THE HISTORY OF PSYCHOLOGY IN INFERTILITY MEDICINE

SOFIA GAMEIRO & JACKY BOIVIN

Infertility in History, Science and Culture
University of Edinburgh, 3-5th of July 2013
Psychology of Infertility

- Study of the psychological issues associated with the experience of infertility and its treatment
  - Behavioural, emotional, relational, social, cognitive, ...

- Provision of counselling and interventions that are directed to promote a healthy experience of infertility and its treatment
History of Psychology in Infertility Medicine

I
Psychogenic Model of Infertility

II
Psychological Squelae Model

III
Evidence Based Medicine

IV
Integrated Approach to care

1940
1977
1978
2003
2012

Psyche → Infertility
Infertility → Psyche

Karl Menninger
Helen Deutch
Barbara Eck Menning
Advocacy movement
Mahlstedt
“Working through” & grief & loss therapies
Louise Brown
First IVF

“Infertility as a psychic conflict sailing under a gynaecological flag” Menninger, 1943

Compliance with fertility treatment

Sackett et al. 1996

“Evidence-Based Medicine: How to Practice and Teach EBM”

Evidence: individual, couple
Care: team, environment
Treatment

Quality of life (patient, inert)
I. Psychogenic Infertility Model

1940
High rates of unexplained infertility

- Sandler, 1955
- Templeton et al. 1982.

Unexplained
Explained
Psychogenic Infertility Model

Modern conceptualization:

Psych → Infertility

Stress → Outcome of fertility treatment
Stress & infertility

Boivin et al., 2011. BMJ.
Stress & infertility

Stress

×

Outcome of fertility treatment

Compliance with treatment

Life-style behaviour

…
Psychogenic Infertility Model

- Allowed for the entrance of Psychology in the field of Obstetrics and Gynaecology
- Originated the Stress & Infertility research

- Originated many on-going myths about infertility
  E.g., If you are not managing to get pregnant you should go on vacations with your husband
- Major focus on women and absence of male infertility or at least male psychogenic infertility
- Not based on compelling empirical evidence
II. Psychological Sequelae Model

Infertility is a crisis with many dimensions


- Patient advocacy group: RESOLVE
- Application of the Kubler-Ross model (1969) of reaction to death and dying to infertility
Effect of infertility on...

- Mood - depression, anxiety
- Self-esteem
- Psychological adjustment
- Marital adjustment
- Sexual adjustment
- Traits (extroversion, control)
- Social Adjustment
- Disturbance of gender identity
- Psychiatric symptoms
- Attributions

Wright et al., 1989; Greil, 1997.
Effects of infertility on ...

Categories of effects:
- Community
- Economic and in-laws
- Legal and marriage
- Religious and spiritual

Effects of fertility treatment on...

Psychological Interventions for Infertility

- Interventions based on grief or loss models
  - Couples encouraged to identify, “work through” and thereby resolve the syndrome of feelings that were supposed to accompany a diagnosis of infertility

  Menning, 1979; Mahlstedt, 1985.

Mental Health Professional in infertility health care settings
Assessment & Monitoring

- Ethics & Family wellbeing
- Gatekeepers to treatment
- Monitoring of parents and children psychosocial development
Psychological Sequelae Model

+ Highlighted the negative effects of infertility in several life domains
+ Originated multiple Psychological/Psychosocial interventions for infertile patients

- Too much focus on supporting the emotional grief of infertility versus
- Too little focus on practical/educational support for infertility & related problem solving of using particular forms of family building
- Implied that ALL patients need support
III. Evidence-Based Medicine

- Systematic Reviews
- Critically-Appraised Topics [Evidence Syntheses]
- Critically-Appraised Individual Articles [Article Synopses]
- Randomized Controlled Trials (RCTs)
- Cohort Studies
- Case-Controlled Studies
- Case Series / Reports
- Background Information / Expert Opinion

TRIP Database searches these simultaneously

EBM: Evidence-Based Medicine

2003
## Evaluation of Psychological Interventions

### Counselling interventions

<table>
<thead>
<tr>
<th>Studies</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Psychiatric morbidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holzle et al. (2002)</td>
<td></td>
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<tr>
<td>Strauss et al. (2002)</td>
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<tr>
<td>Emery et al. (2001)</td>
<td>□</td>
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<td>Christie and Morgan (2000)</td>
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<td>McNaughton-Cassill et al. (2000)</td>
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<td>Wischmann et al. (2001a, b, 2002)</td>
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<td>Kemeter and Fiegl (1999)</td>
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<td>Pchengley et al. (1995)</td>
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<td>Connolly et al. (1993)</td>
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<td>Liswood (1995)</td>
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<td>Bents (1991)</td>
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<td>Brandt and Zech (1991)</td>
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<td>Sarrel and deCherney (1985)</td>
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<td>Ellenberg and Koren (1982)</td>
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<td>Bresnick and Taymor (1979); Bresnick (1981)</td>
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</tbody>
</table>

