THE HISTORY OF PSYCHOLOGY IN INFERTILITY MEDICINE

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Infertility in History, Science and Culture
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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 an 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**

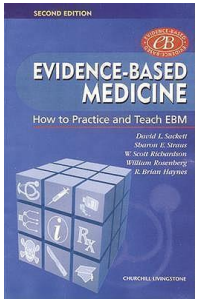
Karl Menninger

Helen Deutch

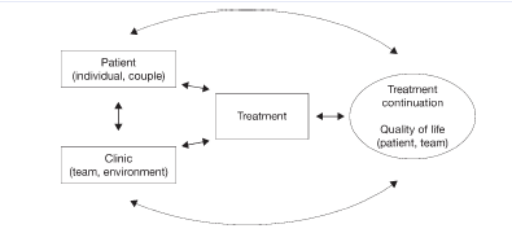
Barbara Eck Menning
Advocacy movement

Mahlstedt
"Working through" & grief & loss therapies

Louise Brown
First IVF



Sackett et al. 1996

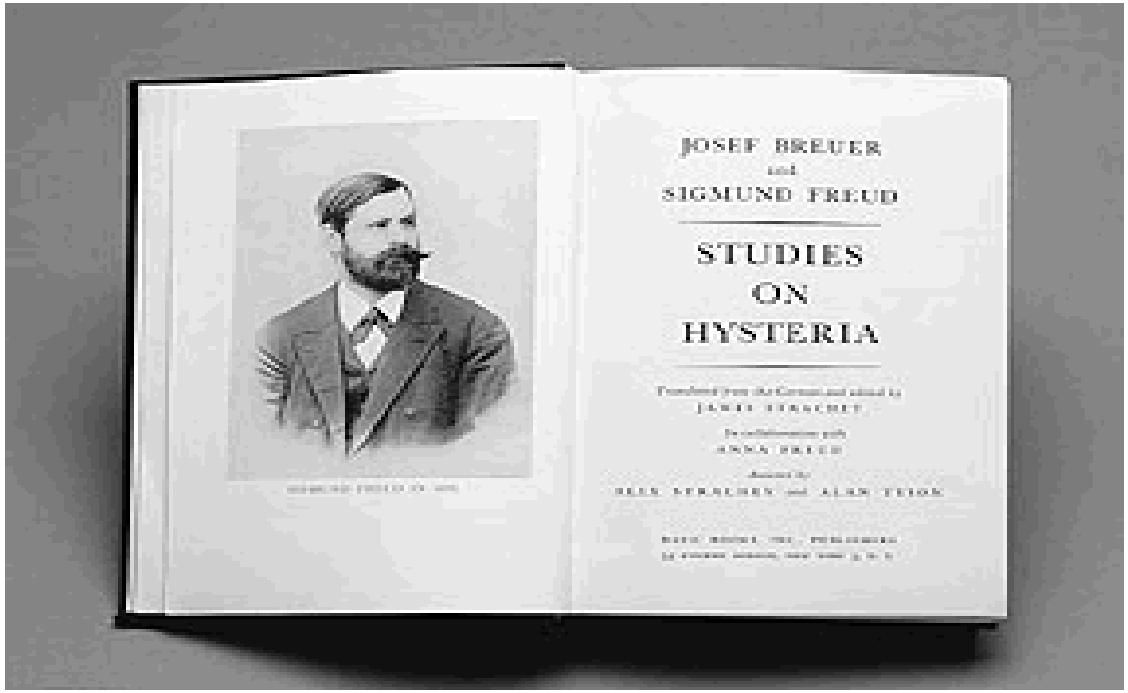


Boivin et al. 2012; Gameiro et al., 2012, 2013.
Compliance with fertility treatment

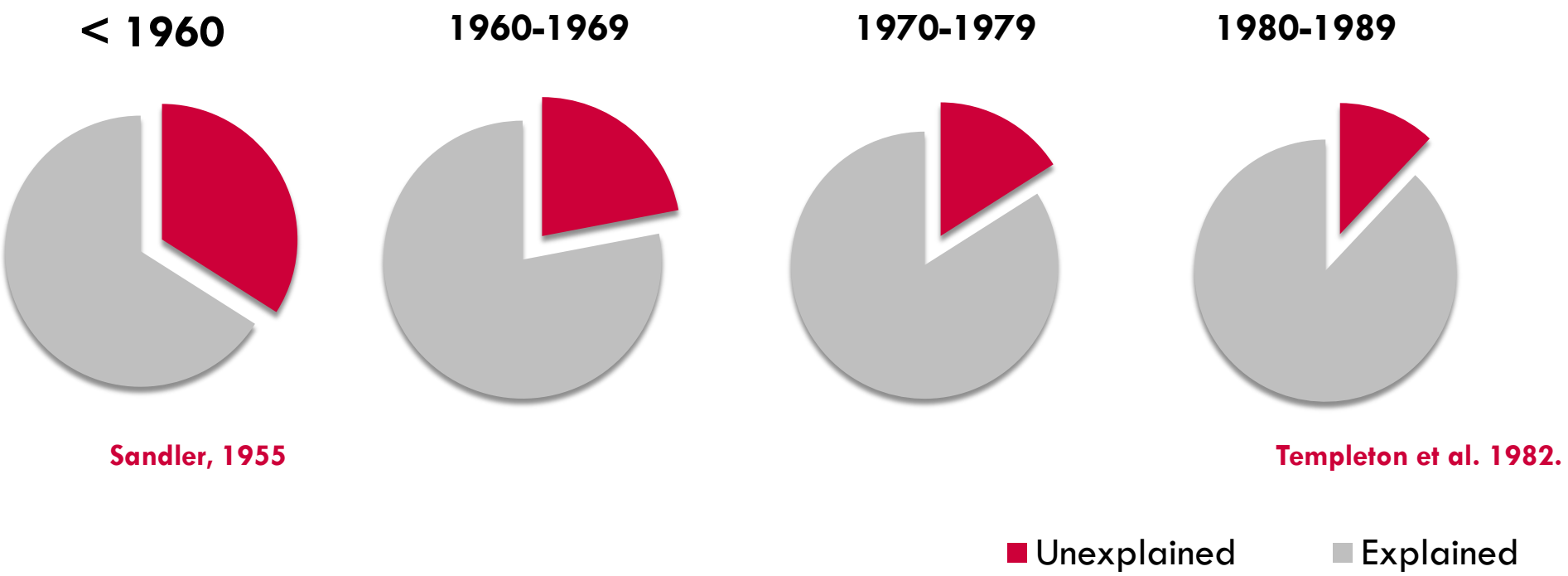
"Infertility as a psychic conflict sailing under a gynaecological flag" Menninger, 1943

