Does anxiety causes infertility or Does infertility causes anxiety? - A Literature review

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Background:

Infertility is a very common problem. It is estimated that 1 in 8 couples have trouble getting pregnant or sustaining a pregnancy¹. Anxiety and stress have been hypothesized as causing infertility for years, but the relationship never has been proved¹. The evidence is conflicting but is possible that body-stress response and hormones involvement had a negative impact on fertility¹⁰.

On the other hand, the risk of depression, anxiety, and distress is well documented for infertile couples. Various studies report anxiety and depression prevalence previous to infertility treatments around 30-40%. Depression, anxiety, isolation, and loss of control are frequent symptoms on these couples, and the drugs used in fertility treatments are associated with psychological symptoms such as anxiety, depression, and irritability¹.

Methods:

Research on databases (Pubmed, Cochrane library and SUMsearch) reviews articles and original articles using the MeSH terms: anxiety, infertility, causality. We include articles published in the past five years, in English or Portuguese language.

Results:

1) **Distress** is associated with long menstrual cycles, oocytes retrieved and decreased fertilization resulting in **low pregnancy rates**¹⁰.

2) **Depression and anxiety** symptoms **affects cortisol** release causing delay follicular maturation and anovulatory cycles¹⁰.

3) Women with high levels of α -amylase levels (a stress's biomarker) during the fertile window has lower chances to conceive and higher times to pregnancy^{1, 10}.

4) Some studies correlate **prolactin levels and thyroid dysfunction** as probable causes, but the real causes remain unclear⁵.

1) Dealing with **infertility** is associated with **periodically** higher levels of **distress** and anxiety⁸. Women often report feelings of loss, grief, anger, and sadness. Experience a lack of femininity, shame, self-blame, and other negative emotions is common⁹.

2) **Infertility** had a serious impact on the **couple's sexuality** and marital harmony³. In infertile women, older ages are associated with the highest rates of depression⁴.

3) Psychological distress and anxiety are more common among women than among men⁶, but **men are also affected**. Many of then experience sexual dysfunction in relation to the inability to conceive².

1) It is clear that **psychological interventions** to reduce emotional distress has a **positive impact** on **pregnancy rates**¹. Pharmacological interventions do not increase pregnancy rates⁹.

2) Negative feelings such as anger, grief, sadness, and self-blame are the major reason to stop ART⁹.

3) A meta-analysis with 39 studies regarding psychological interventions shows that **cognitive-behavioral therapy** and **mind/body interventions** are beneficial for reducing distress and **improving pregnancy outcomes** of ART⁸. Music therapy combining with herbal medicine, psychotherapy, massage, and aromatherapy increases the probability of success⁷

Infertility causes anxiety and distress

Anxiety and distress causes infertility

Psychological interventions

Assisted reproductive technology

1) Several studies report a **negative association** between anxiety and depression levels during Assisted reproductive technology (ART) procedure and women with **major depression** experience a most **negative outcome** after IVF^{1,3,6}.

2) After a **failed treatment**, many studies found a **higher depression and anxiety scores** than couples without failure³.

3) Duration of infertility isolated does not seem to be associated with anxiety and depression⁶.

4) Anxiety and depression **symptoms** are **reactive to infertility** itself and do not persist after conceive⁵.

Conclusions:

- ✓ There are not enough studies to establish a causal directionality between anxiety and infertility.
- ✓ Body stress response and hormone involvement appear to be connected with infertility pathophysiology, but the mechanism itself remains unclear.
- ✓ Patients who experience infertility report more anxiety and depression symptoms and that appear to be connected with ART outcomes.
- ✓ Psychological interventions are beneficial for reducing distress symptoms and improve pregnancy rates and should be offered to every couple.

Sources: