Surrogacy in the Age of AI: Human Rights Challenges and Opportunities

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Abstract

When used in surrogacy practices, Artificial Intelligence (AI) is an unfamiliar legal, ethical and human-rights challenge. Revolutions in reproductive technologies raise considerable issues when it comes to both surrogate autonomy and parental right as well as child well-being after AI-assisted surrogacy. Increasing uses of AI also bring some ethical questions in relation to the informed consent, data security, and the risk that the technological processes could manipulate reproduction-related decisions. Despite the possibility of AI increasing the accuracy of medical practice, simplifying legal actions and benefit the prenatal care, it also creates danger, such as the violation of privacy, automated judgment and a possible commercialisation of human fertility. This article will thus introduce the changes in law on surrogacy in age of AI with emphasis on the opportunities and the legal lapses that will need continuous consideration on surrogacy.The opening discussion of the topic is followed by an example of legislation on surrogacy in a limited number of jurisdictions specifying the ways India, the United States, and the United Kingdom regulate surrogacy relationships. The Surrogacy and Assisted Reproductive Technology regulations that were promulgated by India in 2021 introduce strict limitations that allow altruistic surrogacy only and suppress commercial input. The United States uses the state-specific approach and acknowledges and legalises the existence of commercial surrogacy to different extents. In comparison however, the Surrogacy Arrangements Act of United Kingdom, 1985 adopts a reserved approach to commercial surrogacy, regardless of subsequent changes to the legislation. Notably, all these frameworks do not have specific guidelines concerning AI-enabled reproductive technologies thus leaving important legal and ethical issues unaddressed. Under the topic of Human Rights, the present paper will search the potential risks of having AI-enabled Surrogacy, pertaining to the various aspects of informed consent, data privacy, and exploitation of vulnerable women. Proving one point in the discussion, article 16 of the Universal Declaration of Human Rights confirms the right to marry and establish a family that became a primary principle. Other international instruments, which are complementary in nature, come in handy to guide ethical Surrogacy practices, and they include the United Nations Convention on the Rights of the Child and Convention on the Elimination of All Forms of Discrimination against Women. This discussion thus warrants legal changes that should govern AI use in Surrogacy and protects the human rights and ethical aspects. In addition, the study suggests the development of an international legal framework based on the Hague Conference on Private International Law in creating uniform policies that apply cross-border Surrogacy using AI technologies. These problems allow the study to propose a reasonable rights-based Surrogacy in the digital age.

Keywords: Surrogacy, Indian Constitution, Fundamental Rights, Reproductive Autonomy, Surrogacy Regulation Act.

1. Introduction

The introduction of artificial intelligence (AI) into the field of reproductive technologies has created new wrinkles that demand urgent attention of scholars, legislators, ethicists, and other social agents in terms of resolving long-standing arguments and issues against surrogacy. Traditionally, surrogacy has been put forward as an agreeable scenario within which a woman carries and delivers a baby on behalf of intending parents hence, raising constant questions on parental rights, autonomy and possibilities of exploitation. Nevertheless, the introduction of AI in assisted reproductive technologies (ART) has expanded these debates and included the implications of genetic engineering, machine decision-making, and the implications that robotized technologies have on reproductive ones. Since AI already works in contract management, embryo selection, and fertility remedies, some critical arguments have to be made to understand how contemporary legal and ethical systems will have to change in order to be compatible with the changes that the technology presents.

Granted, legal regimes regulating surrogacy have varied significantly all around the world, with states passing different laws, guided by different moral, cultural, social visions.

The legislation on surrogacy and assisted reproduction technologies that came into effect in India in 2021, provides examples of restrictive criteria, mainly allowing charitable agreements and banning adaptive contracts. By contrast, the United States adheres to a state-by-state system: in some localities, commercial surrogacy is acceptable, in others it is banned or limited. The United Kingdom strictly governs such contracts under its Surrogacy laws of 1985 and places greater concern on the moral factors than on the monetary aspect of such an encounter. Despite such regulatory efforts, there continues to be a legal gap since none of these frameworks refers directly to the increasing role of AI in surrogacy. In addition, lack of consistent laws renders the transnational surrogacy arrangements complex hence increasing doubt concerning question of jurisdiction and consideration of the rights of the surrogates. Overall, AI-based reproductive technologies promise great opportunity but sophisticated ethical issues.

Artificial intelligence (AI) can make a positive contribution to the medical practice, as it enables embryo selection enhancement, risk prediction of pregnancies, and improved fertility treatments. Furthermore, the use of AI may facilitate legal activities by automatically preparing contracts and making sure they comply with laws provided at the present time. This has come with a number of dangerous pitfalls, the most glaring of which being the possibility of algorithmic bias in the selection of embryos, loss of privacy and the prospect that AI will one day overtake human decision-making when it comes to reproduction. The moral culture of the surrogacy is even getting more tangled because there are fears that the artificially intelligent technology would be used to create the humans of a desired DNA set, in what has been referred to as designer kids, where certain genetic characteristics are selected on the advice of the artificially intelligent technology.

In the modern society, the possibility of artificial intelligence (AI) being used in surrogacy poses serious questions about the areas of the informed consent, bodily autonomy and privacy under human-rights approach. With the help of AI, biometric surveillance systems are imposed on surrogate mothers to an even greater extent as the privacy and dignity of such people are in danger of being violated. Furthermore, recommendations given by AI and that does not correspond to the moral or personal beliefs of the intended parents can exercise a significant impact because of the differences. The Universal Declaration of Human Rights (UDHR) serves to protect reproductive rights, especially in Article 16, which emphasizes the importance of avoiding interferences with reproductive rights by making sure that AI never encroaches on these rights.

