International Journal of Advanced Multidisciplinary Research
ISSN: 2393-8870
www.ijarm.com
(A Peer Reviewed, Referred, Indexed and Open Access Journal)
DOI: 10.22192/ijamr Volume 13, Issue 3-2026

Review Article

DOI: http://dx.doi.org/10.22192/ijamr.2026.13.03.007

Female Reproductive Disorders: A Review on Causes and Reproductive Health Management in India

***Dr. Prakash Chandra Gupta**
Assistant Professor; Department of Zoology
Keshav Prasad Mishra Rajkiya Mahila Mahavidyalaya, Aurai (221 301) - Bhadohi (India)
(Affiliated to Maa Vindhyavashini University, Mirjapur, India)
Mobile: +919889004164; E-mail: *pcgzoology@gmail.com*

Keywords

Female Infertility;
Ovary;
PCOS;
Lifestyle factors;
Reproductive Health

Abstract

Infertility in India is a "silent epidemic," affecting an estimated 27.5 million couples who are actively trying to have a baby. In India, female-related factors contribute to approximately 40–50% of infertility cases, a figure that is roughly equal to male-factor contributions. Despite this, social stigma often disproportionately targets women as the primary cause of a couple's inability to conceive. There are multiple causes of female infertility, such as hormonal imbalance, tubal issues, ovulatory disorders such as polycystic ovary syndrome (PCOS), endometriosis, and diminished ovarian reserve. Scientific data show a high incidence of PCOS (affecting 1 in 5 women) and endometriosis (affecting ~10% of reproductive-age women), compounded by lifestyle factors, environmental pollutants, and reproductive tract infections. The rising burden of female infertility in India, particularly in urban areas, therefore, demands urgent reproductive health management.

1. Introduction

Infertility refers to the inability of an individual or a couple to attain a clinical pregnancy following 12 months of consistent (3 or 4 times per week), unprotected sexual activity. It is a prominent reproductive health disease that affects nearly 27.5 million (8-12%) reproductive-age couples in India [1]. In India, infertility is split almost evenly between genders, with female-related factors accounting for 40–50% of cases, roughly the same as male-factor contributions. Nevertheless, social stigma continues to unfairly blame women as the sole cause of a couple's inability to conceive. Further, infertility problems in both sexes are more prevalent in urban than in rural regions [2].

The causes of female infertility can be categorized in various ways, including hormonal imbalance, disorders of ovulation, tubal and ciliary functions, cystic fibrosis, reproductive tract infections (RTIs), and systemic diseases [1]. Premature ovarian insufficiency, polycystic ovary syndrome (PCOS), endometriosis, and uterine fibroids significantly contribute to female infertility in India [3]. The fertility of females is also influenced by several lifestyle factors, such as stress, sleep, obesity, unintended exposure to environmental pollutants, and delays in beginning a family [4] (Figure 1).

