

Overcoming Stigma, Ensuring Ethics, and Enhancing Access: The Evolution of ART in India

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Introduction

Infertility affects 15 - 20% [1] of reproductive-age couples in India, translating to over 27.5 million [2] couples actively seeking treatment. This growing number reflects the increasing demand for assisted reproductive technologies (ART), particularly *in vitro* fertilization (IVF). However, infertility is not just a medical issue but a societal challenge, with several barriers-such as urban-rural disparities, financial constraints, and cultural stigma-limiting access to appropriate care. As the ART market in India expands, there are both opportunities and significant challenges that need to be addressed, particularly in terms of ensuring equitable access to care and improving treatment quality.

Current state of ART in India

The issue of infertility is widespread in India, affecting millions of couples, and the need for effective fertility treatment is critical. India currently performs approximately 300,000 IVF cycles annually, yet this number falls far short of meeting the needs of the 27.5 million couples affected. This translates to a treatment gap where the existing infrastructure caters to less than 2% of the total demand annually.

The country's fertility treatment market includes over 2,000 IVF clinics, many of which are standalone clinics. These clinics, while numerous, operate in a largely unregulated environment, leading to concerns about the quality of care. The absence of accreditation and adherence to standard protocols in many clinics leads to variability in treatment success rates and compromises patient safety. In some cases, commercial interests drive unethical practices, such as the over-prescription of IVF cycles or the promotion of unindicated treatments, adding to the challenges faced by couples.

Market scope and opportunities

Despite these challenges, India has emerged as a global hub for infertility treatments due to its relatively low costs, advanced medical technology, and increasing awareness. In 2023, the India *in vitro* fertilization (IVF) market was valued at approximately USD 1.06 billion and is projected to grow at a Compound Annual Growth Rate (CAGR) of 7.8% from 2024 to 2030, reaching an estimated USD 1.82 billion by 2030 [3]. This growth is fuelled by several factors, including the increasing demand for medical tourism as patients from neighbouring countries and the Middle East seek affordable fertility treatments in India. Additionally, rising disposable incomes and an expanding middle class are driving demand for fertility solutions as more people are willing to invest in ART. Innovations such as cryopreservation, genetic testing, and embryo freezing have also played a key role in improving treatment outcomes and enhancing the overall quality of care.

The influx of investment into India's fertility sector has been substantial. Companies like Nova IVF, Cloudnine Fertility, and Oasis Fertility have aggressively expanded their operations, backed by private equity funding. Nova IVF raised \$54 million in 2019 [4] to scale its operations and improve infrastructure. Cloudnine Fertility, part of the Cloudnine Group, has seen steady investment to expand its services across multiple cities. Oasis Fertility, which secured \$50 million [5] in private equity in 2022, has focused on strengthening its presence in tier 2 and 3 cities. These investments are helping to improve the availability and quality of fertility services, but they also highlight the need for a more structured regulatory framework to ensure consistency across the sector.

Stigma and associated issues with fertility for women

One of the most significant challenges in the ART industry in India is the pervasive stigma surrounding infertility. In Indian society, marriage is often seen as a precursor to parenthood, and couples who fail to conceive are subject to societal scrutiny. Women, in particular, bear the brunt of this stigma. A study published in the *Journal of Human Reproductive Sciences* found that 75% of women with infertility reported experiencing societal stigma, leading to emotional distress, depression, and strained marital relationships [6]. This stigma is further compounded by cultural expectations and gender roles, with women being blamed for infertility, even in cases where the male partner is the one experiencing fertility issues. Male infertility remains a taboo subject in India, with patriarchal norms often preventing men from acknowledging fertility issues and seeking treatment. This leads to delayed diagnosis and treatment for many men, further complicating the fertility journey for couples.

The mental health impact of infertility is profound. Women, in particular, experience feelings of shame, guilt, and inadequacy, which are often exacerbated by social exclusion. A systematic review in *Reproductive Health* (2019) found that women with infertility in low- and middle-income countries, including India, have higher rates of anxiety and depression compared to the general population. The pressure to conceive can lead couples to withdraw from social interactions to avoid questions and judgment, further isolating them during an already difficult time. The stigma surrounding infertility also drives many couples to seek alternative, unregulated treatments. In rural areas, traditional healers and unverified alternative therapies are commonly sought out as couples feel the pressure to exhaust all possible avenues. These unscientific treatments not only delay effective medical interventions but also expose patients to health risks and financial exploitation.