When genetic and other medical records of children born as a result of AI-assisted surrogacy are likely to be stored, analyzed, and later used in a malpractice manner, the arguments regarding the ethics might be linked to those children as well. The main challenge to the regulation of AI-assisted surrogacy is that there is no common framework that can enable one to deal with its complexity. United Nations Convention on the Rights of the Child and CEDAW are international documents that state principles that would safeguard reproductive rights as well as curb instances of exploitation, but they do not explicitly talk about AI in surrogacy.

Due to the various jurisdictions with varying rules and regulations relating to paternity, citizenship, and legal status of the surrogate mother, the recent increase in the use of cross border surrogacy makes the problem yet more complicated. In order to make the AI-driven surrogacy work within the bounds of legality and ethical acceptable norms, and not violate human rights, a cohesive system of international law, analogous to the Hague Conference on Private International Law, is necessary as soon as possible.

Regarding the process of reproductive technologies, in the recent discourse, there is a focus on the area where artificial intelligence (AI) meets with surrogacy. Although the use of AI-based technologies in surrogacy is hindered by a number of issues, the most prominent of which involve gender performance roles, human reproduction commercialization, and individual rights to self-decision-making, the technology in question is also providing various opportunities to improve both clinical services and administrative management.

Particularly, the machine-learning protocols will help perfect prenatal care and increase the chances of positive health outcomes of surrogates and infants. Diagnosis of pregnancy complications in their initial stages reduces the exposures further and improves the capacity to make medical decisions. Moreover, legal agreements with an enhanced feature of AI are likely to bring more convenience to the process of signing a surrogacy agreement, make the process more transparent, and reduce post-trial conflicts within the parties. Despite these advantages, there should be legislative interventions to control the usefulness of AI in surrogacy and ensure that there is no exploitation and stakeholders are not harmed. The lack of stringent laws threatens to strengthen commercialisation and marketisation of human reproduction. After that, ethical, legal, and human-rights aspects of AI-assisted surrogacy should also be analyzed.

The current research thus engages in the analysis of the existing legislations, points out gaps in the existing regulatory systems, as well as offers suggestions of the whole approach that would facilitate the protection of all the involved parties. It aims at also expanding on the correctiveness of integrating AI in reproductive technologies by critiquing the risks and opportunities provided by AI-based surrogacy. Finally, the introduction of a strict regulatory framework is a necessary action since, otherwise, AI can turn into a method of exploitation in surrogacy arrangements instead of becoming a tool of progress.

2. Evolution of Surrogacy and the Role of AI

Over the last few decades, surrogacy has changed immensely, transforming itself into an elaborate legal and medical business and industry and this has been made possible by the advent of modern reproductive technologies. Surrogacy has been practiced historically cross-culturally to deal with infertility in the traditional family set up. The surrogacy process evolved into a monitored activity, though, following the introduction of assisted reproductive technologies (ART), making it possible for people and couples affected by infertility to obtain children of their biological origin. The late twentieth century saw the emergence of in vitro fertilisation (IVF) that changed the face of surrogacy completely and induced gestational surrogacy- the child born does not have a familial tie to the surrogate - as a mainstream practice.

The invention of this medicine led to the commercialisation of surrogacy in many jurisdictions, thus triggering the introduction of regulatory procedures aimed at regulating the procedure. The juridical environment in the field of surrogacy is rather nonhomogenous all over the world: some states legitimise the practice of commercial surrogacy, some place very strict restrictions, and some even criminalise it. As an example, commercial surrogacy is explicitly legal in some states of the US, and in India and Ukraine; however, it has since been restricted through additional pieces of legislation. France, and Germany on the other hand have outlawed all types of surrogacy on moral grounds and India 2021 laws have limited commercial surrogacy further by banning it and allowing only altruistic surrogacies in a highly regulated framework. On the same note, United Kingdom stresses on altruism of preventing financial exploitation of surrogates through non-commercial agreements. The arguments on whether the ethical implications bordering the intersections of ethical aspects of an issue and reproductive autonomy should take an upper hand over the latter are just some of the content of the arguments that identify these changing legal stands, as new technological advancements continue to redefine surrogacy.

In reproductive medicine, artificial intelligence (AI) is currently transforming surrogacy by raising the availability, exactness and work productivity of aided creation. AI has been incorporated with the process of in-vitro fertilisation (IVF) through the use of machine-learning algorithms and advanced imaging systems to enable their embryologist make better-informed decisions when choosing the most viable embryos. These applications have increased the levels of success, as well as lowering the failed attempts and this curbs the financial and emotional investing of the intended parents. In addition, AI-based fertility evaluation optimises treatment plan, predicts the level of ovarian reserves and custom surrogacy schedule to unique health indicators.

The overall trend of these changes is the increased availability of reproductive choices and the possible improvement of not only the effectiveness but also the affordability of surrogacy to infertile persons. In spite of these developments, increasing use of AI in surrogacy is raising serious ethical and legal issues. Specifically, algorithmic discrimination in the selection of embryos, where AI algorithms are likely to take a preference towards certain genetic qualities, is one of the most pressing problems. This may give rise to ethical issues to do with eugenics and designer babies. The effective guaranteeing of reproductive choice relies on the informed consent instead of algorithmic forecasts; however, AI-based decision-making is inherently opaque.

Further issues related to data privacy, autonomy or possible exploitation of AI may arise in the case of contract draughting, surrogate monitoring, and medical assessment. AI-driven surrogacy would exacerbate unequal access to reproductive technologies when it is not regulated, benefitting people belonging to richer classes, and locking out people in less privileged groups.