I. Psychogenic Infertility Model

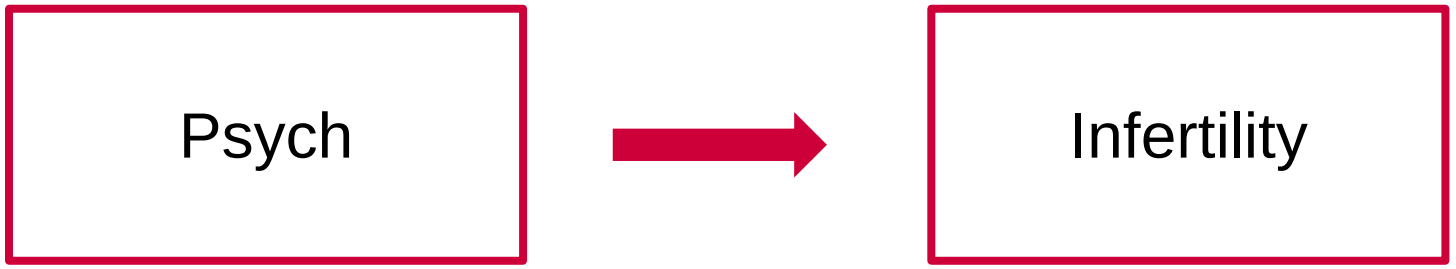
1940



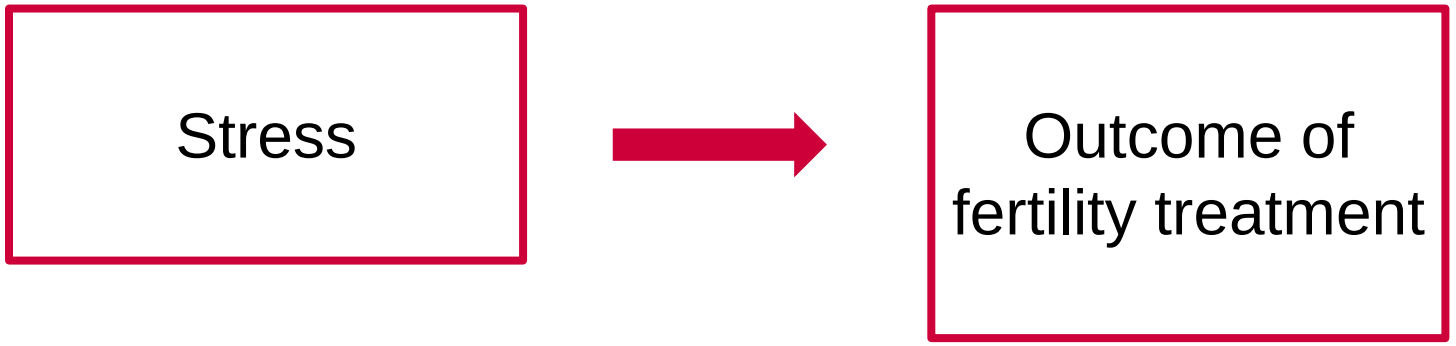
High rates of unexplained infertility



Psychogenic Infertility Model



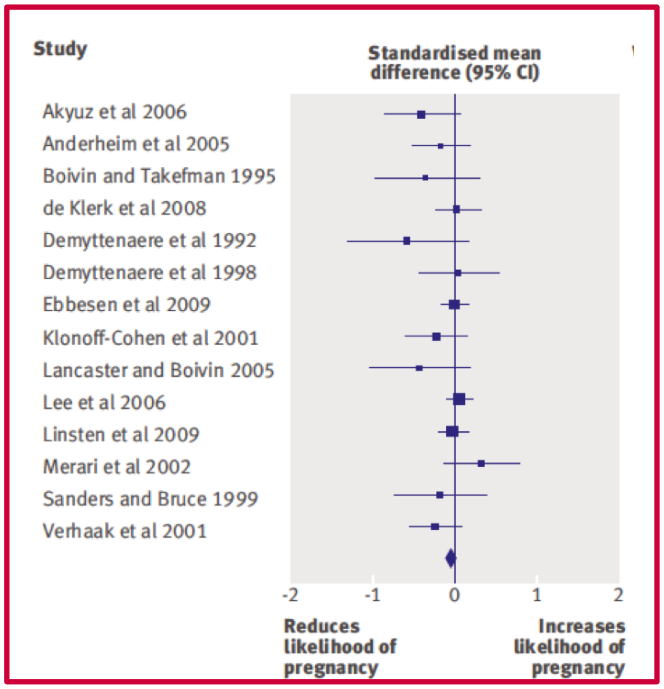
Modern conceptualization:



