act, 2021; United Kingdom — Human Fertilisation and Embryology Act 1990 (as amended in 2008).

Discussion

The legal frameworks governing ART in India and the United Kingdom offer an interesting comparison due to their differing approaches, which are influenced by unique socio-cultural contexts, historical developments, and regulatory philosophies. While both countries acknowledge the necessity of regulating this rapidly evolving field, their laws demonstrate varying priorities and degrees of oversight (Jana & Kotiswaran, 2025). The UK's approach to ART regulation is characterized by its proactive, centralized, and ethically driven framework, primarily spearheaded by the Human Fertilisation and Embryology Act 1990 (HFE Act 1990) and its significant update, the HFE Act 2008. The HFEA stands as a powerful, independent statutory body that licenses, monitors, and guides all fertility clinics and research involving human embryos. This allows for a consistent, nationwide standard and rapid adaptation to scientific advancements and evolving ethical considerations. In contrast, India's ART regulation, while recently formalized, has historically been more reactive and fragmented. The ART (Regulation) Act, 2021 (ART Act 2021) represents a significant step towards comprehensive regulation, aiming to bring oversight to a previously largely unregulated and burgeoning industry. These Acts establish national and state-level Boards and Registries to regulate ART clinics and banks, marking a shift from self-regulation to governmental oversight.

One major difference between how the UK and India handle ART services is who can access them. In the UK, the HFE Act 2008 made access broader by changing the requirement of having a father to needing supportive parenting. This change allows same-sex couples and single women to be recognized as legal parents of children conceived through ART. It shows a progressive view of different family structures. Meanwhile, India's ART Act 2021 takes a more restrictive approach. It primarily serves married heterosexual couples and single women who are either widowed or divorced. The Act explicitly excludes live-in partners, same-sex couples, and single men from accessing ART services, particularly in cases of surrogacy. This unambiguous contrast highlights differing societal norms and legal recognitions of diverse family units.

The UK has gradually moved away from donor anonymity. Since April 2005, individuals conceived using donated gametes or embryos in the UK have had the legal right to request identifying information about their donor upon turning 18. This policy prioritizes the child's right to know their genetic origins. India's ART Act 2021 emphasizes strict confidentiality regarding donor and recipient information,

but it places less importance on the right of donor-conceived individuals to know their identity in the future. The Act focuses on screening donors for genetic diseases and limits the number of times a donor can contribute. This approach prioritizes safety and aims to prevent commercial exploitation rather than addressing the identity rights of the child.

Both nations grapple with the ethical implications of emerging ARTs, but with different levels of legislative proactivity. The UK, through the HFEA, has been at the forefront of regulating novel technologies, famously becoming the first country to legally approve mitochondrial donation (three-parent IVF) in 2015, following extensive public and parliamentary debate. This showcases a willingness to engage with complex scientific advancements under strict regulatory oversight. India's recent ART Act 2021 also addresses crucial ethical concerns, such as the prohibition of sex selection for non-medical reasons and mandating Preimplantation Genetic Testing (PGT) only for specific medical indications like preventing genetic abnormalities. However, the Indian framework is still relatively new and will face ongoing challenges in adapting to future rapid advancements in genetic technologies like gene editing, which are currently heavily restricted or prohibited globally.

The UK benefits from decades of established regulatory experience through the HFEA. This organization provides clear guidelines, conducts inspections of clinics, and maintains a national register of all ARTs treatments. Such consistent oversight ensures a higher level of quality control and patient safety. India's legislative reforms appear comprehensive on paper but are still in the early stages of implementation. The success of the ART Act and the Surrogacy Act depends on the effective establishment and functioning of the National and State Boards, the registration of clinics, and the rigorous enforcement of penalties for non-compliance. However, challenges such as the vast size of the country, diverse healthcare landscapes, and the potential for clinics to operate outside the regulatory framework will test the effectiveness of India's new laws.

Feminist and social justice perspectives have significantly shaped the debate on ART regulation in India. Critics of commercial surrogacy say it can exploit poor women, turning their ability to give birth into a product for sale. Feminists and advocates for reproductive rights highlight the need for women to make their own choices about their bodies. They believe everyone, including single women and LGBTQIA+ individuals, should have access to ART. There are concerns that rules around ART can either support or challenge traditional gender roles and

inequalities in family and society (Saravanan, 2018; Jana & Kotiswaran, 2025). The Surrogacy (Regulation) Act, 2021, tries to tackle some of these issues. However, critics say it focuses on what women need rather than their rights, which limits women's freedom to make their own reproductive choices.

Limitations of the Study and Future Scope

This article aims to examine the legislative reforms in ARTs in India, particularly focusing on the ART (Regulation) Act, 2021. It further seeks to assess how these legal provisions shape, enable, or restrict women's reproductive autonomy and agency, while drawing a comparative perspective from the established ART laws in the United Kingdom to identify gaps, strengths, and areas requiring further policy attention.