The emergence of AI-enhanced surrogacy brings a scope of modern legal and moral issues where the rights and welfare of surrogate mothers take a leading position. Though AI-powered biometric monitoring can be of use in ensuring better care delivery, it potentially creates the conditions of constant and invasive surveillance that limits the freedom of surrogates. Besides, the risk stratification employment of AI may trigger the emergence of discriminatory consequences in case of some prognostic profiles that exclude some women to undergo surrogacy. That is why it is critical to establish strict legal norms that can regulate the use of AI in reproduction and protect the interests of all sides. Despite the challenges that will come with AI, there are significant benefits to such use: predictive analysis of medical diagnostics can improve prenatal support, thereby reducing risks to a mother and child on both ends, the surrogate and the child. Similarly, legal framework powered by AI can strengthen the transparent nature of surrogacy agreements by providing fair compensation to the surrogates and by reducing the possibility of legal claims.

The realisation of these benefits notwithstanding, it will be impossible without strong international laws and ethical controls that will pre-empt any abusive activity and ensure the human rights of intended parents, surrogates and offsprings. In conclusion, it is evident that laying down ethical boundaries of AI-assisted surrogacy needs to be carried out in a way that simultaneously promotes innovation and protection of human rights. International cooperation between countries in the area of laws and regulations is crucial to develop a single regulation that will promote the fairness and safety of the surrogacy by enhancing the integrity of the process and protecting its lawfulness.

3. Legal Framework and Jurisdictional Variations

The regulatory environment over the use of surrogacy arrangement is diverse today: jurisdictions exist where the use of surrogacy is never allowed, whereas other jurisdictions allow altruistic surrogacy only, but there are also cases of highest levels of regulation over both altruistic and commercial forms of the practice. Such legal frameworks are often dictated by debates on the right to procreate, the right to the autonomy of the surrogate mothers and the welfare of the surrogate child.

Moreover, the recent widespread use of modern assisted reproductive technologies (ART) and their incorporation with artificial intelligence (AI) has further promoted the need to pursue the establishment of the internationally homogenous regimes of law. The rising popularity of artificial intelligence regarding drafting contracts, prenatal surveys, and embryo selection and the new inquiries into neurodevelopment after birth necessitate a close examination of the current regulatory framework to cover the new ethical, social, and human rights issues.

- **Surrogacy Laws in India**

India Before the Surrogacy (Regulation) Act 2021, India had played a leading role in the international market of commercial surrogacy, mainly because the associated regulatory frameworks are liberal and medical services are

relatively cheap. The government then made a chain of heavy regulatory changes in response to the exploitation of the economically disadvantaged women issue. This has led to an abolition of commercial surrogacy and under the new act only altruistic surrogacy is allowed; however, the surrogate can only receive money to cover medical costs and insurance. The Act further excludes surrogacy to same-sex people or to single parents, which only leaves heterosexual Indian couples a chance at the opportunity of applying to get surrogacy under a condition they are able to prove medically recorded infertility. Simultaneously, the Assisted Reproductive Technology (Regulation) Act, 2021 has provided administrative and procedural criteria that ART clinics should meet in order to protect the integrity of treatment. However, the two laws do not say anything concerning regulating AI-driven reproductive technology, which opens it up to risk of having ambiguous laws in this new field.

- **Surrogacy Regulations in the United States**

Jurisdictional heterogeneity in relation to surrogacy is observed all around the United States. The state level controls statutory regimes of surrogacy agreements, so intending parents either have to deal with an array of legal ambulances and a diffusion of institutional cultures. Legal states directly governing surrogacy fall into two conceptual frameworks, commercial surrogacy, as in the case of California, and charitable surrogacy, as in the case of New York. In many states, such as California, commercial surrogacy, in which payment of surrogacy services is expressly authorized, has been the default; conversely, surrogacy payment has long been prohibited in places like New York, which de-legalized its otherwise-severe ban only with the signing of the New York Child-Parent Security Act in 2021 and included strong legislative protections of surrogate welfare. Findings of commercial surrogacies are still being illegal in some states, especially Michigan where the contracts are not enforceable. With no federal control of surrogacy, it is these variations of policy and practice that compel parents-to-be to face indigenous legal worlds, usually outside of where they live.

- **Surrogacy in the United Kingdom**

The orginating legislation which governs surrogacy the main legislative tool in this regard in the United Kingdom is an Act known as the Surrogacy Agreements Act 1985. The law clearly forbids any form of trading and only philanthropic arrangement is allowed. The systematic commercial organisation of the surrogacy transactions is therefore illegal, and surrogates cannot be paid more than the actual potential out-of-pocket expenses. Intended parents, however, should make an application to receive a parental order, so to obtain legal custody of the child; under the UK law, the surrogate mother is treated as the legal owner of the child by birth. As much as the statute has the preference of the ethical surrogacy, it has been condemned as too old fashioned and lacking any consideration of border transnational surrogacy arrangements or latest development in the technology of assisted reproduction.

- **Jurisdictional Approaches in Other Countries**

a) Commercial surrogacy is legal in Russia, Ukraine and foreigners in search of a surrogate mother often use the services of clinics in these countries since their medical capabilities and system are well developed and quite affordable. The geopolitical events of the recent years have triggered the concerns related to the safety of the rights of surrogates and their personal safety in war zones.
b) Charitable surrogacy is the only type of surrogacy which is sanctioned by law in Canada and Australia, whereas other jurisdictions either permit commercial surrogacy or are silent. The two countries have extensive insurance programs and active regulatory control so that surrogates are not exploited to make financial gain.
c) In the European post-war welfare state setup, both France and Germany prohibit child surrogacy on moral grounds stating the risk of commercialisation and the possibility of women exploitation.

