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Infertility: Stress could be the cause

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Abstract

Background: The relationship between stress and infertility has been debated for years. Women with infertility report elevated levels of anxiety and depression, so it is clear that infertility causes stress. What is less clear, however, is whether or not stress causes infertility. The impact of distress on treatment outcome is difficult to investigate for a number of factors, including inaccurate self-report measures and feelings of increased optimism at treatment onset. However, the most recent research has documented the efficacy of psychological interventions in lowering psychological distress as well as being associated with significant increases in pregnancy rates. A cognitive-behavioral group approach may be the most efficient way to achieve both goals. Given the distress levels reported by many infertile women, it is vital to expand the availability of these programs.

In recent times, the crucial role that modifiable lifestyle factors play in the development of infertility have generated a growing interest in this field of study, i.e. aging, psychological stress, nutrition, physical activity, caffeine, high scrotal temperature, hot water, mobile telephone use. Several studies have investigated associations between semen quality and the presence of lifestyle stressors i.e. occupational, life events (war, earthquake, etc.) or couple infertility

Conclusion: A diagnosis of infertility can be a tremendous burden for patients. The pain and suffering of infertility patients is a major problem. Patients must be counseled and supported as they go through treatment. It has been well documented that infertility causes stress. However, it is clear that psychological interventions for women with infertility have the potential to decrease anxiety and depression and may well lead to significantly higher pregnancy rates. Thus, modification of lifestyle through a structured program of educational, environmental, nutritional/physical exercise and psychological support can prevent infertility and therefore, may help couples to obtain better quality of life and improved possibility to conceive spontaneously or optimize their chances of conception.

Keywords: anxiety; depression; distress; infertility; ART; psychosocial support; quality of life; male fertility, lifestyle factors, stress.

“It’s not just about conceiving inconceivable babies; it’s about conceiving your inconceivably fertile self”

Infertility is a life crisis affecting patients from all around the world. Infertility has no limits. It exists in every culture, in different social classes in all over the world (Salzer 1994). Couples, who have been trying to get pregnant for over a year, are dealing with infertility (Tulppala 2007). Infertile patients experience a tremendous amount of emotional turmoil as the result of their diagnosis. The risk of depression, anxiety, and distress is high for infertile patients.

Infertility is often a silent struggle. Patients who are struggling to conceive report feelings of depression, anxiety, isolation, and loss of control. Depression levels in patients with infertility have been compared with patients who have been diagnosed with cancer¹. It is estimated that 1 in 8 couples (or 12% of married women) have trouble getting pregnant or sustaining a pregnancy². Despite the prevalence of infertility, the majority of infertile women do not share their story with family or friends, thus increasing their psychological vulnerability. The inability to reproduce naturally can cause feelings of shame, guilt, and low self-esteem. These negative feelings may lead to varying degrees of depression, anxiety, distress, and a poor quality of life.

It has been hypothesized since biblical times that stress can hamper fertility. This raises one of the most compelling mind/body questions: does infertility cause stress or does stress cause infertility? The answer thus far is not clear; the relationship between distress and infertility may not have a clear cause and effect direction. It is definitive that infertility leads to significant distress and that psychological interventions are likely to be associated with decreases in depression and increases in pregnancy rates. However, the impact of distress on treatment outcome is less definitive.

In general, infertility is defined as not being able to get pregnant (conceive) after one year (or longer) of unprotected sex. Because fertility in women is known to decline steadily with age, some providers evaluate and treat women aged 35 years or older after 6 months of unprotected sex. Impaired fecundity is a condition related to infertility and refers to women who have difficulty getting pregnant or carrying a pregnancy to term. Women with infertility should consider making an appointment with a reproductive endocrinologist—a doctor who specializes in managing infertility. Reproductive endocrinologists may also be able to help women with recurrent pregnancy loss, defined as having two or more spontaneous miscarriages.

Pregnancy is the result of a process that has many steps. To get pregnant:

- A woman's body must release an egg from one of her ovaries external icon.
- A man's sperm must join with the egg along the way (fertilize).
- The fertilized egg must go through a fallopian external icon toward the uterus external icon (womb).
- The embryo must attach to the inside of the uterus (implantation).

Infertility may result from a problem with any or several of these steps. Infertility may be caused by a number of different factors, in either the male or female reproductive systems. However, it is sometimes not possible to explain the causes of infertility. The relative importance of these causes of female infertility may differ from country to country, for example due to differences in the background prevalence of STIs, or differing ages of population.

The relationship between infertility and psychological stress is complex. Evidences from the research studies indicated that infertile couples are subject to greater stress and have an increased risk of developing psychological disorders compared with healthy couples. A recent literature review on the prevalence of psychological symptoms in infertility concluded that 25% to 60% of infertile individuals report psychiatric symptoms and that their levels of anxiety and depression are significantly higher than in fertile controls³.