### Educational interventions [focused]

<table>
<thead>
<tr>
<th>Studies</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Psychiatric morbidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuschen-Caffier et al. (1999)</td>
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<tr>
<td>McQueeney et al. (1997)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Stewart et al. (1992)</td>
<td>□</td>
<td></td>
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<tr>
<td>Takefman et al. (1990)</td>
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<tr>
<td>Wallace (1984, 1985)</td>
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<td>O’Moore et al. (1983)</td>
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</tbody>
</table>

### Educational interventions [comprehensive]

<table>
<thead>
<tr>
<th>Studies</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Psychiatric morbidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domar et al. (2000a, b)</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<tr>
<td>Domar et al. (1990)</td>
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<tr>
<td>Domar et al. (1992)</td>
<td>□</td>
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<tr>
<td>Clark et al. (1995, 1998)</td>
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■ = positive intervention and □ = no intervention effect.

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Are Psychological Interventions effective?

- Lack of specificity
  - Patient - WHO
  - Therapeutic Goals - WHAT
  - Stages/types of treatment – WHEN
  - Techniques used – HOW (active agent)

- Only 20% of patient seek psychosocial support
  

- Only 20% of patients are at risk for emotional problems during treatment

  Verhaak et al., 2010. Human Reproduction.

Tailor interventions to needs
Tackling burden in ART: an integrated approach for medical staff

Jacky Boivin\textsuperscript{1,*}, Alice D. Domar\textsuperscript{2}, Daniel B. Shapiro\textsuperscript{3}, Tewes H. Wischmann\textsuperscript{4}, Bart C.J.M. Fauser\textsuperscript{5}, and Christianne Verhaak\textsuperscript{6}

IV. Integrated Approach to Fertility Care
Why do patients discontinue fertility treatment? A systematic review of reasons and predictors of discontinuation in fertility treatment

S. Gameiro¹,², J. Boivin², L. Peronace³, and C.M. Verhaak⁴.

Clinic factor: Patient-Centred Care

SYSTEM FACTORS
- Information
- Competence of clinic and staff
- Coordination and Integration
- Accessibility
- Continuity and Transition
- Physical Comfort

INTERACTION

HUMAN FACTORS
- Attitude of and relationship with Staff
- Communication
- Patient Involvement and Privacy
- Emotional Support

Van Empel et al., 2010. Human Reproduction.
Evidence based guidelines

- New ESHRE Guidelines for Psychology and Counselling in Infertility
  - 998 clinics from 32 European countries
  - > 6000 professionals

- Best practice advice on how to incorporate psychosocial care in routine infertility care to the benefit of patients and health care providers in the field of infertility and Medically Assisted Reproduction

Gameiro et al., in prep. Human Reproduction.
Prevention / early interventions

56.1% seek treatment

20% wait > 24 months to seek medical advice

- Fertility awareness initiatives
- Perciconceptional advice
- Unhealthy lifestyle factors prevention


Gameiro, Boivin & Domar, in press. Fertility & Sterility.
Facilitate disengagement from parenthood goals

OMEGA Project
7148 women, 14 IVF centres in The Netherlands

Controlling for background, fertility history & treatment
*p<.05, **p<.01, ***p<.001

In conclusion

- Comprehensive Models of Infertility
  - Psych $\rightarrow$ Infertility
  - Infertility $\rightarrow$ Psych
    - Loss / Grief $\rightarrow$ Challenge

- Psychosocial support models
  - Grief focused $\rightarrow$ Educational & Skills Training
  - Adjust patient to treatment $\rightarrow$ Adjust treatment & clinic to patient
  - General $\rightarrow$ Tailored to patient/treatment stage/needs
  - Treatment period $\rightarrow$ Pre, During & Post treatment period
Additional information

GameiroS@cardiff.ac.uk
Boivin@cardiff.ac.uk

http://psych.cf.ac.uk/fertilitystudies/
Stress & Infertility

1. IVF cycle requires

   1. 9 -12 days of self injection with potent fertility drugs to stimulate the production of oocytes (eggs)
   2. retrieval of oocytes via transvaginal ultrasonography
   3. fertilisation of oocytes in the laboratory with partner or donor sperm
   4. transfer of the resulting embryo to the uterus
Refusal of the psychogenic hypothesis