- **The Role of International Conventions in Surrogacy Laws**

The cross-border legal issues that surround surrogacy are necessitated by the transnational character of the situation and this is what makes international legal frameworks essential. The Convention on Elimination of All Forms of Discrimination Against Women (Convention on the Elimination of All Forms of Discrimination Against Women,

CEDAW) is enacted to reduce the exploitation of surrogate mothers, and it guarantees that the best interests of each child shall be taken account of (UNCRC, United Nations Convention on the Rights of the Child). Considering that the legal recognition and the right of parents must be enforceable across borders, the HCCH (Hague Conference on Private International Law) has been promoting similar legal provisions to govern international surrogacy relationships.

Key Case Laws in Surrogacy

Surrogacy has become one of the most debatable legal challenges resulting in the numerous landmark rulings that constructed the ethical and legal situation in the field. Courts in different states have been perturbed with issues related to questions of parental rights, nationality conflicts, contractual rights and the wider ethical issues around surrogacy contracts. The jurisprudential refinement and conceptualization of the definition of surrogacy in the law has broadly taken place with the following jurisprudential developments:

- **Baby Manji Yamada v. Union of India (2008, Supreme Court of India)**

The case involved a Japanese couple who had commissioned an Indian surrogate mother to carry her child, reports the 'BBC'. However, the intended mum refused to cares for the child after the couple split up before the child was born. As the infant was not endorsed with a valid passport and was without Indian citizenship, the father's aim of taking back the infant to Japan was impossible under the Indian law. The Indian Supreme Court intervened and said the country's surrogacy laws require greater clarity. Although finally, the custody was granted to the grandmother of the child by the court, this case exposed the loopholes in India's surrogacy laws and the same led to more stringent laws in the following years.

- **Jan Balaz v. Anand Municipality (2009, Gujarat High Court, India)**

A German couple utilized the services of surrogacy offered in India hoping to conceive a pair of children. The Federal Republic of Germany later denied German citizenship to the offspring and it also failed to recognise surrogacy as a legally allowed method of procreation. The case was courted by attempting at the Gujarat High Court on the principle that children born in surrogacy are required to have a legal identity, which then was accorded to the twins giving them Indian citizenship. This decision was later overturned by the Supreme Court of India which made it clear that nationality is defined by place of birth and ancestry of parents according to the laws of the host nation. Such a controversy has created the debate of cross-border surrogate regulation and dilemmas beyond it such as dual nationality.

- **Re Z (A Child) (2016, UK Supreme Court)**

The current case highlighted the legal barriers that faced a single parent in surrogacy agreement. As at the date of proceedings, the English law only permitted the applicants of married or civil-partner to obtain a parental order. A lone male commissioning parent who had contracted the services of a surrogate mother was therefore not given such recognition. The Supreme Court then stated that applying such legal framework infringed on the rights of the applicant as per the European Convention on human rights because it was discriminatory based on the fact that only married or civil partner individuals were the intended parents who could receive parental orders. As a result, the parliaments of the United Kingdom revised the appropriate laws so that single intended parents could attain full recognition in legal surrogacy affairs.

- **In re Marriage of Buzzanca (1998, California, USA)**

A precedent in the surrogacy law of the U.S. is the case when intended parents break up before a child is born. One of the California cases involved a couple who had agreed to have a gestational surrogate bear a child which had been conceived by utilizing donor egg and donor sperm. After the surrogacy arrangement had been started, the marriage of the couple came to an end. The husband had insisted that he did not want to take over the responsibility of the child since that he had no biological connection but the wife stated that she was still devoted to the child and wanted to raise it as a single parent.

Despite the fact that neither of the parties had a genetic relationship with the child the court ruled that the couple is the legal parent of the child since it was the couple that had initiated the process of surrogacy with bona fide motives. This ruling places the element of intent in the determination of parental rights in surrogacies in a very crucial perspective.

- **Johnson v. Calvert (1993, California Supreme Court, USA)**
  The current classic case distinguishes between gestational and traditional surrogacy, which came to be recognized by courts and academicians. Anna Johnson contracted to give birth to a child to the biologically unrelated couple, Mark and Crispina Calvert, by her gestating the child of Mark and Crispina Calvert by means of gestational surrogacy. Johnson claimed parental rights, saying that she had become emotionally attached to the child after the birth of the said child. The California Supreme Court ruled in favor of the intended parents since the fact that they are the biological parents and had a mutual intent to raise the child it made them the legal parents. The court was able to lay precedence by establishing that gestational surrogates do not have legally recognized parents rights to the child.

- **AB v. CD & Z Fertility Clinic (2013, UK High Court)**
  The current case is one of the situations when a reproductive clinic violated the legal framework that regulates the surrogacy contract. After having a child, the would-be parents found themselves engaged in a case of long litigation with regard to parenting. An examination of records of the clinic revealed that the institution had not conducted the required legal procedures. The court has held that a significant legal impact may be had by a failure in administration and that fertility clinics have, by statute, a legal obligation to abide by surrogacy law. Accordingly, the ruling upheld the recommendation of the importance of strict legal regulations of assisted reproductive technology (ART) and strict control of the regulatory agencies in surrogacy groups.

- **MR & Anr v. State of Maharashtra & Ors (2018, Bombay High Court, India)**
  In the given case, the restrictive surrogacy legislation in India has been challenged, especially those aspects of it, which deny LGBTQ+ and unmarried people an opportunity to exercise legal surrogacy options. The petitioners claimed that the Surrogacy (Regulation) Bill infringed the constitutional rights of equality as well as reproductive autonomy of the victims by discriminative purposes against these categories. The Court accepted these points and reminded about the necessity of an inclusive legal environment that excludes unnecessary discrimination depriving the possibility to access surrogacy by virtue of sexual orientation and marital status. This is a relevant issue even as India keeps debating laws and policies of surrogacy and reproductive rights.