Stress & infertility

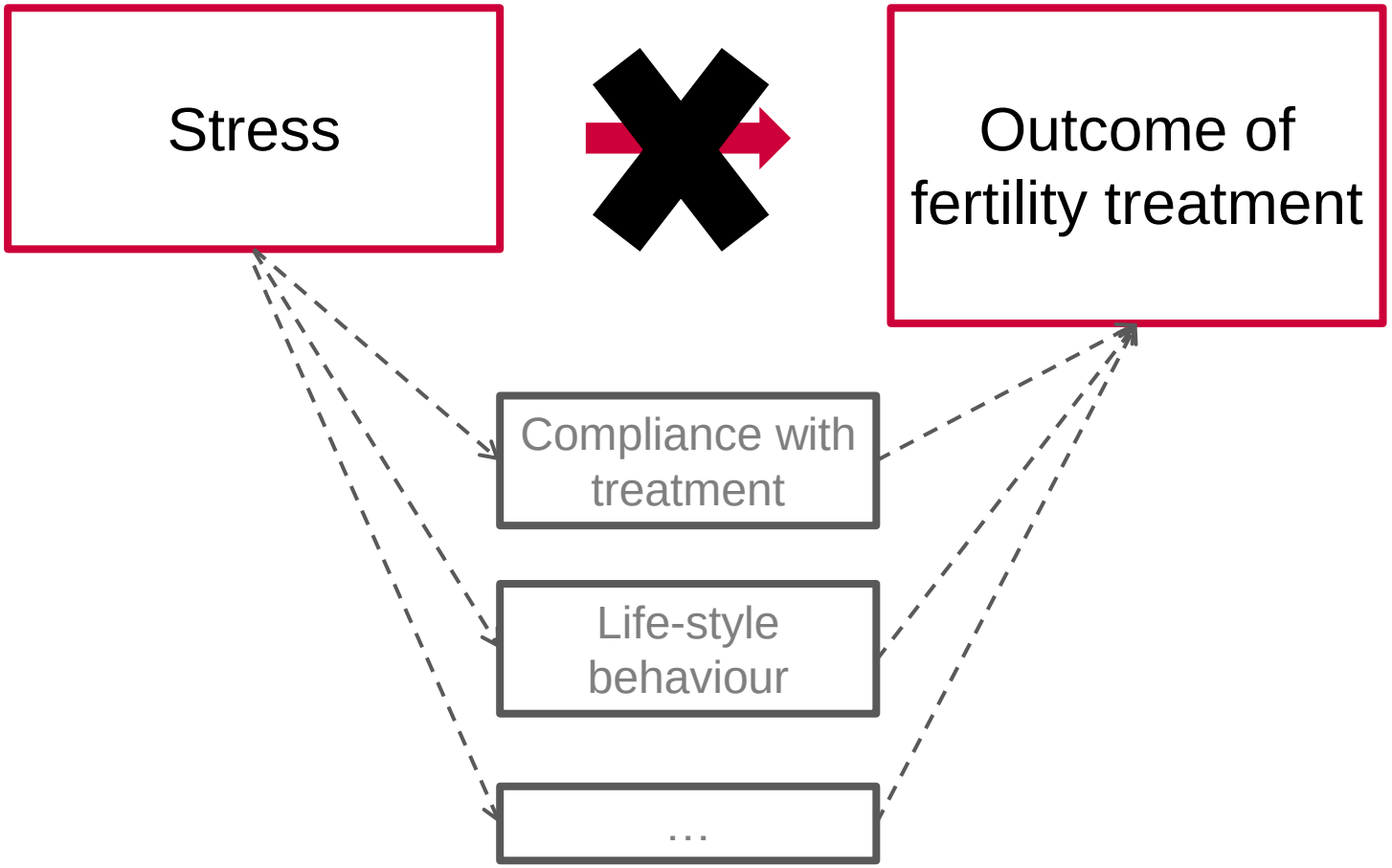
Stress

Outcome of fertility treatment



Boivin et al., 2011. BMJ.

Stress & infertility



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

1977

Infertility is a crisis with many dimensions

Menning, 1980. *Fertility Sterility*.

- Self-help book: *Infertility: A Guide for the Childless Couple*
- Patient advocacy group: RESOLVE
- Application of the Kubler-Ross model (1969) of reaction to death and dying to infertility