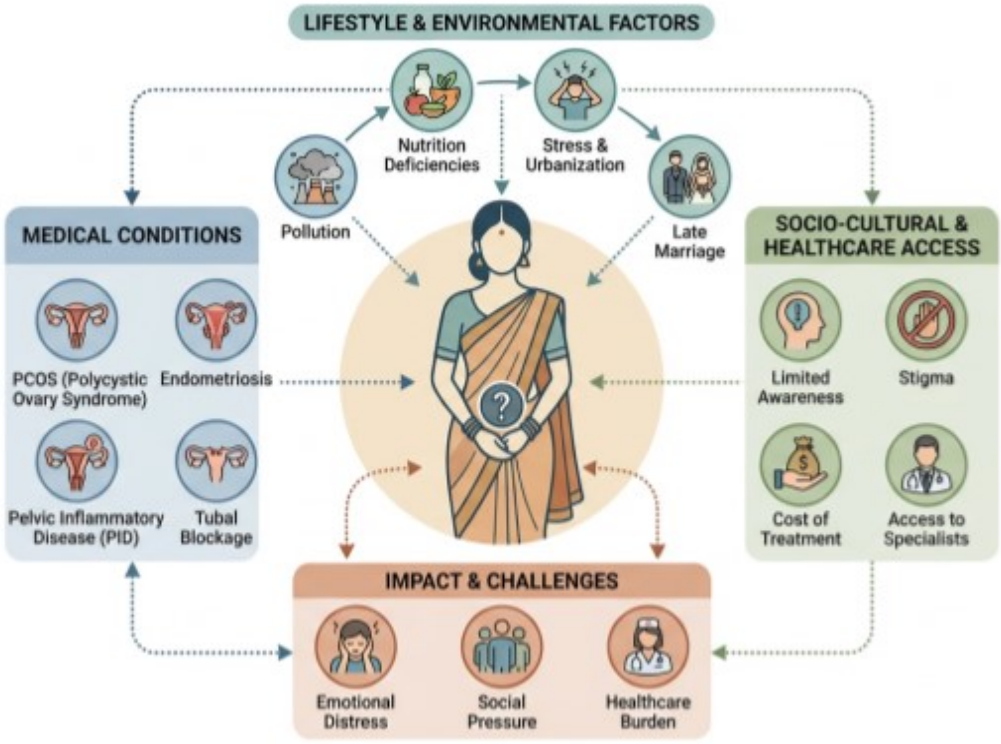

Figure 1: An Overview of the Causes of Female Infertility in India

Infertility is divided into two main types based on a woman's obstetric history. Primary infertility describes a situation where a woman has never experienced a clinically confirmed pregnancy. In contrast, secondary infertility involves a woman who is unable to conceive again after having previously had a clinical pregnancy [5]. According to the World Health Organization (WHO) one in six couples in urban areas of India suffer from primary infertility [6]. This is defined as the inability to achieve a first pregnancy after 12 months of unprotected endeavours. Primary infertility is increasingly detected among individuals with higher academic qualifications and those who delay marriage [7]. The secondary infertility, on the other hand, is often attributed to progressing age, post-pregnancy lifestyle alterations, or the development of chronic health conditions like non-communicable diseases. The fertility rate in India has fallen by more than half, from 4.97 to 2.3. It is expected to fall to 2.1 between 2025 and 30, then to 1.86 between 2045 and 50, and finally to 1.78 between 2095 and 100 [2]. The rate of secondary infertility, i.e. a woman is unable to conceive after having a child, has increased significantly, from 19.5% in 1992–93 to 28.6% in 2015–16 [2]. A recent study in India employed data from the National Family Health Survey-5 (NFHS-5, 2019–21) to assess the prevalence of primary infertility at both national and state levels. Statistical investigation revealed an infertility predominance rate of 18.7 per 1,000 women among those currently in a union with a marital duration of at least five years. Data

indicate an inverse relationship between marital period and infertility prevalence. At the sub-national level, the highest concentrations of infertility were identified in Goa, Lakshadweep, and Chhattisgarh [8].

In view of the above, therefore, infertility is regarded as a 'silent epidemic' that demands urgent attention. This crisis is also fueled by a complex interplay of rising infertility rates, deep-rooted social stigma, gender bias, and a lack of reproductive literacy, often resulting in severe mental health issues and marital instability. The rising burden of female infertility in India, particularly in urban areas, therefore, demands an urgent reproductive health management.

2. Causes of Female Infertility in India

Female infertility is a multifaceted issue arising from different mechanisms (Figure 1). Despite comprehensive diagnostic evaluations, around 15% to 30% of infertility cases are unexplained [9]. The main causes of infertility in human females can be broadly studied into three key categories:

(A) Medical Complications
(B) Lifestyle and Environment Factors
(C) Socio-cultural Barriers and Poor Healthcare Access

(A) Medical Complications

Medical factors of female infertility involve mechanical blockage of oocyte movement, ovulatory dysfunction and hormonal imbalance. The physical harm or obstruction of the fallopian tubes, commonly referred to as Tubal Factor Infertility (TFI), hampers the fusion of spermatozoa and ova. For example, Pelvic Inflammatory Disease (PID) is a prevalent infection-related factor resulting in Tubal Scarring. Endometriosis results from an ectopic tissue located outside the uterus that may lead to anatomical distortion and pelvic adhesions. Uterine fibroids (benign tumours) often block the fallopian tubes or hinder embryo implantation.

Ovulatory dysfunction occurs due to interference with the regular release of ova from the ovaries. Polycystic Ovarian Syndrome (PCOS) is a primary factor in Anovulation (inability to ovulate an egg). Premature Ovarian Failure, also described as Primary Ovarian Insufficiency (POI) is a condition in which ovarian activity stops before the age of 40. Female infertility due to hormonal imbalance involves disorders like hypogonadotrophic hypogonadism, hyperpro-lactinemia, and thyroid issues that affect the menstrual cycle.

Polycystic Ovary Syndrome (PCOS)

Polycystic Ovary Syndrome (PCOS) stands as the leading contributor to female infertility, impacting more than one in ten women of childbearing age across the globe and within India [10]. The most direct impact of PCOS is the disturbance of the menstrual cycle (Ovulatory Dysfunction). Women with PCOS often experience irregular ovulation (oligo-ovulation) or a total lack of ovulation (anovulation), making natural conception exceptionally difficult [11]. High levels of androgens inhibit the normal development and release of eggs[11]. In PCOS women, there is a complex imbalance of hormones, including insulin, growth hormone (GH), ghrelin, LEAP-2, GnRH, androgens, and estrogens [11]. A higher release of luteinizing hormone (LH) compared to follicle-stimulating hormone (FSH) results in disrupted folliculogenesis. Consequently, the development of primary and secondary follicles is halted; the formation of a dominant follicle fails to take place, and chronic anovulation arises. An elevated LH/FSH ratio and hormonal fluctuations are closely linked to the development of insulin resistance and Type 2 diabetes, increased risk of being overweight or obese, and irregular menstrual cycles with subsequent infertility. The insulin resistance and obesity in PCOS women can worsen hormonal imbalances, further decreasing the likelihood of a successful pregnancy and increasing the risk of gestational complications [12].