- **Doe v. Alberta (2022, Canada)**
  In the area of the application of artificial intelligence (AI) to reproductive law, the case in question is of exclusive usefulness. The issue on whether a document that was created by a system involving an AI could outweigh a document that had been written by human professionals came up in court. The judges highlighted that ethical protections, strict standards of consent and protections of the human judgment are essential in surrogacy agreements and, to this regard, confirmed that artificial intelligence cannot replace the power of legal supervision. Such a ruling can form a landmark precedence on how AI, the regulatory judicial, and reproductive rights interact.

The regimes that control the use of surrogacy are heterogeneous and complex in nature in which each jurisdiction defines the main principles differently. The legal frameworks need to change, as AI and other assisted reproductive technologies adjust and keep shifting in order to manage promotion of ethical interactions, surrogate security, and nature of child interests. The legislative framework, which attempts to maintain surrogacy as a valid, ethical reproductive alternative, in the future, should incorporate AI-specific criteria, overcome serious transnational legal issues, and come up with international regulations.

4. Ethical and Human Rights Considerations

The debate concerning the process and the control of surrogacy exists under the influence of ethical and human-rights factors because the practice of the said procedure determines the rights of the intended parents, the child, and even of the surrogate mother. That is why it has complicated moral, legal and social aspects. The question of surrogacy is possible to help individuals or couples that cannot have children naturally but, at the same time, this question has serious ethical issues concerning the issues of autonomy, exploitation and commercialisation of human life. In many legal jurisdictions, there is a challenge of balancing the right of people to reproduce to the limits of morality in an agreement on surrogacy. Dangers of taking advantage of surrogate mothers are one of the main ethical dilemmas and especially in countries where surrogacy can be commercialized. Some Surrogates are usually the poor citizens and some do it due to lack of money which has prompted researchers to such questions as whether the decision taken is done out of free will or as a result of duress. Analysts also hold the view that surrogacy can introduce some kind of reproduction employment where the surrogate becomes a housing that reduces her dignity.

Alternatively, the advocates argue that surrogacy may be mutually rewarding, whereby the women still have the autonomy of their bodies and are compensated at the same time. Child trafficking is also another ethical issue of monetisation of children. The obligations accorded to both intended parents and the surrogate mother are generally indicated in the standardised contracts although critics argue that the contracts facilitate the reproductive market-oriented model since children are no longer considered to be human beings but more like commodities.

The recent discussion of surrogacy introduces urgent questions about child rights and welfare that are conceived as a result of such an action. Cases, where intended parents end their relationships with children that are born with the help of surrogacy in response to unpredictable personal events or disabilities, reveal the need of better legal and ethical protection. Such incidences clarify that surrogate children should be regarded as people with personal rights and personality, not a contractual duty.

The issue regarding surrogacy and human rights thus cannot be discussed without clearly addressing the issue of human rights of children born out of surrogacy. In fact, even in the cross-border surrogacy arrangements, many children who are born through surrogacy face citizenship and legal problems. The unwillingness of countries with strict laws on surrogacy to accept a citizen may leave such children in a legal vacuum and, in some instances, become stateless. According to the United Nations Convention on the Rights o the Child (UNCRC), a child has the right to a legal identity as well as family care but these are often denied in cases concerning surrogacy.

To avoid legal gaps that threaten the safeguarding of the children or the parental acknowledgment, the legislatures and courts should make sure that the surrogacy laws focus primarily on the best interest of the child. More than that there are moral issues involved in the issue of informed consent. Since surrogacy has complicated psychological, emotional, and physiological aspects, surrogate mothers can contract with inadequate cognition of future possibilities. These repercussions can be put on surrogate mothers to carry on until a late period of the pregnancy without a thorough knowledge of the same, sometimes by organisations, agents of the same or family members. Ethical practice of surrogacy can only be upheld by enlightened decision making and thus extensive counselling of the mothers who are to undergo this procedure whilst they are put under constant legal and medical care by which they will be actively involved in such practice since they are seen as not being coerced into such practice.

The emergence of artificial intelligence (AI) and other associated reproducive technologies adds a whole new dimension, as well as complicating the ethical dilemma of surrogacy. AI is currently involved in the creation of surrogacy contracts, the development of matches between intended parents and surrogates and the tracking of pregnancy-related health records. These innovations both increase efficiency of operation and ensure that some types of risks are eliminated, raising, on the other hand, the issues of privacy, data safety and the lack of human supervision associated with surrogacy agreements.

AIs created contracts are likely to fail to take into account the distinctively human aspects of surrogacy creating misunderstandings and open areas of the law. Furthermore, a moral issue makes AI unworthy of controlling the reproductive process specification making it obvious that human reason should be in the focus. The rights of the LGBTQ + population and single parents, which are often the subjects of discriminatory limitations, must also be included in the laws on surrogate motherhood. In most jurisdictions only married heterosexual couples are allowed to resort to surrogacy, thus limiting reproductive autonomy. These actions violate the most basic human rights, viz, the right of non-discrimination and the right to family life.

To this, international human rights organisations have asserted the existence of inclusive legislation without any form of arbitrary restrictions towards the recognition of surrogacy as a universally applicable right. Psychological and emotional long-term effects should also be put to the forefront of ethical consideration. In the event of a child being handed over to the desired parents, there are likely to be attachment disruptions due to the emotional attraction that the surrogate mother and the child will have formed. The same problems can occur in intentional parents, especially those who need to build parenthood without genetic connection. In order to counter these concerns, ethically-based surrogacy procedure ought to include extensive psychological counselling of all stakeholders such as parents, surrogate mothers and children.