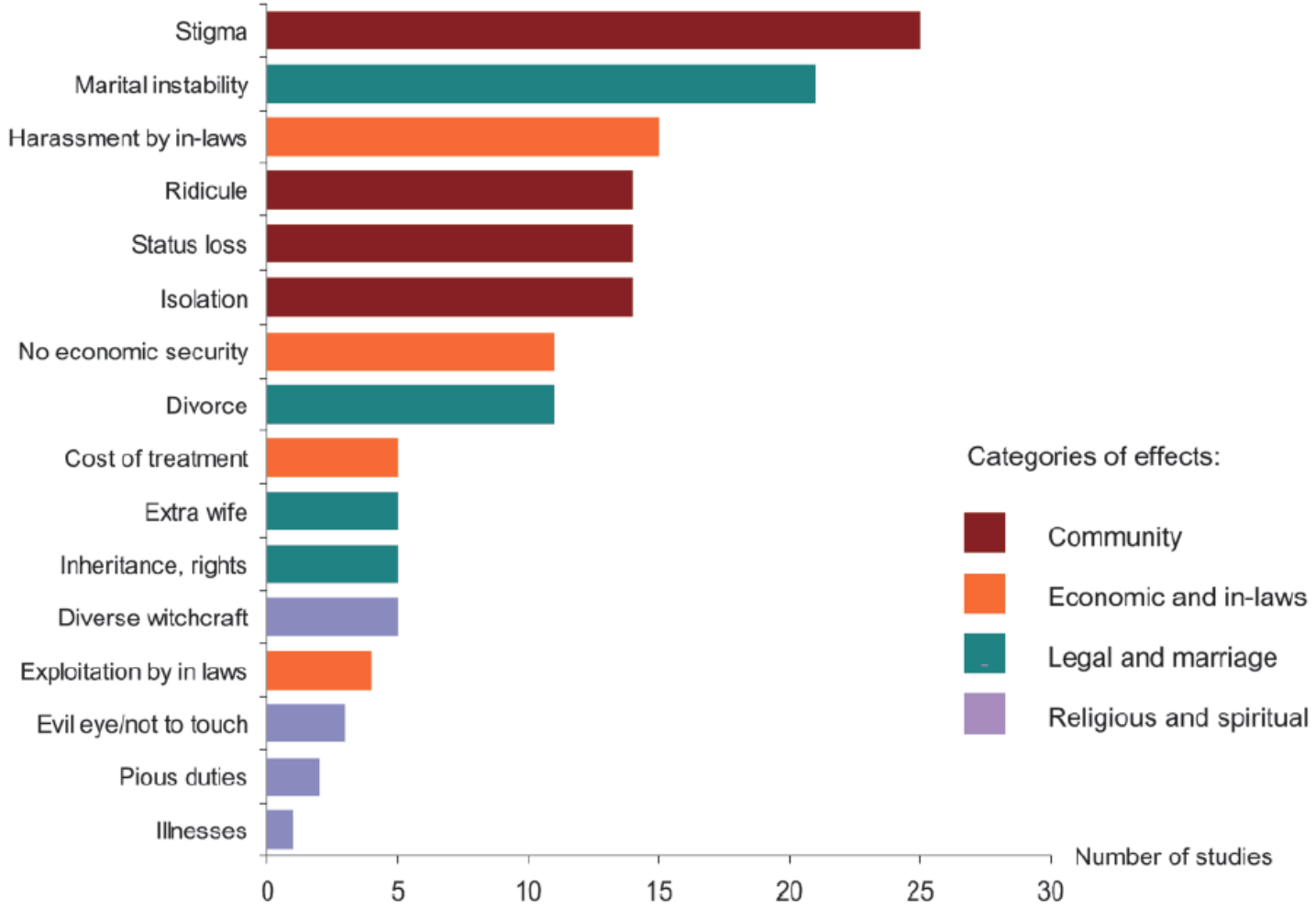
Effect of infertility on…

Infertility → Psych

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

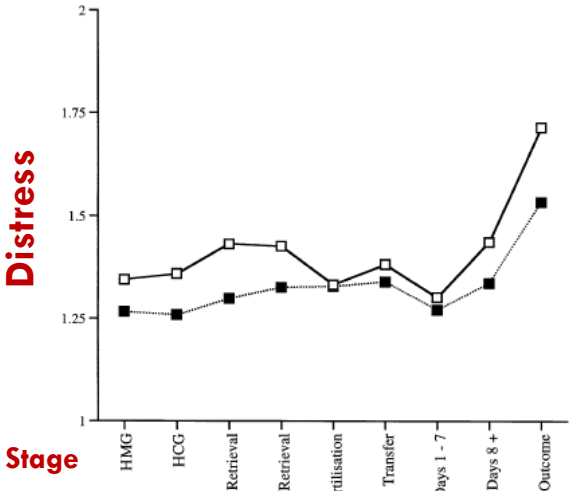
Wright et al., 1989; Greil, 1997.

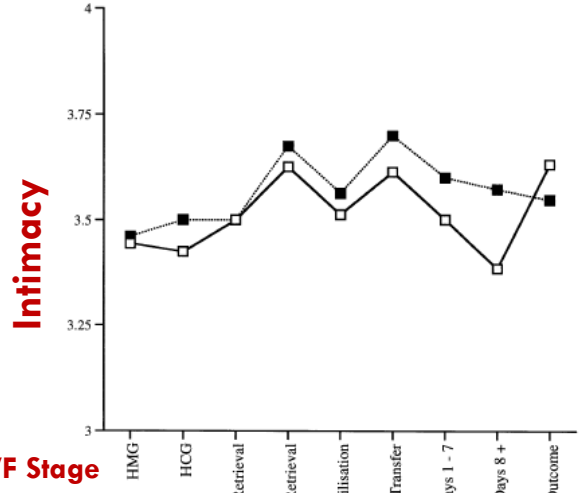
Effects of infertility on …

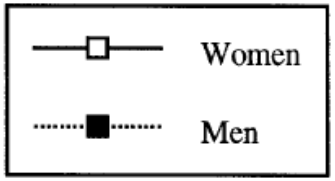


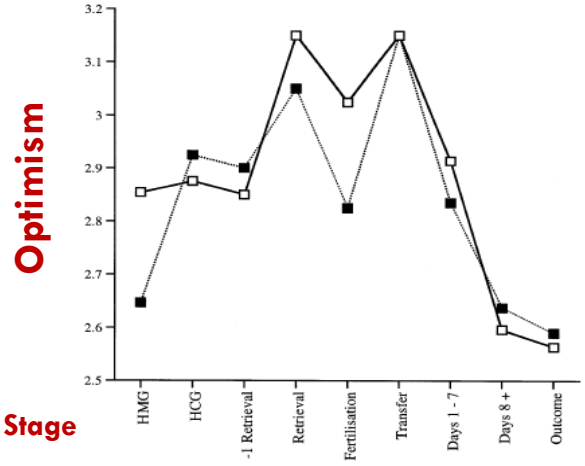
van Balen, 2010. Ob/Gyn, Monograph.