Endometriosis

Endometriosis is a universal gynaecological condition that serves as a major barrier to conception, affecting approximately 10% of reproductive-age women worldwide [13]. The disease is characterized by the growth of endometrial-like tissue on reproductive structures outside the womb, such as the ovaries, fallopian tubes, and pelvic sidewalls. The presence of this ectopic tissue triggers a cascade of biological events. Chronic inflammation from these growths often leads to the formation of pelvic adhesions (scar tissue). This can physically displace the ovaries or "glue" the fallopian tubes shut, preventing the essential pick-up and transport of the egg. The inflammatory environment in the pelvis can be toxic to both ova and spermatozoa [14]. Further, this "hostile environment" can interfere with embryo implantation in the uterine wall. When endometriosis affects the ovaries, it can create "Ovarian Cysts", which take up space within the ovary, potentially damaging healthy follicles and disrupting regular ovulation.

In India, endometriosis is often under diagnosed because chronic pelvic pain is frequently dismissed as "normal" menstrual discomfort. This delay in diagnosis, which can average 7 to 10 years, often means that by the time a woman seeks fertility assistance, the disease has progressed to a stage that requires advanced interventions like Laparoscopic Surgery or In-Vitro Fertilization (IVF) [15].

Premature Ovarian Failure/ Insufficiency (POI)

Every woman is born with a finite number of oocytes [16]. Ovarian insufficiency (POI) affects approximately 1% of women [17]. POI is characterized by a premature loss of eggs in the ovaries. If the ovaries do not have sufficient eggs, getting pregnant becomes very hard. The causes of POI consist of genetic factors, environmental influences, infections (for instance, following mumps), autoimmune disorders, metabolic issues such as galactosemia), and outcomes of cancer treatment or surgical procedures.

Turner syndrome is likely the most prevalent genetic reason for POI [19].

Hormonal Imbalance

The follicle-stimulating hormone (FSH) and luteinizing hormone (LH) are two hormones responsible for stimulating ovulation in females. These hormones are produced by the pituitary gland. Stressful conditions, very low or high body weight or a drastic weight change can affect the production of these hormones and, in turn, the release of eggs by the ovaries [18]. Hypogonadotropic hypogonadism is defined by insufficient gonadal stimulation resulting from inadequate levels of Luteinizing Hormone (LH) and Follicle-Stimulating Hormone (FSH) due to either a pituitary defect or impaired secretion of Gonadotropin-Releasing Hormone (GnRH) from the hypothalamus. The primary cause of GnRH insufficiency is the developmental failure of GnRH-secreting neurons to migrate to the forebrain. When this condition is accompanied by a loss of smell, it is classified as Kallmann syndrome (KS); if the sense of smell remains intact, it is referred to as normosmic idiopathic hypogonadotropic hypogonadism. The other hormonal imbalance, called hyperprolactinemia refers to excessive production of prolactin that stimulates the production of breast milk. When breast milk is being produced, ovulation might get disrupted due to the inhibition of gonadotropins [5].

Reproductive Tract Infections (RTIs)

The sexually transmitted diseases (STDs) caused by *Ureaplasma urealyticum*, *Mycoplasma hominis*, *Trichomonas* sp., *Neisseria gonorrhoea*, and *Chlamydia trachomatis* can affect the fallopian tubes and cervix [20]. These infections could cause the buildup of scar tissue to block the fallopian tubes and disrupt implantation. Inhospitable environment in the cervix due to conditions such as non-receptive, inadequate, or poor-quality mucus, cervical infections or stenosis do not facilitate spermatozoa movement to reach the uterus. Cervical stenosis, which involves

the narrowing of the cervical canal, acts as a physical barrier to spermatozoa transport. Furthermore, anti-sperm antibodies in the cervix may actively attack and immobilize sperm, hindering fertilization. These conditions might lead to Cervical Infertility (CI) in females [9].

According to updated the World Health Organization (WHO) estimates, more than 1 million curable sexually transmitted infections (STIs) are acquired every day worldwide [21]. In India, RTIs pose a major burden, with some data suggesting that approximately one in four women of reproductive age suffers from at least one type of infection. The estimated annual incidence of RTIs and STDs in the country is roughly 5%, translating to nearly 40 million new cases each year. Furthermore, the prevalence rate across various Indian states has shown extreme variation, ranging from 19% to 71% depending on the region and the specific population survey [21].