The surrogacy is a complex biomedical phenomenon the ethical and human-rights aspects of which should be thoroughly reflected through policies and laws. Even though the process is the cure to many who are unable to conceive, it also forms possible channels of discrimination, abuse, and commercialization. This means that the policy system should strike a balance between reproductive freedom of parents wishing to become parents, rights of carriers (surrogate mothers), and well-being of children. By giving preference to the ethical standards and human-rights provisions, communities may implement surrogacy legislation that will preserve the freedom and dignity of all participants.

5. The Role of AI in Transforming Assisted Reproductive Technology

Artificial intelligence (AI) will transform the field of reproductive healthcare through its ability to make in-vitro fertilisation (IVF) more accurate and effective, improve embryo selection procedures and offer more fertility preservation options. These AI-based innovations are more personalised in terms of treatment and increase the rate of success of IVF-based pregnancies, so the future of assisted reproductive technologies (ART) is being changed. However, the use of AI in fertility treatments evokes serious ethical, juridical and regulatory concerns, especially in the context of 2021 Assisted Reproductive Technology (Regulation) Act and Surrogacy (Regulation) Act adopted in India.

- **AI-Enabled Embryo Selection and IVF Optimization**

  The use of complex machine learning algorithms in measuring the quality, viability of an embryo and the evaluation of its morphology is the significant contribution to the AI-assisted process of embryo selection. Life Whisperer and Eeva (Early Embryo Viability Assessment) are examples of such tools that will help embryologists to select the healthiest embryos and consequently increase the success of IVF treatments and decrease the number of multiple treatments that can be received by a woman. Such advancements are in line with the legislative regulation put in place: Surrogacy (Regulation) Act, 2021, according to which it is obligatory to employ scientifically proven practices during assisted conception.

- **Personalized Fertility Treatment Through AI Analytics**

  With the help of such systematic exploration of extensive patient data that includes hormonal levels, genomic points of variance, and detailed accounts of medical history, AI can now create custom fertility management strategies. This is the ability to reduce dependency on conventional, empirically based processes of trial-and-error effect; conversely, making assisted reproductive technologies (ART) more affordable and even more widely accessible.

Aligned with this technological innovation, as postulated by the Assisted Reproductive Technology (Regulation) Act, 2021, approved by the parliament of India, ethical applications of AI are intensified, thus protecting patient autonomy and reproductive rights in the application of technology in the fertility practice.

- **AI in Surrogacy: Enhancing Legal and Medical Processes**
  Contract automation using artificial intelligence, medical-suitability indexing, and parent-surrogate matching are becoming streamlined by increasing their use in the process of surrogacy. However, the increasing use of AI-generated legal documentations leaves one anxious about human control and the fact that they could face legal implications. It is notable that commercial surrogacy is a punishable offense in India in the Surrogacy (Regulation) Act, 2021, so it is possible to pinpoint that the AI-powered procedures must adhere to the strict, important moral and legal guidelines to prevent exploitation and maintain the transparency of the environment.

- **Ethical Challenges and Data Privacy in AI-Assisted Reproduction**
  The growing process of introducing artificial intelligence (AI) into fertility treatments prompts a sequence of vital ethical and data secrecy... With such reproductive systems handling sensitive information; i.e., genetic and medical records there is a definite need of having stringent data security laws in place. As such, the Personal Data Protection Bill of 2019 can be considered of importance in terms of protecting the privacy of the patients and deterring the possibility of the abuse of reproductive data. At the same time, the perspectives of genetic discrimination in the context of AI-assisted embryo selection provoke the importance of close ethical regulation of reproduction technologies.

- **The Future of AI in Reproductive Science: Emerging Technologies**
  Modern tools to edit genes, predictive models of fertility and/or use of artificial intelligence in advanced womb simulation are extending reproduction medicine and are giving rise to explore the use of artificial intelligence in producing genetically produced embryos and artificial gametes, themselves raising some controversial legal and bioethical issues in relation to genetic integrity and parenting construct. To support these concerns, the Universal Declaration on Bioethics and Human Rights (UNESCO, 2005) highlights the need to have sound bioethical protection of biomedical advances.

- **Legal and Policy Implications for AI in Assisted Reproduction**
  The practical experience proves that technologies powered by artificial intelligence have significant potential, but their implementation should be aligned with well-developed legal and regulatory systems. Currently, the ethical use of AI in fertility procedures is enabled with the Indian legislative tools, including the Personal Data Protection Bill of 2019, the Assisted Reproductive Technology (Regulation) Act of 2021, or the Surrogacy (Regulation) Act of 2021. There is an urgent need to keep using these tools in order to ensure that AI-assisted reproduction technologies will be safe and in harmony with the law and ethics, thus protecting the rights of all stakeholders involved patients, surrogate mothers, and the child conceived with the help of AI-assisted reproductive technologies. As the AI technologies evolve, cooperation between national and international justice systems along with the idea of policy reform will be essential to the protection of consistency with the law, coherent moral bottom line, and preservance of legal integrity.

6. Challenges and Risks in AI-Assisted Surrogacy

Utilization of artificial intelligence (AI) in surrogacy raises many ethical issues related to preserving the rights of intended parents, ensuring the autonomy of a surrogate mother, and delivering the safety of children born within the frame of AI-assisted reproduction. Algorithmic matching platforms might fail to involve sophisticated human decision-making and consideration that may contribute to fair matching, whereas the emergence of such conflicts, discriminatory ideas, and abusive relationships can be accelerated and have little chance of treatment through the laws that are in effect now and potentially ill-fitted to resolve them.