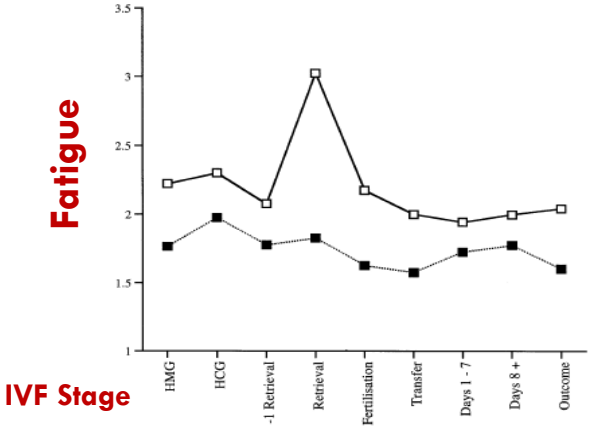
Effects of fertility treatment on…











Boivin et al., 1998. *Human Reproduction.*

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

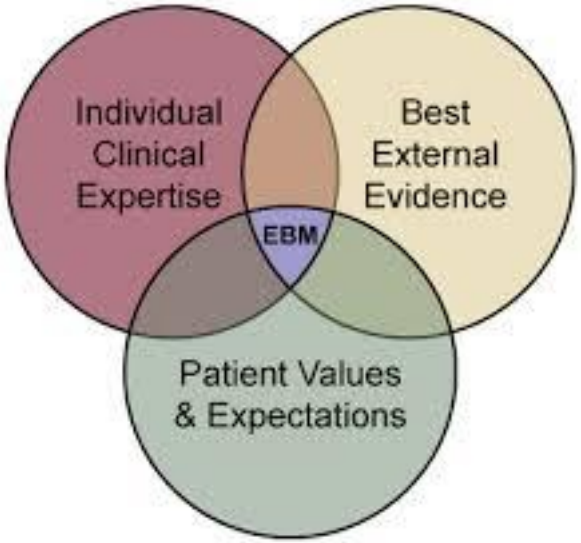
- Too much focus on supporting the emotional grief of infertility

