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# The Science and Psychology of Infertility

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# Disclosures

- NONE!



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# Overview

- Prevalence and Etiology of Infertility
  - Basic Evaluation
  - Treatment Options
  - Psychological Effects of Infertility
  - Depression/Anxiety
  - Social, Cultural, and Gender Issues
  - Relationship Issues
  - Patient Distress and Pregnancy Rates
  - Psychological Support
  - Evidence-Based Psychological Interventions
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# Prevalence

- ~1 in 10 couples have primary or secondary infertility
    - More prevalent in developing countries
  - 7.3 million women in the U.S.
  - 12% of the reproductive-age population (ASRM.org)
  - Prevalence increases with age
    - 11% of women ages 15-29
    - 27% of women ages 40-44 (CDC, 2005)
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# Etiology

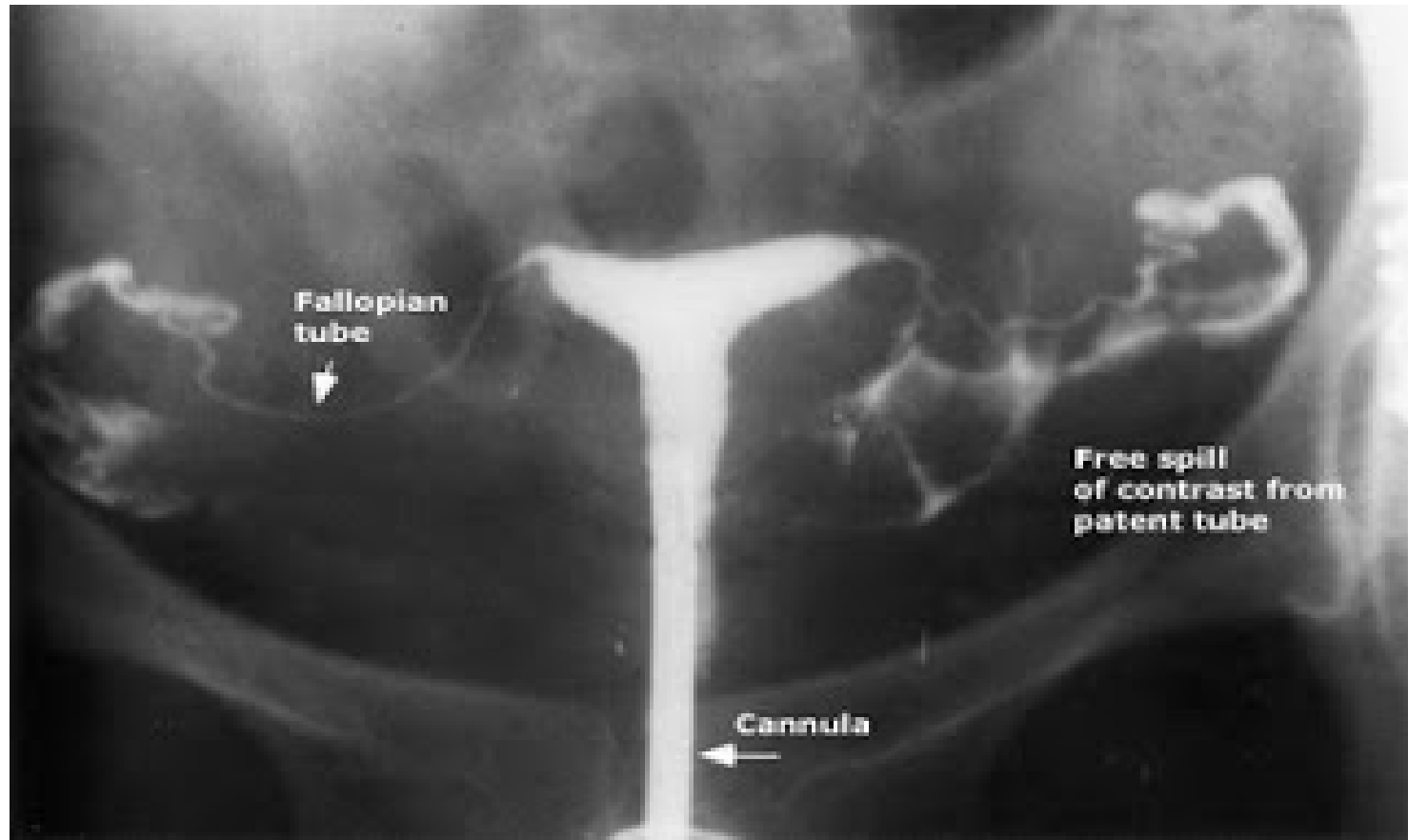
- Forty percent of infertility is male factor
  - Forty percent of infertility is female factor
    - Tubal factor
    - Ovulation factor
      - Polycystic ovary syndrome—8% of women
    - Uterine factor
      - Intercavitary lesion—fibroids, polyps, adhesions
  - Twenty percent of infertility is unexplained
    - One-third of patients have endometriosis
  - Fertility decreases with advancing maternal age
    - 15% at age 30
    - 50% at age 40
    - 99% at age 45
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# Evaluation—it is simple!