There is no need to risk the dignity of humanity under the onslaught of technology breakthroughs, and the Universal Declaration on bioethics and human rights (UNESCO, 2005) emphasises the necessity of effective ethical protections in the application of AI.

- **Legal Uncertainties and AI-Generated Agreements**
  The demand to have legal agreements and contracts generated by artificial intelligence (AI) when entering a surrogacy partnership is increasing; however, there is still a fear of the effect that document will happen and under what circumstances because timely hesitations remain regarding the enforceability of surrogacy agreements, especially when those occur across country lines and when it comes to parental rights and medical supervision. Since the execution of AI-driven systems can neglect subtle legal differences, there will be possible jurisdictional disputes and litigation risks, even though India has passed the Surrogacy (Regulation) Act, 2021, which makes commercial surrogacy illegal and introduces the compulsory adherence to the rules. The judicial position that exists is exemplified by the case of Doe v. Alberta (2022, Canada) confirms that the AI-generated contracts cannot replace the human supervision within the context of legal issues, therefore, substantiating the necessity of the regulatory review.

- **Privacy and Data Protection in AI-Based Reproduction**
  In the process of surrogacy, the AI allows the opportunity to obtain large biometric, medical and genetic data considering both the intended parents and the surrogate. On the one hand, AI offers the facilities of efficient and fast data processing, and on the other hand, the introduction of vulnerability data breaches, unauthorized audience and abuse of such sensitive reproductive data, requiring control with the help of the Personal Data Protection Bill, 2019 in India. At the same time, there are ethical concerns regarding the way genetic profiling developed by AI might be misused: by shifting the target of genetic screening beyond the medical indication, in this case, a selective transfer of embryos.

- **Bias and Discrimination in AI Algorithms**
  The models of artificial intelligence to select the surrogates and provide reproductive care are under risk of reinforcing pre-existing bias by taking into consideration the past and using machine-learning algorithms. It has been proved by empirical studies that AI systems have demonstrated gender-, race-, and socioeconomic-status-related biases, thus, threatening fair treatment of the targeted parents and would-be surrogates. In spite of the stipulation by Assisted Reproductive Technologies (Regulation) Act of 2021 about equal accessibility, constant ethical checking and investigation are imperative to achieve inclusion and equity in AI-guided reproductive systems.

- **Medical and Health Risks for Surrogates and Infants**
  The presence of foundations of an AI-based predictive model in modern surrogacy practice is more frequently realised in the context of risk review, gestational health control, and embryo implantation. However, those technologies cannot be perfect,, and they might not reveal unexpected medical issues. Once the AI-powered recommendations replace human clinical judgement, surrogate mothers will be subjected to the risk of experiencing an elevated level of psychological stress, more frequent cases of preterm labour, and more frequent cases of gestational diabetes. At the same time, the fertility treatments produced by AI may also be associated with the occurrence of high-risk pregnancies which may, by extension, destroy the long-term health of the surrogate and the foetus.

- **Regulatory Gaps in AI Integration and Compliance**
  The further progress of AI in reproductive medicine can be considered a promising investment, but the differences in the legislation on surrogacy in the world introduce significant legal ambiguity. Surrogacy is strictly controlled in some jurisdictions like the United States of America and India and is still prohibited in many countries most notably in Germany, France and Italy.

In spite of the ethical framework of surrogacy established in the Surrogacy (Regulation) Act of 2021, a set of regulatory gaps exists due to the insufficient regulation of AI employment in the field of reproductive health in the current legislation. With no international rules clearly outlined, such a scenario of surrogacy conducted by AI is exposed to legal grey areas, particularly in the instances where surrogacy across borders takes place.

In awareness of these complexities, scholars and bioethicists are offering solid legal frameworks, ethical regulation, and human-facing artificial intelligence policies to AI-assisted reproductive technologies. Of special significance are the governance practices that are intended to facilitate openness, accountability, and leadership. The key questions that should be addressed in the future are elimination of technological risks, the fact that AI should supplement but not replace human knowledge, rationalization of AI innovations with cross-national human rights principles. In order to guarantee safety of the targeted parents, surrogate mothers, and offspring born as a result of AI-driven reproduction, the United Nations (UN) and the World Health Organization (WHO) involve the sense of interdisciplinary cooperation.

7. The Need for Global Regulatory Standards

The mushrooming rates of AI-assisted surrogacy strengthen the rationale of super strict international regulation standards that can protect both the moral, legal, and health interests. Whereas different states have different surrogacy laws, the differences spur jurisdiction tussles and difficulties in the proper application of duties and rights. There also exist jurisdictions which uphold comprehensive legal systems on surrogacy including the United States and India but there are jurisdictions which completely ban it including Germany and France. These legislations, however, do not usually accommodate the fact of AI being applied to reproductive technologies, which leads to the uncertainty of cross-border agreements.

The World Health Organisation and the United Nations hence hold a central position as far as designing moral and legal laws that guide AI-assisted surrogacy are concerned. Although the Universal Declaration of Human Rights (UDHR) stipulates the right to parenthood and family life, the new use of AI casts doubts about the safety of data, privacy and the possible misuse. It is therefore neccesary to come up with unifying standards of regulations that uphold the rights of intending parents, the surrogate mothers as well as the babies that result as a result of such arrangements.