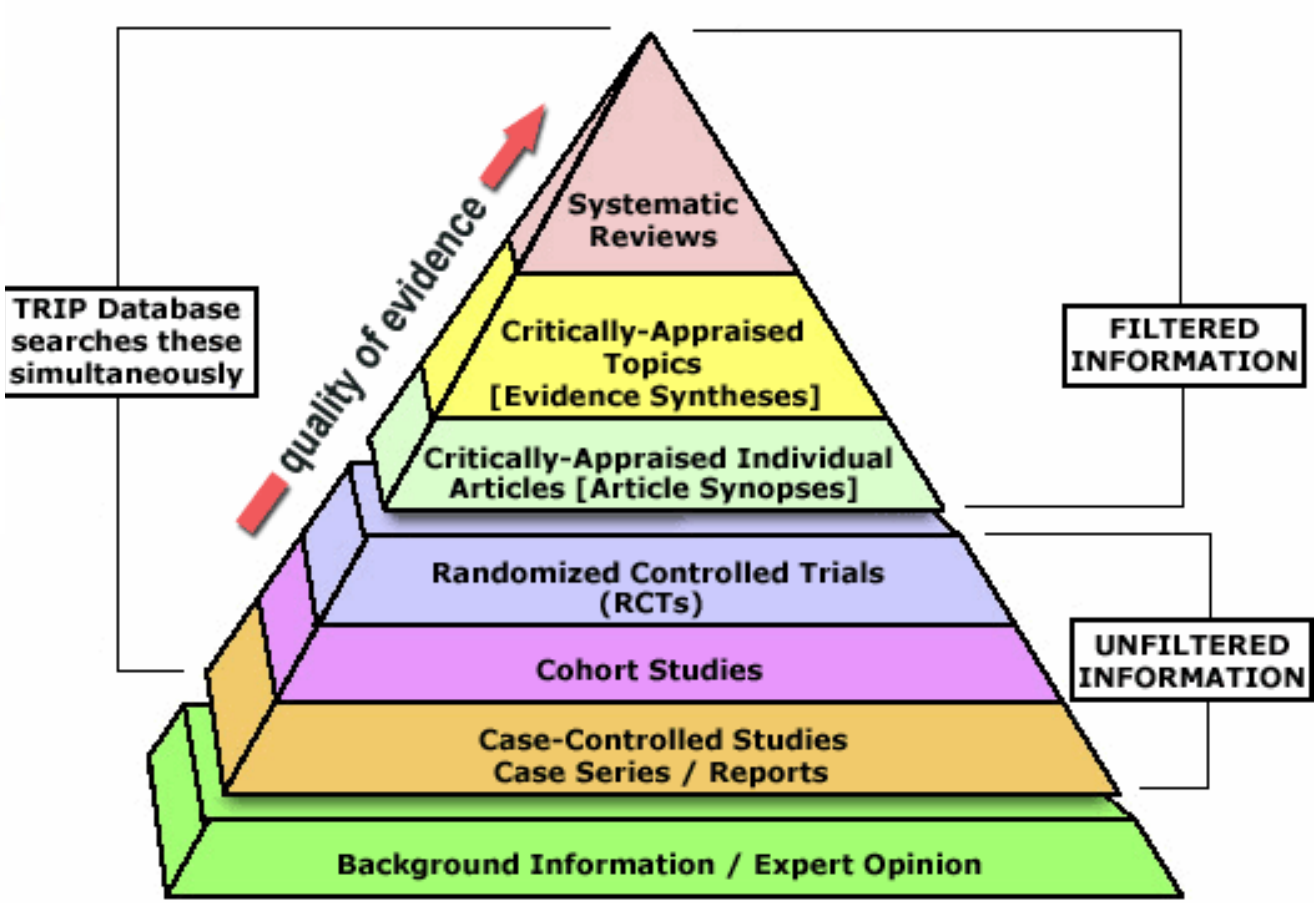
versus

- 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

2003





Evaluation of Psychological Interventions

Intervention effects on negative affect

Studies	Depression			Anxiety		Psychiatric morbidity		
	BDI	HAD/HRSD	POMS	STAI	POMS	GHQ	BSI	MHI
Counselling interventions								
Holzle et al. (2002)							□	
Strauss et al. (2002)[a]							□	
Emery et al. (2001)[a]	□			□				
Christie and Morgan (2000)								
McNaughton-Cassill et al. (2000)								
Wischmann et al. (2001a, b, 2002)[a]							□	
Kemeter and Fiegl (1999)								
Pengelly et al. (1995)								
Connolly et al. (1993)[a]			□	□	□	□		
Liswood (1995)[a]							□	
Bents (1991)								■
Brandt and Zech (1991)								
Sarrel and deCherney (1985)[a]								
Ellenberg and Koren (1982)								
Bresnick and Taymor (1979); Bresnick (1981)								
Educational interventions [focused]								
Tuschen-Caffier et al. (1999)[a]								
McQueeney et al. (1997)	■							■
Stewart et al. (1992)[a]	■	■					■	
Takefman et al. (1990)[a]	□			□				
Wallace (1984, 1985)[a]			□	■	□			
O'Moore et al. (1983)				■				
Educational interventions [comprehensive]								
Domar et al. (2000a, b)[a]	□	□	□	■	■			
Domar et al. (1990)			■	■	■			
Domar et al. (1992)			□	■	■			
Clark et al. (1995, 1998)		■				■		

■ = positive intervention and □ = no intervention effect.

Boivin, 2003. *Social Science & Medicine*.

