

# Lifestyle Predictors of Women Undergoing In Vitro Fertilization

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## Abstract

Lifestyle factors play a significant role in individuals' fertility related problems. The lifestyle choices including delayed child birth, delayed start in family making and habits like smoking, consuming high fat diet, drinking caffeinated beverages, less physical activity, greater amount of alcohol consumption, drug abuse and experience of anxiety and depression will make individuals fertility life worse. The article explores how lifestyle factors contribute to fertility life of a women undergoing in vitro fertilization.

## Introduction

In every living being, reproduction is a vital biologic event. Since the reproductive health of the parent species is essential to the continued existence of any species, any potential threat to reproductive health will elicit an intense reaction from the scientific community. According to WHO (2022) estimates suggest that between 48 million couples and 186 million individuals live with infertility globally. Given that the most of the infertility cases are preventable and the magnitude of the issue requires immediate action. Global data from the last five to six decades indicate that modifiable lifestyle factors have contributed to declining reproductive health indices, particularly in industrialized and developed nations (Kumar *et al.* 2018).

Lifestyle factors refers to modifiable behaviours and lifestyle choices that may have an impact on an individual's overall health and well-being, including fertility (Acharya & Gowda 2017). Role of lifestyle factors in the history and causes of infertility has developed a growing interest in researchers. Numerous authors have reported the evidence of an association of certain lifestyle choices to infertility in both males and females. These lifestyle choices include delaying having children in order to pursue a career or further education, delaying starting a family until later in life, smoking, consuming diets high in fat, drinking coffee and alcohol, exercising,

abusing drugs, experiencing anxiety or depression, using cell phones, and exposure to radiation.

Fortunately, the majority of infertility problems can be addressed with significant treatments like assisted reproductive technologies (ART). On the other hand, normalizing a few modifiable lifestyle factors may allow women to resume normal oocyte maturation and males to produce better-quality semen (Ilacqua *et al.* 2018).

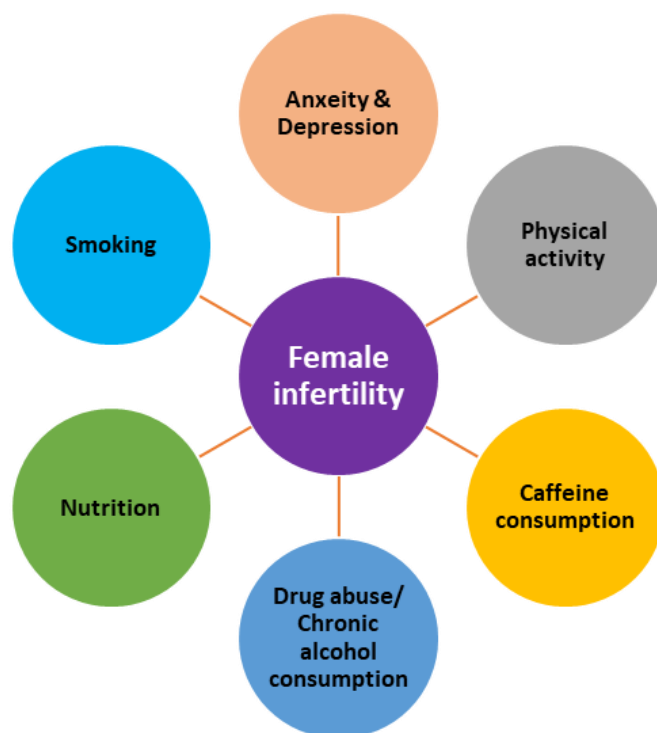


Fig.1 Diagrammatic representation of lifestyle behaviours in females

## Lifestyle predictors of women undergoing IVF

### Nutrition

Nutritional problems in developed countries are often associated with eating disorders and obesity, where as in developing nations, the primary nutritional challenges are deprivation, undernutrition, and malnutrition. In females, reproduction involves much greater energy expenditures than in males. However, as a protective mechanism against under-nutrition, ovarian activity is suppressed in women with eating disorders and exercise-induced amenorrhea through pathways in the hindbrain.

Evidence, indicates that among women undergoing IVF treatment, healthy eating habits, such as eating fruits and vegetables, are linked to a better chance of pregnancy and live birth (Neamtiu *et al.*, 2022).

### Smoking

Cigarette smoking has been significantly associated with adverse effects on fertility even though not widely recognized, as it is significantly lessening the chances of conceiving from in vitro fertilization. The reproductive toxicants present in tobacco smoke may affect the endometrial vascularization & myometrial relaxation, results in pregnancy loss and IVF implantation failure.

### Anxiety & Depression

Some authors witnessed that anxiety and depression could adversely impact the fertility. Because, anxiety and depression could activate an inhibitory effect on the female reproductive system. The hormones like Corticotrophin releasing hormone (CRH) inhibits the hypothalamic gonadotropin-releasing hormone (GnRH) secretion and glucocorticoids inhibit the pituitary luteinizing hormone and ovarian estrogen & progesterone secretions which are responsible for the 'hypothalamic' amenorrhea.

### Physical Activity

Regular exercise increases the insulin sensitivity and also improves ovarian functioning which further may improve the chances of achieving conception.

### Caffeine Consumption

Caffeine is a stimulant that is used as a beverage like tea, soft drink, chocolate, etc. It contains more than a thousand active ingredients, or stimulants. The high consumption of caffeinated drinks has a significant impact on the reproductive system as well as the brain system and other organs. Consumption of more than five cups or 500 mg of caffeine a day can cause a pregnancy delay. Further, it interrupts the process of fertilizing and implanting eggs (Olsen, 2018).

### Drug Abuse or Alcohol Consumption

Women are more likely than men to take pharmaceuticals drugs over the long term because of

differences in physiology, weight, hormone levels, and other factors that can impact how these substances are metabolized in the body (Center for Behavioral Health Statistics and Quality, 2017). Women are more vulnerable to Human Papilloma Virus (HPV) and other sexually transmitted infections (STIs). This condition is intensely associated with a higher incidence of cervical cancer in females.

Alcohol enables the body to deplete a many essential vital nutrients, like calcium, salt, potassium, iron, magnesium, zinc, vitamin B, and so on. Most bodily processes depend on these vitamins and minerals, including reproduction. Women's reproductive potential and ovarian reserve may deteriorate as a result of long-term excessive alcohol use. It has been found that alcohol users have lower levels of ovarian reserve and reproductive potential markers (FSH, anti-mullerian hormone (AMH), and antral follicle count) than non-users (Emokpae *et al.*, 2021).

### Conclusion

Most of the lifestyle factors were modifiable. Women adopting healthy lifestyle which includes nutritious food with high protein dietary intake, regular exercise, avoiding consumption of caffeinated beverages, alcohol, smoking and less exposure to stressful situations helps in promoting the healthy reproductive age years. Since most people are unaware of the significant impact of lifestyle choices on infertility, health care professionals' public education efforts will substantially improve public knowledge and awareness regarding adopting better lifestyle choices.

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