(B) Lifestyle and Environment Factors

Apart from medical factors, various unhealthy lifestyle behaviours are critical determinants of fertility in women. The modern "lifestyle crisis" characterized by late marriage, substance use, poor nutrition, obesity, chronic stress and sleep deprivation directly impairs the endocrine system required for successful reproduction.

Age-Related Complications

A primary driver of rising infertility across India is the decline in egg quality with the average age at which Indian women wish to become pregnant. In both men and women, advancing age often correlates with an increase in medical complications, such as maternal pregnancy ailments (pre-eclampsia), hypertension and diabetes due to hormonal shifts, which can hinder successful conception. Female fertility typically begins a gradual decline after age 30 (Figure 2), with a much sharper drop occurring after 35[22]. The advancing age of females not only reduces the chances of conceiving but also elevates the risk of fetal chromosomal abnormalities, miscarriages and pregnancy-related complications [5].

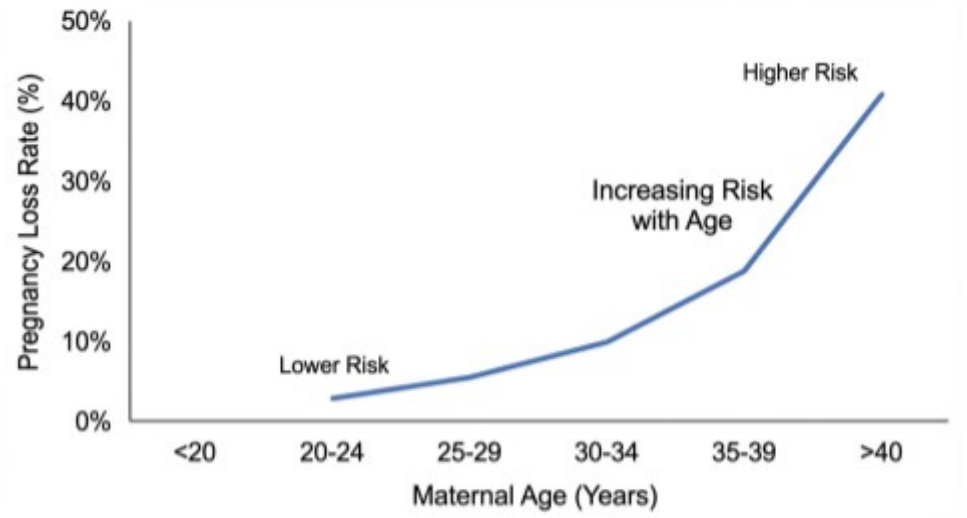

Figure 2: Pregnancy Loss Rate (%) with Advancing Age in Pregnant Women in India

Studies show that increased maternal age is associated with meiotic failure, which is incapability of the oocyte to correctly finish Meiosis I and begin Meiosis II. The errors in chromosomal separation in these dividing oocytes lead to chromosomal aneuploidy with an uneven number of chromosomes in the female pronucleus after fertilization. The resulting chromosomal abnormalities frequently cause developmental arrest due to embryonic non-viability, obstructing successful pregnancy progression. The other possible factors involve deterioration of the meiotic apparatus and mitochondrial function, resulting in a lack of ATP production vital for cell division [23]. Further, advancing aging of female shows a gradual decline in the primordial follicle reserve. This decrease is non-linear, reaching approximately 7 million follicles at the fetal stage (20 weeks gestation) and declining to about 300,000 by the time of puberty [16]. The ovarian reserve at puberty is defined by the initial fetal supply decreased by the total loss from apoptosis and environmental factors. Although age is the chief determinant, the follicular loss in the ovary is hastened by intrinsic factors such as genetic tendencies, chromosomal irregularities, and autoimmune disorders. Extrinsic factors involve pollutants (smoking), medical treatments (chemotherapy, radiation therapy, surgery), and inflammatory disorders (pelvic infections such as Chlamydia). Specific medical conditions such as Polycystic Ovary Syndrome (PCOS), endometriosis, ovulation irregularities, and structural issues within the reproductive system further exacerbate the pregnancy loss with advancing maternal age [24].

Use of Toxic Substances

Tobacco, alcohol and cannabis are the most frequently used substances among women of reproductive age [25]. The smoking habit is linked to hormonal imbalances, which accelerate the depletion of the ovarian reserve and can cause rapid ageing of the ovaries and earlier menopause in working women [7]. Chronic alcohol and caffeine intake disrupts the hypothalamic-pituitary-gonadal axis, leading to irregular ovulation in females [26].