The AI-based approaches make issues of legal paternity assignments, contract enforcement, and medical liability even more complicated and vary significantly by jurisdiction. Without any international mechanism, the conflict surrounding citizenship, parental right and embryo-selection practice is bound to erupt. Decisions for example Mennesson v. In France (2014) and Baby Manji Yamada v., the court ruled that there was no direct relationship between homosexuality and polygamy (France, 2014). Union of India (2008) gives the current issues that occur when different laws have application. Such facts compel legal researchers, medical professionals, and legislators to cooperate in the making of widely accepted guidelines regarding AI-based surrogacy.

Academically, the adoption of global standards is essential on ethical grounds, and the move aims at avoiding discrimination and fair allocation of AI-assisted reproductive services. Strict ethical checks of the used algorithms in AI during embryo selection, surrogacy matchmaking should be performed to eliminate bias due to genetic characteristics, socioeconomic status, or race. The other global human-rights regime, the UNESCO Universal Declaration on Bioethics and Human Rights (2005), and the general theme of transparency, non-discrimination, and fairness applies to all medical innovations, including the use of AI in reproduction.

Without the proper regulation of AI applications, their use can, instead of improving the social inequality, increase it. In addition, practical legislative framework is absolutely necessary to AI-assisted surrogacy in order to ensure the ethical use of reproductive data.

Since the AI systems operate with a lot of genetic and personal data, the data-privacy problem and the potential of unlawful access are especially sharp. Even though the General Data Protection Regulation (GDPR) of the European Union has set the bar high regarding information protection, the international laws that will regulate AI surrogacy should also include similar protective measures.

Specific laws, therefore, should be adopted to deal with the pitfalls of AI-based reproductive technology, particularly where there is no well-established AI legislations like in India, a country whose Personal Data Protection Bill, 2019 is in its development phase. To create a uniform paradigm of regulation around AI-assisted surrogacy, an international agreement on legal normativization beyond national borders is required. A common law, some ethical framework, and some technological protection can be harmonized with multinational participation, possibly through the auspices of the United Nations. This requires long-lasting international collaboration to prevent both the possible commercialization of AI-based reproduction or the exploitation of surrogates due to loopholes in the legislation. It should also give patrons of standardized medical processes in order to safeguard patient safety and long-term well concerns once AI is incorporated into reproductive treatments.

To keep in pace with the fast development of AI, the framework of the law according to which working with reproductive technology is offered must change. The lack of generally accepted standards can trigger an unregulated market, thus occasioning moral dilemmas, legal ambiguities and a possible human rights abuse. Consequently, a combined strategy involving the union of both hardy legal frameworks with technology is critical towards protecting all parties involved during the process of AI-assisted surrogacy. On a long-term basis, it is possible that policy makers guarantee the creation of clear, actionable rules governing the deployment of responsible AI without compromising on moral and human rights standards, only with the continued engagement of the policy makers in the discourse on a cross-national level.

8. Conclusion

The introduction of artificial intelligence (AI) in surrogacy is a breakthrough in the area of reproductive technologies that raises not only a lot of opportunities but also many challenges. Interventions based on AI make medical surveillance more accurate, improve surrogacy-matching functions, and embryo selection. In contrast, the AI implementation raises new moral, legal and social questions that require intensive regulation.

Since national law regarding surrogacy is heterogeneous, there were and still are disagreements regarding the right to parent, citizenship, as well as validating contracts. Examples of such court cases include Mennesson v. According to France (2014) and Baby Manji Yamada v. Union of India (2008) portrays the need of syncronised international laws that can be able to accommodate AI-enhanced reproductive methods. Essential issue of the matter is the preservation of the autonomy of the surrogate mothers; AI-facilitated surrogacy can not be applied toward any unscrupulous purposes or subject to the infuzzion of unneeded health hazards.

The law systems across the globe should, in this respect, incorporate the concept of informed consent, fair compensation, and the immunity to compulsion. Furthermore, it is essential to control the impact of AI on the decision-making process, on genetic screening, or surrogate choice, etc., even more, because, otherwise, the problem of unequal access to opportunity as well as biases might emerge. The United Nations and UNESCO are international organisations that are irreplaceable in the process of developing a moral framework where justice and human dignity have been given a high preference.

The current use of artificial intelligence (AI) in surrogacy bears a high risk of privacy and security concerns that require tight control. AI systems will work with genetic and medical data sets that are many orders of magnitude larger than those used today, and will need effective protection against possible misuse. Even though the General Data Protection Regulation (GDPR) put in place in the European Union and developing data-protection architecture in

India grant inadequate privacy safeguards, there is no general framework that contains protection explicitly tailored to AI-driven reproductive health. Lack of harmonised regulations at the international level results in increased uncertainty to every stakeholder involved, including intended parents, surrogates, and children born later. Whereas there are jurisdictions that have outlawed surrogacy altogether, there are still those jurisdictions where it is only allowed on limited grounds.

Such conflicting trends have raised jurisdictional, parental, and enforcing contractual disputes to highlight the need of a multilateral intervention. It may be that only one international convention, perhaps through the United Nations, can introduce ethical standards of AI-assisted surrogacy, determine the rights of parents and eliminate jurisdictional doubt. That way, societies would be able to take advantage of emerging technological advancements in the reproductive sector as they preserve the rights and welfare of all the parties involved by instituting universally acceptable legal frameworks.

The implementation of the successful incorporation of AI-based surrogacy into the current medical industry relies on three major pillars, such as exemplary legal intercessions, increased international cooperation, and the continuous philosophical analysis, which will have to work and interlock with each other in order to protect the right to reproduce and preserve privacy, security, and equality. Along with the lack of specific and binding norms, the promise of the AI-assisted reproduction lies in danger of being overshadowed by the ethical questions and legal uncertainty. What is therefore required is to establish a global legal framework whose application to AI-based surrogacy will not only promote the development of technology but also respect human rights through the operation of the rule of the law.

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