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

Boivin et al., 1999. *Human Reproduction.*

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

Verhaak et al., 2010. *Human Reproduction.*

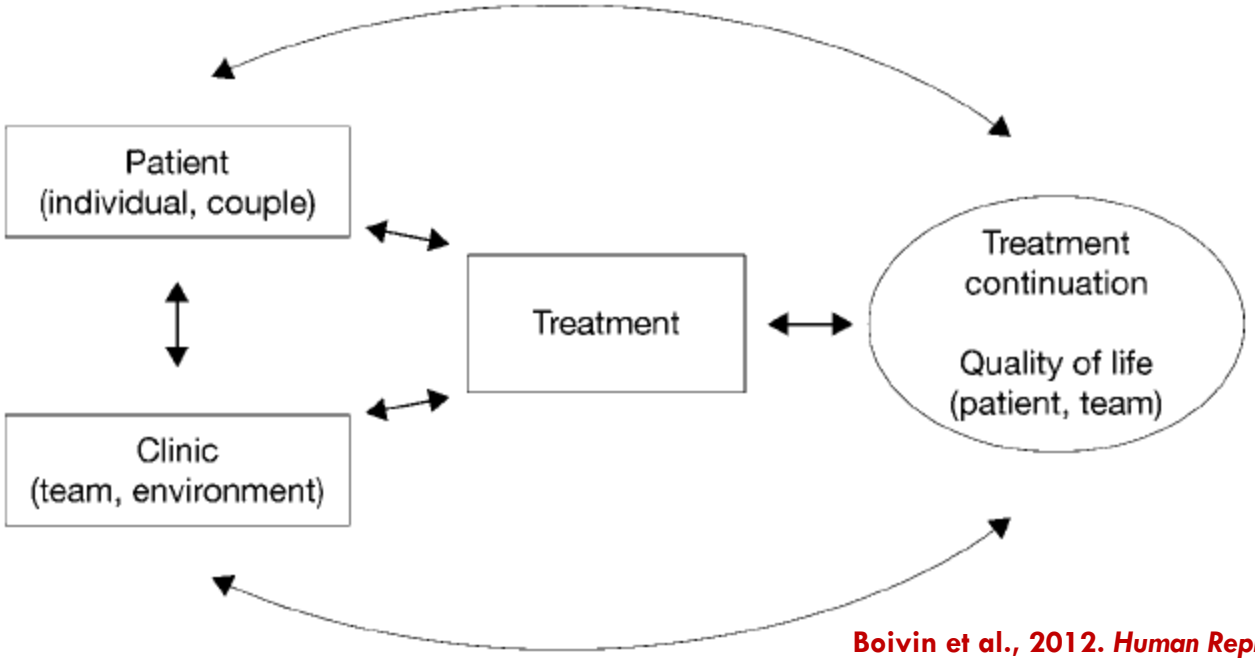
Tailor interventions to needs

IV. Integrated Approach to Fertility Care

2012

Tackling burden in ART: an integrated approach for medical staff

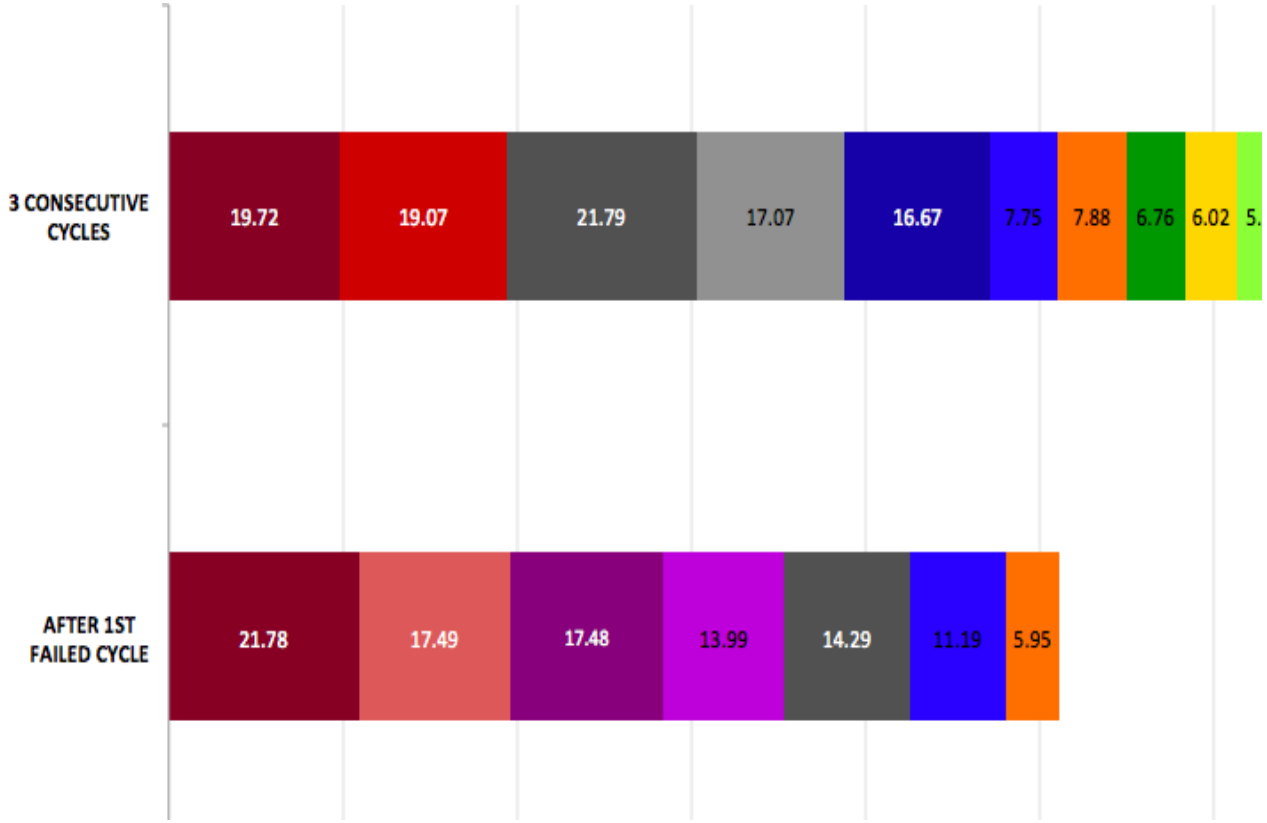
Jacky Boivin[1,*], Alice D. Domar[2], Daniel B. Shapiro[3], Tewes H. Wischmann[4], Bart C.J.M. Fauser[5], and Christianne Verhaak[6]



Boivin et al., 2012. *Human Reproduction.*

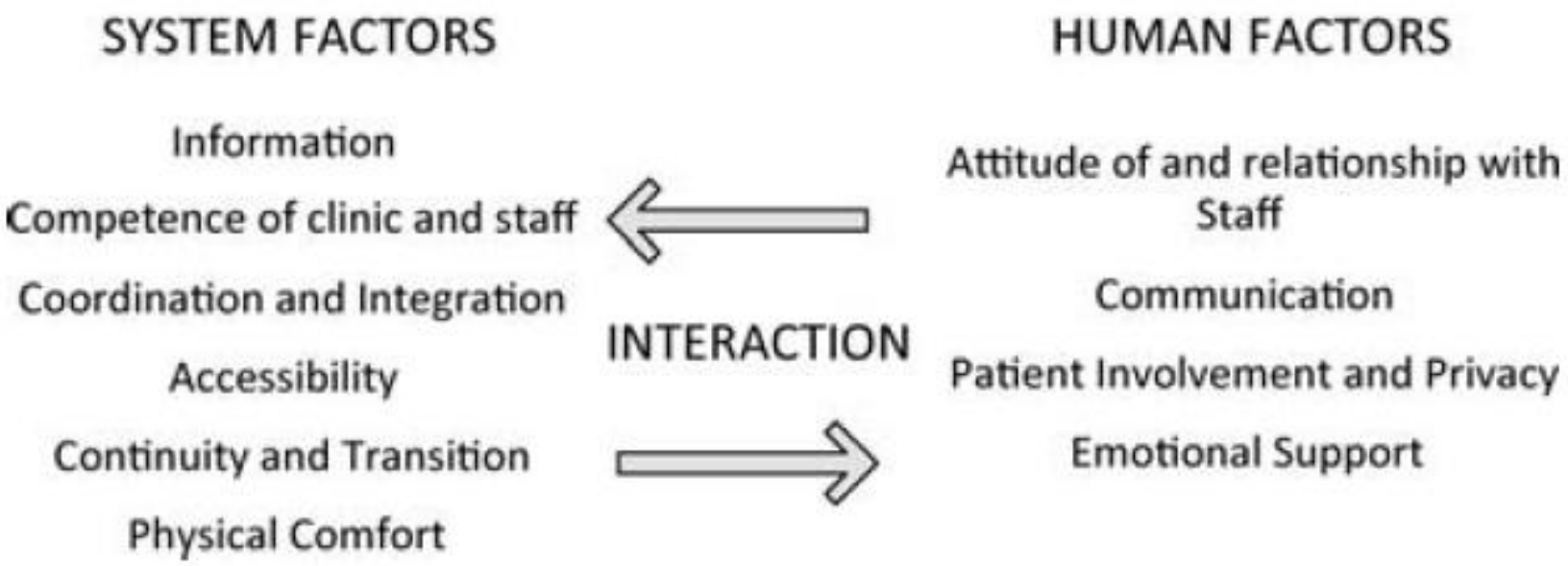
Why do patients discontinue fertility treatment? A systematic review of reasons and predictors of discontinuation in fertility treatment