The Metabolic Factors

Reproductive health is deeply tied to metabolic factors. Worldwide, 21% of women are classified as obese based on Body Mass Index (BMI) assessments [5]. Consumption of diets high in processed sugars and Tran's fats triggers insulin resistance, a primary driver of ovulatory failure in obese women [27]. Excess adipose tissue acts as an active endocrine organ, converting androgens into estrogen. This hormonal "flooding" can shut down the ovulation process increase chance of miscarriagein women. Additionally, a sedentary lifestyle slows metabolic rates and contributes to hormonal imbalances, causing infertility. Studies show that moderate and consistent physical activity significantly improves insulin sensitivity, which is vital for maintaining ovulatory regularity [28]. The proper management of insulin levels and regular exercise can help to stabilize the endocrine system, creating a more favourable physiological environment for conception [29].

Stress and Sleep Deprivation

The neurological impact of modern life creates a "fight or flight" state that deprioritizes reproduction. High levels of chronic stress elevate cortisol, which can suppress the GnRH (Gonadotropin-Releasing Hormone) necessary for triggering ovulation and sperm production as studied in rodents [30]. Circadian disruption due to sleep deprivation interferes with the nocturnal release of luteinizing hormone (LH), therefore, fragmented sleep cycles directly correlate with lower fertility markers [31].

Environmental Factors

Beyond individual biology and personal habits, the external environmental pollutants play a decisive role in human fertility. The modern landscape characterized by rapid industrialization and ecological shifts, has introduced a variety of "repro-toxic" factors that undermine the ability to conceive. The dense urban living has exposed populations to heightened levels of particulate matter (PM2.5 and PM10) and nitrogen dioxide. Inhaled toxicants enter the bloodstream,

triggering systemic oxidative stress, causing decreased egg quality in women [32]. Urban environments are saturated with EDCs (Endocrine Disrupting Chemicals) found in plastics, detergents, and industrial runoff (such as BPA and Phthalates) [33]. These chemicals "mimic" natural hormones, binding to receptors and blocking the signals required for healthy ovulation in women.

Modern lifestyles involve constant proximity to Electromagnetic Fields (EMF) and non-ionizing radiation. Many in vitro and in vivo investigations have elucidated the deleterious impacts of non-ionizing radiation on various aspects of female reproductive physiology [34]. Evidence suggests that such exposure induces pathophysiological alterations in oocyte morphology, ovarian folliculogenesis, and endometrial tissue integrity, while concurrently disrupting the estrous cycle and reproductive endocrine signalling. Furthermore, these radiations have been associated with impaired embryogenesis and compromised gestational development across various animal models [35]. Also, the escalating global temperature has a direct, documented impact on female fertility rates [36].

(C) Socio-cultural Barriers and Poor Healthcare Access

Lack of Awareness and Education

The ability to get pregnant and have a child, as well as the right to have access to information regarding reproductive health, is a fundamental human right [37]. A critical lack of awareness regarding infertility remains a significant barrier in developing nations like India, contributing significantly to a modern fertility crisis where approximately 15–20% of couples (nearly 30 million) struggle to conceive. Numerous individuals are unaware of how lifestyle choices such as high stress, poor diet, and substance use negatively impact reproductive health. There is a common failure to recognize the sharp decline in fertility after age 35, leading many to delay childbearing without understanding the biological risks [38]. A significant majority of couples cannot accurately identify the most fertile period of the menstrual cycle, which often leads to unnecessary delays in natural conception [39].

Social and Psychological Barriers

Deep-Rooted Stigma and Gender Bias: Infertility is often viewed as a social failure rather than a medical condition, with women frequently bearing the brunt of domestic blame and ostracization. Social taboos surrounding assisted reproductive technologies (ART), like in vitro fertilization (IVF), result in a perception that such children are "unnatural," leading many to keep their treatment secret or avoid it entirely. Further, the intersection of social pressure and repeated failure to conceive creates a cycle of anxiety and depression, which can further disrupt hormonal balance and physiological fertility [40].

Barriers to Specialized Care

Economic and Healthcare Access Constraints: The IVF has opened up new opportunities for people to achieve a pregnancy, but despite the global spread of IVF clinics, the unmet need for such costly treatments remains high [37]. High treatment costs and a lack of insurance coverage make advanced interventions like ART inaccessible for the majority of the population. Additionally, the quality of fertility care is heavily concentrated in urban hubs, leaving rural populations with limited guidance and a higher prevalence of untreated infections that cause secondary infertility [41].