Does infertility cause stress? The impact of infertility can have on a couple is far reaching and can be difficult to determine. Infertility can impact one's relationship with family and friends, create financial difficulty, affect the relationship between partners and can negatively affect the couple's sexual relationship. In a nutshell, infertility can cause stress.

Does stress cause infertility? It is unlikely that stress alone can cause infertility. However, it does interfere with a woman's ability to get pregnant. Research has shown that women with history of depression are twice as likely to experience infertility. Anxiety can also have a negative effect by prolonging the time needed to achieve pregnancy. Studies on women undergoing In vitro fertilization showed that stress decreases the pregnancy rate.

The psychological impact of infertility: depression, anxiety, and distress

One of the main challenges in assessing the distress levels in women with infertility is the accuracy of self report measures. It is possible that women "fake good" in order to appear mentally healthier than they are. It is also possible that women feel a sense of hopefulness/ increased optimism prior to initiating infertility treatment, which is when most assessments of distress are collected. Some early studies concluded that infertile women did not report any significant differences in symptoms of anxiety and depression than fertile women. In a large Danish study of 42000 women⁴ who underwent ART treatment and were screened for depression prior to treatment, 35% screened positive. In another recent study of 174 women undergoing infertility treatment, 39% met the criteria for major depressive disorder⁵. In one of the largest studies 352 women and 274 men were assessed in infertility clinics in northern California. It was determined that 56% of the women and 32% of the men reported significant symptoms of depression and 76% of the women and 61% of the men scored reported significant symptoms of anxiety⁶. Not surprisingly, recent research documents that infertility patients

consistently report significantly more symptoms of anxiety and depression than fertile individuals⁷. A recent literature review on the prevalence of psychological symptoms in infertility concluded that 25% to 60% of infertile individuals report psychiatric symptoms and that their levels of anxiety and depression are significantly higher than in fertile controls⁸. The medications used to treat infertility, including clomiphene, leuprolide, and gonadotropins, are associated with psychological symptoms such as anxiety, depression, and irritability.

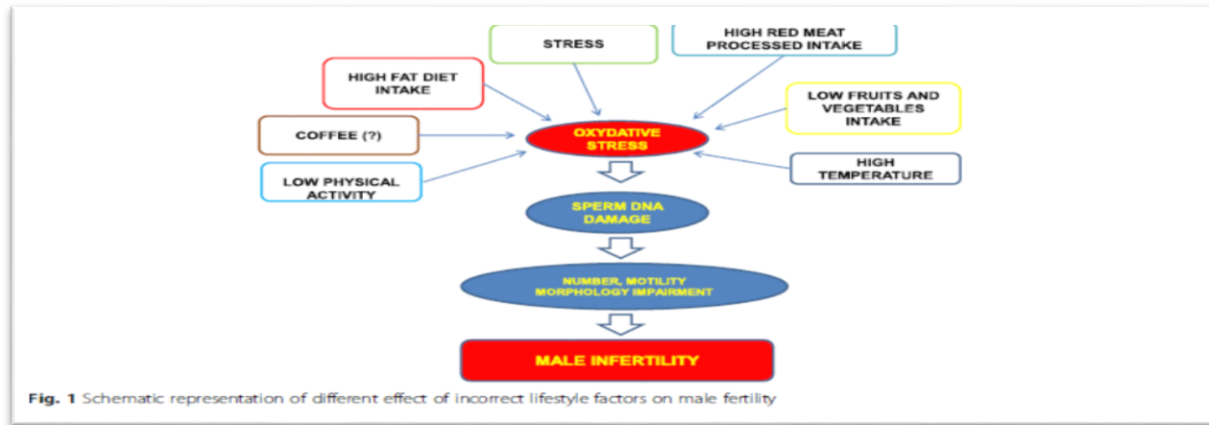
Thus, when assessing symptoms of women mid-treatment, it is difficult to differentiate between the psychological impacts of infertility versus the side effects of the medication. The further into treatment a patient goes, the more often they display symptoms of depression and anxiety. Patients with one treatment failure had significantly higher levels of anxiety, and patients with two failures experienced more depression when compared with those without a history of treatment⁹. However, it has also been shown that the more depressed the infertile woman, the less likely she is to start infertility treatment and the more likely she is to drop out after only one cycle¹⁰. Researchers have also shown that despite a good prognosis and having the finances available to pay for treatment, discontinuation is most often due to psychological reasons.¹¹⁻¹³

One of the most controversial areas in the field of reproductive medicine is the potential impact of psychological factors on pregnancy rates. Although there are a variety of old wives' tales which support the notion that stress hampers reproduction function, this theory has been challenging to confirm. There have been dozens of studies which have investigated the relationship between psychological symptoms prior to and during ART cycles and subsequent pregnancy rates, with conflicting results.¹⁴⁻¹⁷

