

## Review Article

# Rising of infertility among younger generation in India

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## ABSTRACT

Inability to conceive is a stressful situation among young couples. The idea of infertility is still an uncovered ground in the field of science. Younger generations who are forced to achieve a better quality of life are focused and much stressed about their work rather than their health. Infertility rates are rising every year in the world. Though this is a ticking bomb people seem to care about it a little and in India people are shunned if they are unable to conceive especially women are subjected to great mental stress. Lifestyle changes, occupations and dietary factors influence in infertility are constantly increasing. But the treatment options are also improving with better success rates. The various treatment options include simplification of diagnostic and assisted reproductive techniques (ART) procedures, minimizing the complication rate of interventions, providing quality training courses for health care workers, and incorporating infertility treatment into sexual and reproductive healthcare.

**Keywords:** Infertility, India, Younger generation

## INTRODUCTION

Inability to conceive is a stressful situation among young couples. The consequences of infertility are personal suffering and societal repercussion.<sup>1</sup> 186 million people are affected due to infertility in the world.<sup>2</sup> Around 10-15% of couples suffer from Infertility.<sup>3</sup> In the present social conditions, infertility causes burden more on women than men, even though men are more affected by infertility than women.<sup>2</sup> Unfortunately, in the world, the countries with the highest rates of infertility are often those with poor access to assisted reproductive techniques (ARTs). Assisted reproductive techniques including IVF offers hope to the couples but barriers like medical coverage and affordability exist.<sup>4</sup> Stress, alcohol, drug addiction, smoking, tobacco are the important factors affecting fertility. Women with infertility having elevated levels of anxiety and depression especially in India.

Psychological interventions lifestyle modifications have beneficial effects on infertility patient. Lifestyle in both male and female, oxidative stress, occupation, genetic factors also contribute to infertility among young couples.<sup>5</sup> This study explains about the factors and impact of infertility among rising younger generations. There is a need for psychological interventions and lifestyle modification in infertile couples.

### *Types of infertility*

Failure to conceive within one or more years of regular unprotected coitus is defined as infertility. Two types of infertility: primary and secondary infertility. Patients who have never conceived before coming under primary infertility. People who were able to conceive before but are unable to conceive the next time come under Secondary infertility.

### **Prevalence of infertility**

8-12% of reproductive aged couples affected by infertility worldwide. 20-30% of infertility cases contributed by male.<sup>6</sup> Female factors contribute almost 46% of infertility with PCOS being the leading cause. Primary infertility is more prevalent than secondary infertility. 57% by primary and 42% by secondary infertility.

### **Factors in infertility**

**Stress:** stress affects fertility by the way it alters the hormonal levels thereby causing hormonal imbalance. Cortisol is released during stress and it affects ovulation results in ovulatory dysfunction. At the sametime stressed persons less often have sex.<sup>7</sup> **Alcohol consumption:** in males, alcohol consumption increases the levels of LH and FSH and decreases testosterone levels. It also decreases the seminal volume, decreases the sperm count and motility, alters sperm morphology and causes DNA damage.<sup>7</sup> **Tobacco:** nicotine increases the liver metabolism of Testosterone and increases the levels of testosterone. Smoking increases the DNA methylation and decreases the acrosomal reaction.<sup>7</sup> **Drug addiction:** in recent years more youth are addicted to recreational drugs and many of them are addicted. The use of recreational drugs such as opioids causes a decrease in pulsatile secretion of GnRH and decreases the testosterone levels, marijuana causes a decrease in LH levels and can either decrease or increase testosterone levels and cocaine increases the LH levels. **Lifestyle factors:** in females age at which she starts her family, nutrition, weight, Psychological factor, environmental and occupational exposure plays a role in infertility. For male, aging, psychological stress, nutrition, physical activity, high scrotal temperature, hot water a factor affecting fertility in males. **Oxidative stress:** oxidative stress causing DNA fragmentation of the spermatozoa. Oxidative stress which refers to an imbalance in levels of reactive oxygen species (ROS) and antioxidants is one of the main causes of infertility in men.<sup>8</sup> ROS is necessary for capacitation, hyperactivation and the acrosomal reaction of sperm. High levels of ROS causes infertility by lipid peroxidation and inactivation of enzymes and oxidation of proteins in spermatozoa.<sup>9</sup> **Occupational effects:** Men working in high-temperature areas as in factories, stressful situations in IT companies having low Sperm counts. **Genetic disorders:** Certain congenital conditions in Females such as Kallman syndrome, fragile X syndrome, primary ciliary dyskinesia and male Klinefelter's syndrome noonan syndrome and cystic fibrosis have infertility problems. Mutation and deletion in CatSper 1 and 2 genes result in male infertility. These CatSper genes regulate sperm hyperactivation.<sup>10</sup> **Acquired factors:** In male seminal tract obstruction, Testicular carcinoma, severe sexual dysfunction, unilateral cryptorchidism, mumps orchitis involve in infertility.<sup>11</sup> **Non-obstructive azoospermia (NOA)** also causes infertility in males. In females thyroid dysfunction, Pelvic inflammatory disease, tubal defects, endometriosis and PCOS (being the most common cause), STDs leads to

infertility. **Diabetes:** causes erectile dysfunction and affecting sperm motility and count. **Obesity:** abnormal sperm structure and low sperm count. Unhealthy eating habits leads to altered metabolism causing uncontrolled diabetes and cholesterol levels.

### **Management**

Combined management of infertile couples is optimal. Low sperm concentration and motility of unknown cause are the most common cause in men.<sup>12</sup> Ovulation disorders can be treated successfully but results of tubal surgery for past inflammatory damage remain poor. In vitro fertilization (IVF) may be useful for idiopathic infertility and semen disorders of mild-moderate severity as well as for tubal obstruction. Intracytoplasmic sperm injection (ICSI) has transformed the clinical management of male infertility. For women with PCOS and insulin resistance Myo-inositol combine with clomiphene citrate used for ovulation induction because myo-inositol improves insulin resistance and ovarian activity.<sup>13</sup> Myo-inositol resistant PCOS cases can be treated with Alpha-lactalbumin which induces ovulation and increases plasma levels of myo-inositol.<sup>14</sup> Females with diminished ovarian reserve have tried biopsy fragmentation and auto transplantation of fresh ovarian cortical tissue.<sup>15</sup> Though it failed to increase the number of follicles for IVF/ICSI 10 weeks after the procedure 12 out of 20 women subsequently had a clinical pregnancy during the 1 year follow up. Women undergoing GnRH antagonist IVF/ICSI oocyte maturation usually given by HCG are at risk of ovarian hyperstimulation syndrome compared to GnRH agonist given along with HCG.

### **CONCLUSION**

The average age of infertile women was 31 years, and the average time for attempting consumption was 18 months. Infertility is a social stigma and it gives social, mental, and physical damage to childless women rather than men. Divorce and introducing a second wife are the available choice other than treatment. Young couples seeking medical care was on average 56.1% (42-76.3%) in more developed countries and 51.2% (27-74.1%) in developing countries. The number of people receiving the care was less than 22.4%. Global, regional, and national estimates in infertility must be focused to target prevention and treatment efforts. ART is inaccessible in many countries till now. The implementation of infertility care in developing countries include simplification of diagnostic and ART procedures, minimizing the complication rate of interventions, providing quality training courses for health care workers and incorporating infertility treatment into sexual and reproductive healthcare programmed we can provide quality medical care. Adoption is also a choice for these young couples.

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