3. Reproductive Health Management in India

Infertility is a multifactorial disorder, affecting approximately one in six (17.5%) couples globally. The distribution of infertility causes is categorized among partners, with research typically ascribing roughly one-third of cases to female-only factors, one-third to male-only factors, and the remaining one-third to combined factors or idiopathic (unexplained) causes (Figure 3). Within the female component, ovulatory disorders are the most prevalent, accounting for

approximately 40% of cases; specifically, PCOS is the leading driver of anovulatory infertility, responsible for roughly 70% of such instances. Tubal factors, often resulting from PID and endometriosis, contribute significantly (40%) to female infertility. Although approximately 15–30% of couples are classified as having unexplained infertility when standard diagnostic tests such as semen analysis, tubal patency checks, and ovulation tracking appear normal, this diagnosis often stems from the limitations of current medical technology rather than a true absence of a cause.

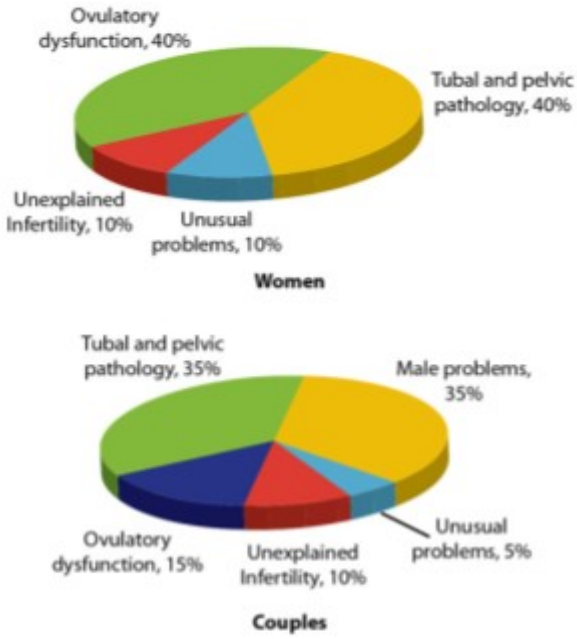

Figure 3: Distribution of Infertility Cases in India.

Infertility continues to be an overlooked priority in worldwide public health agendas, marked by a systemic lack of funding for clinical research and insufficient universal access to preventive and diagnostic services. As a result, the lack of policy increases gender-related health inequalities, since the unavailability of fair treatment alternatives frequently results in negative psychological effects and the social sidelining of Indian women [37]. Over the last few years, there have been significant shifts in infertility practices in India. Infertility therapies are typically categorize into three types: medications that enhance fertility, surgical interventions, and Assisted Reproductive Technology (ART). Although numerous individuals start with medical or surgical therapies, those facing difficulties in conceiving despite these approaches frequently move on to ART. Additionally, there have been societal shifts, including a rise in the percentage of women over 35 years old pursuing pregnancy. Finally, the advancement in the field of molecular biology and genetics has gained significant importance in the examination, diagnosis, and evaluation of couples, many of whom have been regarded until now as "unexplained infertile couples"[23].

Education and Government Policy

Education initiatives, such as school-based curricula or digital content, have been proven to significantly improve fertility knowledge and decrease time-to-pregnancy. Experts advocate for integrating infertility services into primary public healthcare to normalize it as a routine health concern and improve early diagnosis. Further, addressing the crisis of infertility is vital to ensuring that both partners seek screening

simultaneously, reducing the 3-5 year delay often caused by gender-related hesitation.

The Government of India has implemented a multi-tiered public health framework aimed at optimizing reproductive, maternal, newborn, child, and adolescent health. These initiatives prioritize the reduction of maternal and infant mortality rates through standardized clinical care, financial incentives for institutional deliveries, and expanded contraceptive access. The key strategic programs include:

Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA): It is a national campaign providing universal, comprehensive antenatal care on the 9th of every month. It focuses on the early identification and management of high-risk pregnancies, contributing to a significant decline in India's Maternal Mortality Ratio (MMR).

Janani Suraksha Yojana (JSY): It is a safe motherhood intervention under the National Health Mission (NHM) that utilizes conditional cash transfers (CCT) to promote institutional delivery among marginalized populations, specifically targeting Below Poverty Line (BPL), Scheduled Caste, and Scheduled Tribe households.

National Health Mission (NHM) RMNCAH+N Strategy: It is integrated approach introduced to address the major causes of mortality among women and children. This strategy ensures a continuum of care by linking community-based services with facility-based care across various life stages.

Mission Parivar Vikas: It is a targeted family planning initiative focused on 146 high-fertility districts. It employs a 360-degree strategy to increase contraceptive prevalence and align regional Total Fertility Rates (TFR) with the national replacement-level goal of 2.1 by 2026.

4. Conclusion

The female infertility crisis in India is as much a socioeconomic issue as it is a medical one. The etiology is driven by clinical pathologies, lifestyle-induced metabolic shifts, and environmental factors, requiring localized, preventive, and data-driven healthcare interventions. By combining early detection with broader insurance coverage and aggressive public education, India can transform its reproductive healthcare landscape from one of "privilege" to one of "universal access."