Unethical practices in the ART industry

The ART industry in India is also plagued by unethical practices that compromise patient safety and treatment outcomes. One of the most common issues is the overuse of hormonal medications to stimulate ovarian response, which can lead to Ovarian Hyperstimulation Syndrome (OHSS), a potentially life-threatening condition. A study published in *Fertility and Sterility* (2021) found that approximately 10% of women undergoing IVF in India reported moderate to severe OHSS. In many cases, unregulated clinics push for high-yield egg retrieval cycles to inflate success rates, disregarding the risks posed to patients.

Another unethical practice is the promotion of expensive and unnecessary procedures, such as preimplantation genetic testing (PGT) and endometrial receptivity assays, which are marketed as improving success rates but have not been proven to be effective in all cases. Additionally, clinics often transfer multiple embryos to increase the chances of pregnancy, which can lead to multiple pregnancies and significant complications such as preterm birth, low birth weight, and gestational diabetes.

The demand for donor eggs and surrogacy in India has also led to exploitative practices, with women from lower socioeconomic backgrounds being targeted as egg donors or surrogates. These women are often subjected to repeated cycles of egg retrieval without adequate medical follow-up, risking long-term health complications, including diminished ovarian reserve. Furthermore, many women

who serve as surrogates or egg donors are not properly compensated for the risks they take on, which exacerbates the ethical concerns surrounding these practices.

Urban-rural divide and access to treatment

The unregulated nature of the ART industry in India is compounded by the significant urban-rural divide. The majority of IVF clinics are concentrated in urban centres such as Delhi, Mumbai, Bengaluru, and Hyderabad, while rural areas remain underserved. This urban-centric distribution of clinics poses a significant barrier for couples living in rural or remote areas who must often travel long distances to access treatment. The cost of IVF, which ranges from ₹1-2.5 lakh per cycle, further exacerbates these disparities. For many families, the high cost of IVF is a prohibitive factor, especially since most households in India earn less than ₹10,000 per month. Furthermore, most insurance plans do not cover infertility treatments, meaning that couples must rely on out-of-pocket payments to fund their treatment, which adds a financial burden to an already emotionally taxing process.

Health risks of ART

The physical and mental health risks associated with ART treatments are significant. Hormonal overstimulation and invasive procedures can lead to infections, scarring, and long-term damage to reproductive health. Chronic conditions such as cardiovascular disease and metabolic disorders can also develop as a result of mismanaged hormonal treatments. The psychological toll on women is equally concerning, with studies highlighting high rates of anxiety and depression among women undergoing fertility treatments. A 2020 review in *Reproductive Health Matters* found that women undergoing repeated ART cycles were twice as likely to experience severe depression compared to those receiving adequate counselling and support. The financial strain caused by the high cost of ART cycles further contributes to stress and anxiety, with many couples going into debt to fund their treatments.

Way ahead

To address these issues, it is crucial to strengthen regulation in the ART industry. India's ART Regulation Bill (2021) is a step in the right direction, aiming to ensure accreditation of clinics, ethical practices in egg donation and surrogacy, and transparent reporting of success rates. However, stricter implementation and regular audits are necessary to ensure compliance and protect patient safety. Educational initiatives should also be implemented to empower women with accurate information about the risks and benefits of ART. These initiatives should focus on promoting evidence-based practices and helping patients identify red flags in clinic operations. Professional bodies like the Indian Society for Assisted Reproduction (ISAR) must play a proactive role in ensuring that clinics adhere to ethical guidelines and prioritize patient-centred care. Ethical practices should focus on the safety and well-being of patients rather than merely inflating success rates. Mental health support services should be integrated into fertility clinics, offering counselling to patients and their families to address the emotional aspects of infertility. By addressing both the medical and psychological challenges of infertility, the ART industry can improve the overall quality of care and support for patients.

Also, innovative insurance and assurance products are essential to address the financial barriers in infertility treatments. Tailored plans covering ART procedures, diagnostics, and IVF cycles can improve affordability for low- and middle-income families. Outcome-linked refund programs and employer-provided benefits could further normalize access, ensuring equitable and financially sustainable fertility care.

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