Psychogenic Infertility—Myths and Facts

Tewes H. Wischmann

- Introduction of laparoscopy decreased unexplained infertility
- Studies comparing groups of patients with different causes of infertility showed no differences (e.g., Mai, Munday & Rump, 1972)
- Themes believed to underlie psychogenic infertility were also common to fertile women (e.g., Apfel & Keylor, 2000)

CURRENT GUIDELINES: Counsellors should point out that unexplained infertility is not in most cases equivalent to psychogenic infertility

ESHRE Guidelines, 1999, p. 25
Emotional distress in infertile women and failure of assisted reproductive technologies: meta-analysis of prospective psychosocial studies

J Boivin, professor and health psychologist,¹ E Griffiths, assistant clinical psychologist,² C A Venetis, research fellow³

<table>
<thead>
<tr>
<th>Study</th>
<th>Pregnant</th>
<th></th>
<th></th>
<th>Not pregnant</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Mean (SD)</td>
<td>Total</td>
<td>Mean (SD)</td>
<td>Weight (%)</td>
<td>Standardised mean difference (95% CI)</td>
</tr>
<tr>
<td>Akyuz et al 2006</td>
<td>39</td>
<td>45.0 (4.6)</td>
<td>41</td>
<td>47.6 (7.8)</td>
<td>2.6</td>
<td>-0.40 (-0.84 to 0.04)</td>
</tr>
<tr>
<td>Anderheim et al 2005</td>
<td>58</td>
<td>21.0 (4.7)</td>
<td>81</td>
<td>21.8 (4.8)</td>
<td>4.5</td>
<td>-0.17 (-0.50 to 0.17)</td>
</tr>
<tr>
<td>Boivin and Takefman 1995</td>
<td>17</td>
<td>34.1 (8.2)</td>
<td>23</td>
<td>37.9 (12.4)</td>
<td>1.3</td>
<td>-0.34 (-0.98 to 0.29)</td>
</tr>
<tr>
<td>de Klerk et al 2008</td>
<td>73</td>
<td>5.1 (3.9)</td>
<td>216</td>
<td>5.0 (3.4)</td>
<td>7.3</td>
<td>0.03 (-0.24 to 0.29)</td>
</tr>
<tr>
<td>Demyttenaere et al 1992</td>
<td>10</td>
<td>42.0 (8.5)</td>
<td>30</td>
<td>47.4 (9.3)</td>
<td>1.0</td>
<td>-0.58 (-1.31 to 0.15)</td>
</tr>
<tr>
<td>Demyttenaere et al 1998</td>
<td>23</td>
<td>52.8 (8.8)</td>
<td>75</td>
<td>52.4 (10.1)</td>
<td>2.3</td>
<td>0.04 (-0.43 to 0.51)</td>
</tr>
<tr>
<td>Ebbesen et al 2009</td>
<td>215</td>
<td>7.2 (6.1)</td>
<td>566</td>
<td>7.2 (6.5)</td>
<td>20.7</td>
<td>0.00 (-0.16 to 0.16)</td>
</tr>
<tr>
<td>Klonoff-Cohen et al 2001</td>
<td>46</td>
<td>14.2 (5.1)</td>
<td>90</td>
<td>15.5 (6.0)</td>
<td>4.0</td>
<td>-0.23 (-0.58 to 0.13)</td>
</tr>
<tr>
<td>Lancaster and Boivin 2005</td>
<td>13</td>
<td>36.0 (12.3)</td>
<td>63</td>
<td>41.0 (11.2)</td>
<td>1.4</td>
<td>-0.43 (-1.04 to 0.17)</td>
</tr>
<tr>
<td>Lee et al 2006</td>
<td>364</td>
<td>13.7 (10.2)</td>
<td>440</td>
<td>13.2 (11.0)</td>
<td>26.5</td>
<td>0.05 (-0.09 to 0.19)</td>
</tr>
<tr>
<td>Linsten et al 2009</td>
<td>196</td>
<td>17.6 (4.7)</td>
<td>494</td>
<td>17.7 (5.0)</td>
<td>18.7</td>
<td>-0.02 (-0.19 to 0.15)</td>
</tr>
<tr>
<td>Merari et al 2002</td>
<td>23</td>
<td>43.0 (15.5)</td>
<td>90</td>
<td>39.2 (10.6)</td>
<td>2.4</td>
<td>0.32 (0.04 to 0.78)</td>
</tr>
<tr>
<td>Sanders and Bruce 1999</td>
<td>15</td>
<td>35.9 (9.2)</td>
<td>75</td>
<td>37.8 (10.7)</td>
<td>1.7</td>
<td>-0.18 (-0.73 to 0.38)</td>
</tr>
<tr>
<td>Verhaak et al 2001</td>
<td>59</td>
<td>35.6 (8.3)</td>
<td>148</td>
<td>38.0 (10.9)</td>
<td>5.6</td>
<td>-0.23 (-0.54 to 0.07)</td>
</tr>
</tbody>
</table>