5. Authors Contribution

The manuscript has been solely synthesized and prepared by the author.

6. Funding and Sponsorship

None

7. Conflict of Interest

None

8. Declaration of Use of Generative Artificial Intelligence in Writing Process

The author has not used any generative AI/AI assisted technologies in the writing process.

References

[1] Vander Borght M, Wyns C. Fertility and infertility: Definition and epidemiology. *Clin. Biochem.*, **62**, 2–10 (2018).

[2] Manimekalai PK, Poulpunitha S, Veeramani P. Infertility : An Alarming Situation In India. **9**, 2606–9 (2020).

[3] Tang W-Z, Cai Q-Y, Huang K-J, Xu W-Z, Li J-Z, Pan Y-R, Xu H-Y, Zhao Y-F, Sheng T-H, Li Z-M. The global burden of polycystic ovary syndrome, endometriosis, uterine fibroids, cervical cancer, uterine cancer, and ovarian cancer from 1990 to 2021. *BMC Public Health*, **25**, 1774 (2025).

[4] Gothwal M, Singh P, Agrawal N, Ghuman NK, Yadav G, Gupta MK, Sharma C, Kathuria P. The Influence of Proximate Determinants on Fertility Awareness among Women Seeking Care at Infertility Clinic in Western India. *Indian J. Community Med.*, **51**, (2026).

[5] Borght M Vander, Wyns C. Fertility and infertility : De fi nition and epidemiology. **62**, 2–10 (2018).
[6] Devi KS, Mehra D, Bahl D, Hamza M, Uppal L, Ghosh S, Das SS, Mehra S. Reproductive Health Article in Press Primary and secondary infertility in India : a systematic review and meta-analysis IN AR IN. (2026).
[7] Maqbool M, Qadrie Z, Oral O. Female Infertility and Treatment Modalities : A Narrative Review. **30**, 439–49 (2025).
[8] Agiwal V, Madhuri RS, Chaudhuri S. Infertility Burden Across Indian States: Insights from a Nationally Representative Survey Conducted During 2019-21. *J. Reprod. Infertil.*, **24**, 287–92 (2023).
[9] Kasna S, Agrawal SS. Infertility in Women : A Review on Causes , Treatment , and Management. **8**, 30–8 (2023).
[10] Parua S, Purkait MP, Bhattacharjee A, Thangarajan R, Rammohan S, Islam K, Bhattacharya K, Syamal AK. Exploring female infertility: A comprehensive review of polycystic ovary syndrome (PCOS) and its impact on reproductive health. *Obes. Med.*, **55**, 100619 (2025).
[11] Yang J, Chen C. Hormonal changes in PCOS. *J. Endocrinol.*, **261**, (2024).
[12] Jalolidinovna IZ. REPRODUCTIVE COMPLICATIONS IN POLYCYSTIC OVARY SYNDROME AND THEIR CLINICAL SIGNIFICANCE. *Sustain. Educ. SOCIO-ECONOMIC Sci. THEORY*, **4**, 42–4 (2026).
[13] Labinjo TO. The Psychosocial Impact of Infertility Due to Endometriosis: A Narrative Synthesis of Dimensions, Effects, and Pathways to Resilience. (2025).
[14] Madjunkov M, Madjunkova S, Librach C. The biology and clinical aspects of female infertility. *Syst. Biol. Reprod. Med.*, **72**, 23–54 (2026).
[15] Acharya S, Rath D. Infertility in Endometriosis : Understanding Its origins , diagnostic challenges and treatment complexities. (2025).
[16] Daugėlaitė K. Regulation of hormonal stimulation and ageing in female reproductive tract, 2024.
[17] Li M, Zhu Y, Wei J, Chen L, Chen S, Lai D. The global prevalence of premature ovarian insufficiency: a systematic review and meta-analysis. *Climacteric*, **26**, 95–102 (2023).
[18] Nautiyal S, Devi MG, Sharma G, Sharma N. Follicle-stimulating hormone and luteinizing hormone polymorphisms and their association with female infertility in North India-a pilot study. *Middle East Fertil. Soc. J.*, **30**, 61 (2025).
[19] Tamhankar PM, Tamhankar VP, Vaniawala S. Genetics of Premature Ovarian Insufficiency. *Fertil. Sci. Res.*, **11**, (2024).
[20] Pai MO, Venkatesh S, Gupta P. The role of infections in infertility: A review. *Int. J. Acad. Med.*, **6**, 189–96 (2020).
[21] Durai V, Varadharajan S, Muthuthandavan AR. Reproductive tract infections in rural India – A population-based study. *J. Fam. Med. Prim. Care*, **8**, (2019).
[22] Group ECW. Fertility and ageing. *Hum. Reprod. Update*, **11**, 261–76 (2005).
[23] Brugo-olmedo S, Chillik C, Kopelman S. Review Definition and causes of infertility. *Reprod. Biomed. Online*, **2**, 173–85 (2002).
[24] Lidegaard Ø, Mikkelsen AP, Egerup P, Christian S, Henriette R, Kolte AM. Pregnancy loss : A 40-year nationwide assessment. 1492–6 (2020).
[25] Chen C, Wu Y, Pei L, Ren W. Association of cannabis use with female infertility based on NHANES. *J. Obstet. Gynaecol. (Lahore).*, **45**, 2502663 (2025).
[26] Molina PE, Simon L. Alcohol and the endocrine system: A critical review of disruptions, potential mechanisms, and health implications. *Alcohol Clin. Exp. Res.*, **50**, e70221 (2026).
[27] Roberts R, Markande A, Kasaven L, Williams SC, Faris R, Bracewell-Milnes T, Thum Y, Nicopoullos J, Jones BP. Obesity and Female Reproductive Health; Is There a Role for Glucagon-Like Peptide-1 Receptor Agonists? *Obes. Rev.*, **27**, e70015 (2026).
[28] Małkowska P. Positive effects of physical activity on insulin signaling. *Curr. Issues Mol. Biol.*, **46**, 5467–87 (2024).