Role of stress on male fertility

Stress is a prominent part of any society and infertility itself is stressful, due to social pressures, testing, diagnosis, treatments, failures, unfulfilled desires and even economic costs with which it is associated¹⁸. Semen parameters may be potentially linked to stress, whose presence may reduce luteinizing hormone (LH) and testosterone pulsing, thus reducing in turn spermatogenesis and sperm quality^{19, 20}. Pre-clinical data have shown that acute stress might impair testicular function; testicular tissue from stressed rats shows higher levels of cortisol displayed apoptosis of both germ cells and Leydig cells^{21, 22}. An isolated stress such as a job, life events, and even social strain or two simultaneous stressful life events may have a significant negative impact on sperm quality. The perceived stress of providing a semen sample was reported to be negatively linked to overall semen quality with a 39% decrease in sperm concentration, 48% decrease in motility, and worse overall semen parameters on the day of oocyte retrieval, although there was no change in either volume or morphology^{22, 24}. Furthermore, environmental disasters, war or "stressful life events" are major determinants that do not allow to quantify their impact on fertility, thus determining underestimation of the actual stress burden. A high stress level may occur owing to a continuous high stress in daily life without occurrence of specific stressful

exposures. Psychological stress might be a modifiable or reversible factor, which is important in a clinical setting²⁵.



How can you deal with the stress of infertility?

Learn: Educate yourself about the normal responses to infertility. Talk to other people going through infertility. Understand your medical condition and ask about treatment options.

Communicate: Talk to your partner about your feelings and needs, and allow your partner to feel and cope differently. Talk about your differences and avoid conflict. Keep communicating with family and friends and avoid isolating yourself. Understand that you can talk about your situation without going into details, and tell others how they can support you.

Practice relaxation techniques: The human body has two types of responses –t fight-or-flight and relaxation. The fight-or-flight response is what happens to your body when you feel danger. This is the same response you experience during psychological stress. The relaxation response is when your body is in deep rest. Relaxation techniques such as progressive muscle relaxation, deep breathing, meditation and imagery can help you transition to a relaxation response state. These techniques can help you deal with any type of stress including that related to infertility.

Take care of your health: Make sure you get your well adult exam every year. Eat healthy, exercise regularly, get adequate sleep and allow time for recreation.

Deal with sexual stress: Sexual stress is very common among couples with infertility, mostly because couples feel that this is an obligation or a duty rather than a fun activity. There are a number of ways to deal with this, including taking a break from baby-making, distinguishing between work and fun sex, and learning sensual contact that doesn't lead to pregnancy.

Psychosocial interventions for infertility

There have been dozens of studies on the efficacy of psychological interventions on women with infertility, with outcomes including pregnancy rates/live birth rates as well as multiple measures of psychological distress. The conclusions based upon the studies were that psychological interventions are associated with less psychological distress, higher pregnancy rates, and improved marital satisfaction.

The mind/body program for infertility: It is evident that infertility patients experience distress, depression, anxiety, and decreased quality of life. It is important for infertility providers and counselors to offer assistance to these patients by way of psychological interventions and emotional support. The Mind/Body Program for Infertility was created and launched in September 1987. Because psychological interventions for infertile patients can improve psychological outcomes and marital relationships³⁴ as well as increase patient retention and improve pregnancy rates.²⁶

Relaxation techniques have been widely shown to reduce negative emotions in a range of medical patients, 36 more specifically, they have been shown to significantly reduce anxiety scores in women undergoing infertility treatment.²⁷ Patients learn a different technique each week, including progressive muscle relaxation, hatha yoga, meditation, imagery, etc, and are encouraged to try each one and then practice the one(s) which are most effective for them.

Mindfulness is commonly used as a coping strategy for infertility patients and is introduced early in the program. A study of first time IVF patients randomized to a mindfulness-based intervention versus control found that women who attended the intervention revealed a significant increase in mindfulness, self-compassion, meaning-based coping strategies, and most importantly had higher pregnancy rates.²⁸ There have been a number of RCTs on the efficacy of the mind/body program. Participants experience significantly lower levels of distress as well as a higher pregnancy rate than the control subjects.²⁹⁻³⁰

Self-administered interventions: Psychological interventions do not necessarily need to be administered by a clinician; there are self-administered options available as well. A recent randomized controlled prospective pilot study included an online version of the mind/body program. Women who were randomized to the intervention group experienced significant decreases in anxiety and depression and a higher pregnancy rate.³¹

Does managing stress improve infertility?

In brief, it may. The effect of managing stress on the success rate of infertility has not been well studied. Most available research suggests that there is a positive effect. The mind/body infertility programs have been shown to improve the pregnancy rates in women with infertility. One study showed that 55 percent of women involved in a mind/body program were able to get pregnant as compared to 20 percent for women who were not in such a program. These programs teach relaxation techniques, stress-management, coping skills training and group support. Programs range from five to 10 sessions, and most include the male partners in some of the sessions.

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