- Are there sperm? (semen analysis)
  - Are there eggs? (ovulation predictor kit)
  - Do they get together? (hysterosalpingogram)
  - Is age a factor? (day 3 FSH and estradiol)
  - Can consider other evaluation
    - Sonohystogram to r/o fibroids, polyps, adhesions
    - Laparoscopy to r/o endometriosis
    - Urologist to evaluate for cause of male factor
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# Hysterosalpingogram

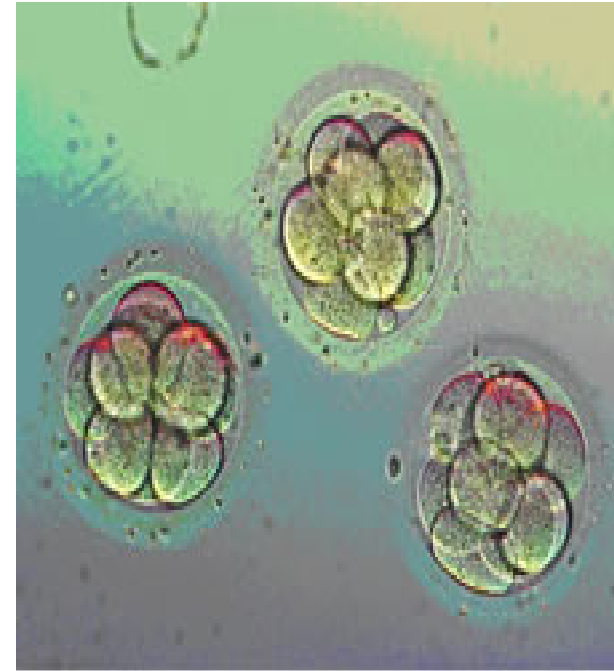
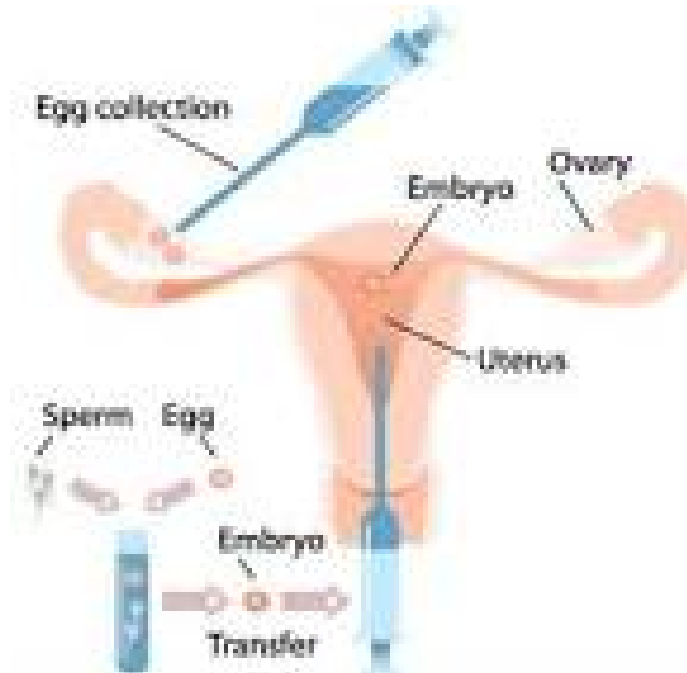


# Treatment—it is improved!

- **No treatment**
  - 3% per cycle fecundity
- **Increased fecundity (monthly pregnancy rate)**
  - Clomiphene and timed intrauterine insemination = 9% per cycle
  - Gonadotropin and timed intrauterine insemination = 12% per cycle
  - In vitro fertilization = 40% per cycle
- **Use of donated sperm or eggs**
  - IVF with donor eggs = 60% per cycle
- **Adoption or remain child-free**



# IVF: complicated process to produce beautiful embryos



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# Treatment—success rate $\neq$ less stress

- One of the high stress diseases for reproductive aged women and men
  - Not yet recognized as a disease by insurance carriers in many state
  - Limited community awareness of the frequency of infertility how it effects the quality of life
  - Lack of understanding by family and friends can lead to worsening stress
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# Psychological Effects of Infertility

- Belief is often that the problem is with the female partner
  - Loss of control over one's life
    - Infertility becomes the focus
    - Difficulty concentrating on other life goals
  - Many infertility patients, especially women, consider the evaluation and treatment to be the most upsetting experience of their lives
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# Psychological Effects of Infertility

- Women typically become the identified “patient” and thus often carry the psychological burden
- Distress surrounding lack of conception seems to be greater for women than men
  - Diminished sense of self worth; body has “failed”
  - Infertility as punishment
- Grief and depression, anger, guilt, shock and denial, and anxiety
- Competence and self-esteem are compromised in women
- Difficulty in social settings

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# Depression/Anxiety and Infertility

- Many patients undergoing IVF report depressive symptoms
    - As many as 54% mild depressive symptoms
    - 19% at a moderate/severe level
  - Symptoms can persist over extended periods of time
    - 66% of women, 40% of men reported depressive symptoms after failed IVF attempt
    - 1/3 reported depressive symptoms 18 months later
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# Depression/Anxiety and Infertility