Despite providing a comprehensive legal and policy-oriented analysis, this study has certain limitations. The primary limitation lies in its reliance on secondary sources such as legislative documents, government reports, policy briefs, and academic literature. It does not incorporate primary empirical data derived from interviews, focus group discussions, or surveys with women undergoing ART procedures, healthcare professionals, or legal experts. Such firsthand perspectives could have provided more profound insight into how these legal frameworks are experienced in practice and their real impact on women's autonomy.

Furthermore, the article does not explore the regional variations within India or the devolved healthcare systems within the UK (such as Scotland and Wales), which may influence the implementation and accessibility of ART services differently. Another limitation is the limited discussion on the intersectional impacts of ART laws, particularly with class, caste, rural-urban divides, and other socio-economic factors that affect access and agency.

Future studies should aim to include qualitative and quantitative empirical research to capture the lived experiences of women and other stakeholders directly affected by ART regulations. A critical intersectional analysis focusing on marginalized and underrepresented groups would also enrich the discourse and inform more inclusive policymaking.

Conclusion

Despite these legislative reforms, significant challenges remain in ensuring effective implementation and enforcement. The large number of ART clinics

and banks operating in India necessitates robust and continuous oversight to prevent unethical practices. Additionally, the acts have been criticized for their restrictive scope, particularly concerning access for single women and LGBTQIA+ individuals, indicating a need for further legal amendments to promote inclusivity. Another critical issue is the regulation of adoption, which remains closely linked to fertility treatment options but lacks an integrated, comprehensive framework. The regulation of ARTs in India embodies a complex interplay of legal, medical, ethical, and social considerations. Achieving a balance between expanding access to these transformative technologies and ensuring their ethical and responsible use requires ongoing dialogue and cooperation among policymakers, medical professionals, feminist and social rights advocates, and the broader public.

Acknowledgment

The author gratefully acknowledges Dr. Narendra Lamba for his constructive feedback and valuable suggestions, which significantly contributed to the improvement of this article.

Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

Data Availability Statement

As this article reviews the ART regulations in India and the United Kingdom, all data and materials referred to are available in the public domain.

References

- Adamson, G. D., Zegers-Hochschild, F., & Dyer, S. (2023). Global fertility care with assisted reproductive technology. *Fertility and Sterility*, 120(3), 473-482. <https://doi.org/10.1016/j.fertnstert.2023.01.013>
- Agiwal, V., Madhuri, R. S., & Chaudhuri, S. (2023). Infertility Burden Across Indian States: Insights from a Nationally Representative Survey Conducted During 2019-21. *Journal of reproduction & infertility*, 24(4), 287-292. <https://doi.org/10.18502/jri.v24i4.14156>
- Baker, V. L., Dyer, S., Chambers, G. M., Keller, E., Banker, M., de Mouzon, J., ... & Adamson, G. D. (2025). International Committee for Monitoring Assisted Reproductive Technologies (ICMART): world report for cycles conducted in 2017-2018. *Human Reproduction*, 40(6), 1110-1126.
- Bala, R., Singh, V., Rajender, S., & Singh, K. (2021). Environment, lifestyle, and female infertility. *Reproductive sciences*, 28(3), 617-638.

- Bharadwaj, A. (2003). Why adoption is not an option in India: the visibility of infertility, the secrecy of donor insemination, and other cultural complexities. *Social science & medicine*, 56(9), 1867-1880.
- Bharadwaj, A. (2016). The Indian IVF saga: a contested history. *Reproductive biomedicine & society online*, 2, 54-61.
- Bhardwaj, R. (2023). IVF in a pro-natalist culture: Experiential accounts of Indian women. *Asian Journal of Social Science*, 51(1), 25-31.
- Bhowmick, S. (2025). Career or child: is the neoliberal working women's fertility on thin ice?. *Human Resource Development International*, 28(2), 302-312.
- Birenbaum-Carmeli, D. (2023). Too much equity—is there such a thing? The public discourse surrounding elective egg freezing subsidy in Israel. *International Journal for Equity in Health*, 22(1), 34.
- Braude, P., & Muhammed, S. (2003). Assisted conception and the law in the United Kingdom. *BMJ (Clinical research ed.)*, 327(7421), 978–981. <https://doi.org/10.1136/bmj.327.7421.978>
- Chakravarthi, I. (2016). Regulation of assisted reproductive technologies: Gains and losses. *Indian Journal of Gender Studies*, 23(1), 133-156.
- Dobson R. (2005). UK government responds to call for change in reproduction technology. *BMJ (Clinical research ed.)*, 331(7514), 421. <https://doi.org/10.1136/bmj.331.7514.421>
- Frith, L., & Blyth, E. (2014). Assisted reproductive technology in the USA: is more regulation needed?. *Reproductive biomedicine online*, 29(4), 516-523.
- Gangopadhyay, J., & Mathur, K. (2021). Examining lived experiences of infertility and perceptions toward the adoption of children in urban India. *Adoption Quarterly*, 24(3), 229-249.
- GlobalData. (2023, September 29). *India Assisted Reproductive Technology (ART) Procedures Count by Segments and Forecast to 2030*. Retrieved from <https://www.globaldata.com/store/report/india-assisted-reproductive-technology-procedures-market-analysis>
- Grand View Research. (2024). *India In Vitro Fertilization Market Size, Share & Trends Analysis Report by Instrument (Equipment, Culture Media), by Procedure Type (Fresh Nondonor), by Providers, and Segment Forecasts, 2024–2030*. Retrieved from <https://www.grandviewresearch.com/industry-analysis/india-in-vitro-fertilization-market-report>
- Human Fertilisation and Embryology Authority. (2023). *Modernising fertility law: Recommendations for changes to the Human Fertilisation and Embryology Act 1990 (as amended)*. <https://www.hfea.gov.uk/about-us/modernising-the-regulation-of-fertility-treatment-and-research-involving-human-embryos/modernising-fertility-law>
- Indian Council of Medical Research. (2024, March 1). *The Assisted Reproductive Technology (Regulation) Act, 2021 and the Surrogacy (Regulation) Act, 2021*. <https://www.icmr>