Total (95% CI) 1151 (2432)

Test for heterogeneity: $\chi^2=15.15$, df=13, $P=0.30$, $I^2=14\%$

Test for overall effect: $z=1.09$, $P=0.28$
Women’s emotional adjustment to IVF: a systematic review of 25 years of research

C.M. Verhaak\textsuperscript{1,3}, J.M.J. Smeenk\textsuperscript{2}, A.W.M. Evers\textsuperscript{1}, J.A.M. Kremer\textsuperscript{2}, F.W. Kraaimaat\textsuperscript{1} and D.D.M. Braat\textsuperscript{2}

Table VI. Studies investigating prediction of emotional response after unsuccessful IVF

<table>
<thead>
<tr>
<th>Sample size and design</th>
<th>Predictors</th>
<th>Emotional response in terms of</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verhaak et al. (2005a)</td>
<td>Personality characteristics, infertility-related cognitions, coping, social support</td>
<td>Change in anxiety and depression</td>
<td>Personality characteristics, infertility-related cognitions and social support predicted change in anxiety and depression</td>
</tr>
<tr>
<td>Lukse and Vacc (1999)</td>
<td>Coping (general), demographic factors, life events</td>
<td>Depression, grief</td>
<td>No prediction of coping variables on depression and grief. No control for baseline levels of depression and grief</td>
</tr>
<tr>
<td>Terry and Hynes (1998)</td>
<td>Post-treatment coping (at T2, specific)</td>
<td>Composite of anxiety and depression T3 controlled for T1 levels</td>
<td>Problem appraisal, emotional approach and less avoidance coping predicted distress at T3 (controlled for distress at T1)</td>
</tr>
</tbody>
</table>
The efficacy of psychological interventions for infertile patients: a meta-analysis examining mental health and pregnancy rate

Katja Hämmerli¹,³, Hansjörg Znoj¹, and Jürgen Barth²
PCC is associated with compliance intentions

Explained variance ranged from 5 to 7%
N = 265 patients undergoing fertility diagnosis or treatment in Portugal


\[
p < .05, \quad ** p < .01, \quad *** p < .001
\]
Family types

Degree of genetic relatedness

- Both parents
- Mother only
- Father only
- Neither parents

Type of IVF

- Surrogacy
- No donation
- Sperm donation
- Egg donation
- Embryo donation

Uterine environment

- Surrogate
- Social mother

Parents

- Heterosexual couple
- LGBT couple
- Single people
- People with fertility-limiting medical conditions
- People avoid Transmission of disease
- People safeguarding fertility
Reasons for discontinuation by patient/treatment & clinic factors

**Horizontal time-line & Vertical approach**

**Treatment Stage:** Diagnosis – Less intrusive trs to IVF/ICSI (cycle 1 to 3)

**Level of Support**

- Patient Centred Care
- Counselling
- Psychotherapy/Psychiatric interventions

**Domains of needs addressed**

- **Behavioural** e.g., lifestyle, compliance.
- **Relational/Social** e.g., partnership, work.
- **Emotional** e.g., anxiety, depression.
- **Cognitive** e.g., knowledge, concerns.

Verhaak et al.; Gameiro et al. in preparation
Enhance care for everyone

**Patient**
- Pregnancy
- Distress
- Quality of life
- Satisfaction with care
- …

**Staff**
- Quality of life
- Job satisfaction
- Burnout
- …

**Clinic**
- Cost-efficiency
- Patient satisfaction
- Compliance
- …

Gameiro, Boivin & Domar, in press. Fertility & Sterility.
Unverified Claims

- Major stressors reduce fertility
- Relax and you’ll get pregnant
- Adopt and you’ll get pregnant
- Don’t think about it and you’ll get pregnant
- Stress reduces chances of treatment success
- Stress decreases sperm quality
- Counselling increases pregnancy rates
- Counselling improves wellbeing
Learning objectives

1. Review the historical markers in the emergence of infertility
2. Recognize the major theories of the psychology in infertility
3. Become aware of past and current trends in infertility psychology & counselling