- Twice the prevalence of depressive symptoms, at higher levels
  - 11% of infertile women met criteria for MDD, compared to 3.9% of fertile women
  - Infertile women were indistinguishable on self-report measures of anxiety and depression from patients with cancer, hypertension, MI, or HIV
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# Depression/Anxiety and Infertility

- Psychiatric disorder found in 40% of the 112 women interviewed prior to their first infertility visit
    - Anxiety disorder – 23%
    - MDD – 17%
  - As many as 13% of women experience passive suicidal ideation following an unsuccessful IVF attempt
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# Men and Infertility

- Under-represented in the literature
  - Damage to self-esteem, inadequacy, responsibility for denying wife a child
  - Coping styles differ from women
  - Easier transition to childless lifestyle than women
  - Husbands suppress emotions to support wives
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# Men and Infertility

- Distress greater with male-factor infertility
  - Guilt, shame, anger, isolation, loss, sense of personal failure (Mason, 1993)
- Impotence and performance anxiety
- Low self-esteem, high anxiety
- More distress and greater somatic symptoms overall
- Male infertility – higher levels of stigma than female infertility

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# Relationship Issues

- Literature is inconclusive regarding effects of infertility on spousal relationship
    - Increased distress in couples who do not conceive within the first year
    - Others say marital adjustment appears stable overall
  - Changes in sexual satisfaction
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# Social and Cultural Issues in Infertility

- Cultural pressure to bear children
  - Potential ethical/moral issues
  - Religious beliefs may play a role:
    - Judaism allows the practice of all techniques of assisted reproduction when the egg and sperm originate from the wife and husband
    - Catholicism does not accept the practice of any form of assisted reproduction
    - In Islam, assisted reproduction is acceptable only if it involves the husband and wife
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# Patient Distress and Pregnancy Rates

- In some studies, high levels of depressive symptoms, anxiety, and distress have been associated with reduced chances of becoming pregnant during ART
  - Others have failed to find a relationship
  - Distress affects persistence in treatment
    - Primary reason for dropping out
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# Patient Distress and Pregnancy Rates

- Number of studies demonstrating relationship between pre-pregnancy distress and pregnancy rates
    - Klonoff-Cohen et. al: 151 women assessed prior to undergoing an IVF or GIFT cycle
      - Battery of psychological questionnaires at first clinic visit and at time of procedure
      - Outcome measures taken from medical records
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# Patient Distress and Pregnancy Rates

- Outcome measures (Klonoff-Cohen, et. al)
    - Diagnosis, number of previous cycles, number of oocytes retrieved, fertilization rates, number of embryos transferred, embryo quality, presence or absence of confirmed pregnancy, pregnancy outcome
  - Findings:
    - Baseline level of stress significantly related to number of oocytes retrieved and fertilized, pregnancy, live birth rate, and birth weight
    - Stress on the day of the procedure only related to number of oocytes retrieved and fertilized
    - Frequency of no live birth was 93% lower in women with the least distress compared to those with the most
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# Psychological Support

- Print materials, internet
  - Encourage diverse forms of support
  - Advocacy groups: RESOLVE and American Fertility Association
  - Mental Health treatment
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# Barriers to Psychological Treatment Engagement

- Majority of infertile men and women do not voluntarily seek counseling
  - Not emotionally “ready”
  - Stigma of “mental health” treatment
  - Financial expense
  - Ignorance regarding benefits of treatment
  - People think they can manage their problems on their own
  - Patients think their medical providers will take care of both their medical AND psychological needs, therefore they don't *need* to see a therapist
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# Evidence-Based Psychological Interventions

- “Counseling Service Model”
    - Nurse provides patient with information, daily phone contact, support during IVF procedure, five face-to-face meetings
  - Cognitive-Behavioral Therapy
    - Range from 5 to 10 sessions
    - Content includes relaxation techniques, stress-management, coping-skills training, and sometimes group support
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# How strong is the evidence?

- 2003 Review of 380 identified studies, 25 were methodologically strong enough to warrant review (Boivin)
  - Psychological interventions could reduce negative affect, especially distress associated with infertility
  - Group interventions stressing education and skills training were particularly beneficial
  - No clear impact on pregnancy rates
- Follow up review found that psychotherapy led to a reduction in anxiety/depression and found a possible increase in conception (de Liz & Strauss, 2005)

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# How strong is the evidence?

- **Follow-up meta analysis conducted** (Hammerli, Znoj, and Barth, 2009)
    - ❑ Results do not indicate overall efficacy of psychological interventions for patients suffering from infertility with respect to mental health
    - ❑ Some evidence was found for the efficacy of psychological interventions to achieve pregnancy
    - ❑ Trend that psychological interventions may be more beneficial for men than women
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# Summary and Conclusion

- Psychological status of infertility patients should be assessed
    - Relieve distress
    - Persist in treatment
    - Improve pregnancy rates
  - Provide patients with information and reliable educational resources
  - Refer patients with anxiety and depressive symptoms to a mental health professional
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# QUESTIONS??

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Thank you!