gov.in/the-assisted-reproductive-technology-regulation-act-2021-and-the-surrogacy-regulation-act-2021

- Jana, M., & Kotiswaran, P. (2025). Reproductive resistance, law, and informality: a critique of the Indian Assisted Reproductive Technology (Regulation) Act, 2021. *Journal of Gender Studies*, 1-20.
- Kashyap, S., & Tripathi, P. (2024). Assisted Reproductive Technology (Regulation) Act 2021: Critique and Contestations. *Asian Bioethics Review*, 16(2), 149-164.
- Kundu, S., Ali, B., & Dhillon, P. (2023). Surging trends of infertility and its behavioural determinants in India. *PLOS ONE*, 18(7), e0289096. <https://doi.org/10.1371/journal.pone.0289096>
- Madge, V. (2011). Infertility, women and assisted reproductive technologies: An exploratory study in Pune, India. *Indian Journal of Gender Studies*, 18(1), 1-26.
- Majumdar, A. (2022). Conceptualizing aged reproduction: genetic connectedness, son preference and assisted reproduction in North India. *Reproductive Biomedicine & Society Online*, 14, 182-191.
- Malhotra, N., Shah, D., Pai, R., Pai, H. D., & Bankar, M. (2013). Assisted reproductive technology in India: A 3 year retrospective data analysis. *Journal of human reproductive sciences*, 6(4), 235-240. DOI: 10.4103/0974-1208.126286
- Malhotra, N., Shah, D., Pai, R., Pai, H. D., & Bankar, M. (2013). Assisted reproductive technology in India: A 3 year retrospective data analysis. *Journal of human reproductive sciences*, 6(4), 235-240. <https://doi.org/10.4103/0974-1208.126286>
- Mitra, S., Bhaskar, S., & Bode, M. (2023). Mapping the digitalisation of child adoption in India: Challenges and future possibilities. *Adoption & Fostering*, 47(3), 295-311.
- Patrizio, P., Albertini, D. F., Gleicher, N., & Caplan, A. (2022). The changing world of IVF: the pros and cons of new business models offering assisted reproductive technologies. *Journal of Assisted Reproduction and Genetics*, 39(2), 305-313.
- Ramaraju, G. A., & Muvvala, S. P. R. (2023). Access to infertility care and ART treatment in India: A clinician's perspective. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 86, 102302.
- Saravanan, S. (2018). A Feminist Discourse on Surrogacy: Reproductive Rights and Justice Approach. *A Transnational Feminist View of Surrogacy Biomarkets in India*, 47-78.
- Sarojini, N., Marwah, V., & Sheno, A. (2011). Globalisation of birth markets: a case study of assisted reproductive technologies in India. *Globalization and health*, 7(1), 27.
- Schmidt, L., Sobotka, T., Bentzen, J. G., Nyboe Andersen, A., & ESHRE Reproduction and Society Task Force. (2012). Demographic and medical consequences of the postponement of parenthood. *Human reproduction update*, 18(1), 29-43.

- Singh, S., Shekhar, C., Bankole, A., Acharya, R., Audam, S., & Akinade, T. (2022). Key drivers of fertility levels and differentials in India, at the national, state and population subgroup levels, 2015–2016: An application of Bongaarts’ proximate determinants model. *PLOS ONE*, *17*(2), e0263532. <https://doi.org/10.1371/journal.pone.0263532>
- Tholeti, P., Uppangala, S., Kalthur, G., & Adiga, S. K. (2024). The landscape of assisted reproductive technology access in India. *Reproduction & fertility*, *5*(4), e240079. Advance online publication. <https://doi.org/10.1530/RAF-24-0079>
- UK Public General Acts. (1990). *Human Fertilisation and Embryology Act 1990*. legislation.gov.uk. . <https://www.legislation.gov.uk/ukpga/1990/37/contents>
- World Health Organization. (2024, May 22). *Infertility*. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/infertility>
- World Population Review. (2025). *Asia population 2025*. Retrieved from <https://worldpopulationreview.com/continents/asia>