[29] Orio F, Muscogiuri G, Ascione A, Marciano F, Volpe A, La Sala G, Savastano S, Colao A, Palomba S. Effects of physical exercise on the female reproductive system. *Minerva Endocrinol*, **38**, 305–19 (2013).
[30] Simonneaux M, Simonneaux V. Chronic circadian disruption in female mice induces a long-term alteration of the preovulatory LH surge. *J. Neuroendocrinol.*, **38**, e70101 (2026).
[31] Lin Y, Cheng W, Weng H, Huang W, Chen X, Lyu Q, Zhao D, Wu L, Zhang H. The impact of maternal circadian rhythm disruption on offspring. **4**, 3–4 (2026).
[32] Sairat F, Mediani A, Hussin NMH, Widyanto RM, Sharif R. Environmental contaminants and endocrine disrupting chemicals in female infertility: a systematic review. *Middle East Fertil. Soc. J.*, **31**, 4 (2026).
[33] Kozieł-Leszczyńska MJ, Piastowska-Ciesielska AW. Bisphenols and their role in female infertility and hormone-related cancer. *Endocrine*, **91**, 32 (2026).
[34] Fatkhutdinova LM, Muhutdinova AR, Amirov NK. THE RISK OF REPRODUCTIVE DISORDERS AMONG ICT PROFESSIONALS (LITERATURE REVIEW). *Ekol. cheloveka (Human Ecol.*, (2026).
[35] Jangid P, Rai U, Sharma RS, Singh R. The role of non-ionizing electromagnetic radiation on female fertility : A review The role of non-ionizing electromagnetic radiation on female. *Int. J. Environ. Health Res.*, **00**, 1–16 (2022).
[36] Molla A. Extreme heat and human fertility: Amplified challenges in the era of climate change. *J. Therm. Biol.*, **130**, 104158 (2025).
[37] Carneiro MM, França Ferreira MC. Infertility awareness: why should we care? *Women Health*, **61**, 501–2 (2021).
[38] Schmidt L. Should men and women be encouraged to start childbearing at a younger age? *Expert Rev. Obstet. Gynecol.*, **5**, 145–7 (2010).
[39] Mahey R, Gupta M, Kandpal S, Malhotra N, Vanamail P, Singh N, Kriplani A. Fertility awareness and knowledge among Indian women attending an infertility clinic: a cross-sectional study. *BMC Womens. Health*, **18**, 177 (2018).
[40] Dutta S, Sengupta P. Infertility Through the Lens of Psychoneuroimmunology: Revealing the Impact of Stress and Immune Disruption. *PsychoNeuroImmunology: Volume 2: Interdisciplinary Approaches to Diseases*. Springer, pp.827–64 (2025).
[41] Dalal R. Infection and Infertility. *Genital Infections and Infertility*. IntechOpen, (2016).

Access this Article in Online

Website: www.ijarm.com

Subject: Reproductive Biology

Quick Response Code

DOI:10.22192/ijamr.2026.13.03.007

How to cite this article:
Prakash Chandra Gupta. (2026). Female Reproductive Disorders: A Review on Causes and Reproductive Health Management in India. Int. J. Adv. Multidiscip. Res. 13(3): 77-87.
DOI: http://dx.doi.org/10.22192/ijamr.2026.13.03.007