S. Gameiro[1,2], J. Boivin[2], L. Peronace[3], and C.M. Verhaak[4,*]



Gameiro et al., 2012. *Human Reproduction Update*.

Clinic factor: Patient-Centred Care



Dancet et al., 2010. *Human Reproduction Update*.

Van Empel et al., 2010. *Human Reproduction*.

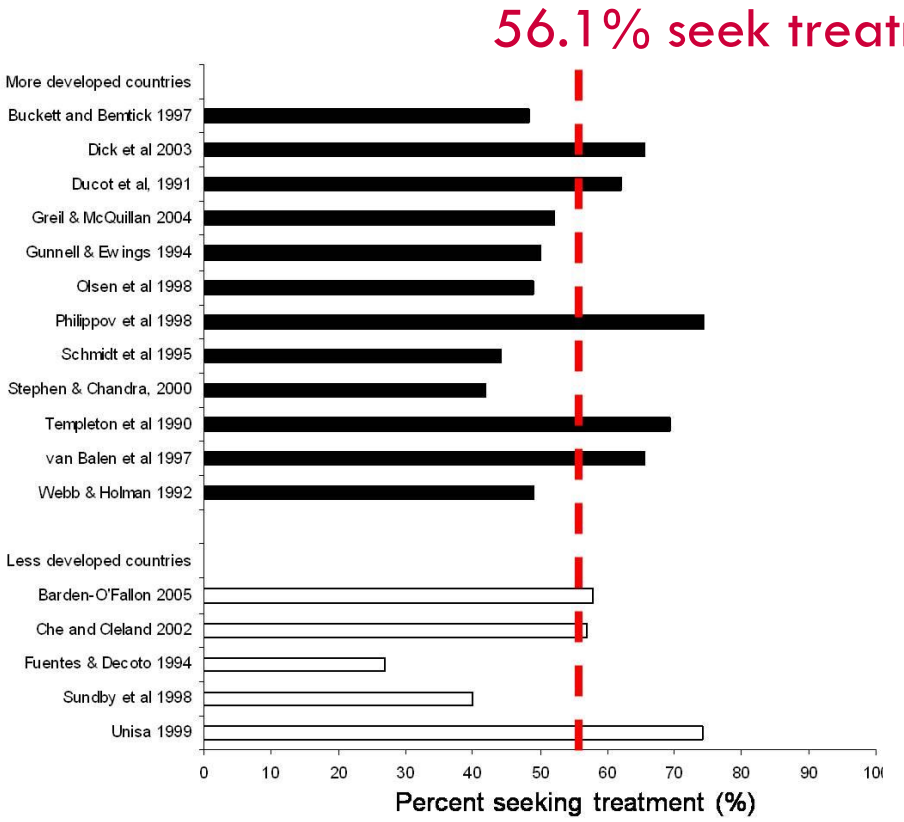
Evidence based guidelines

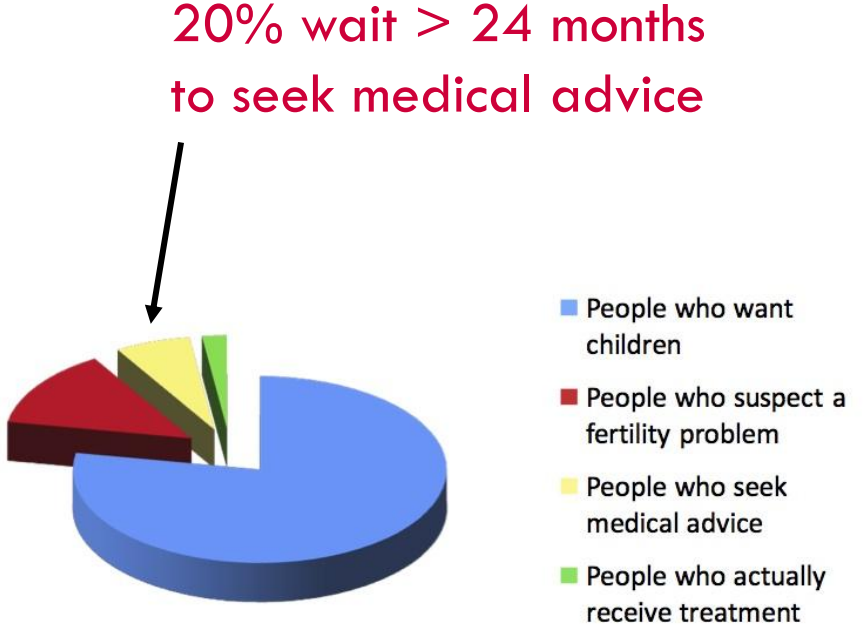
- New ESHRE Guidelines for Psychology and Counselling in Infertility
  - 998 clinics from 32 European countries
  - > 6000 professionals

  - 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





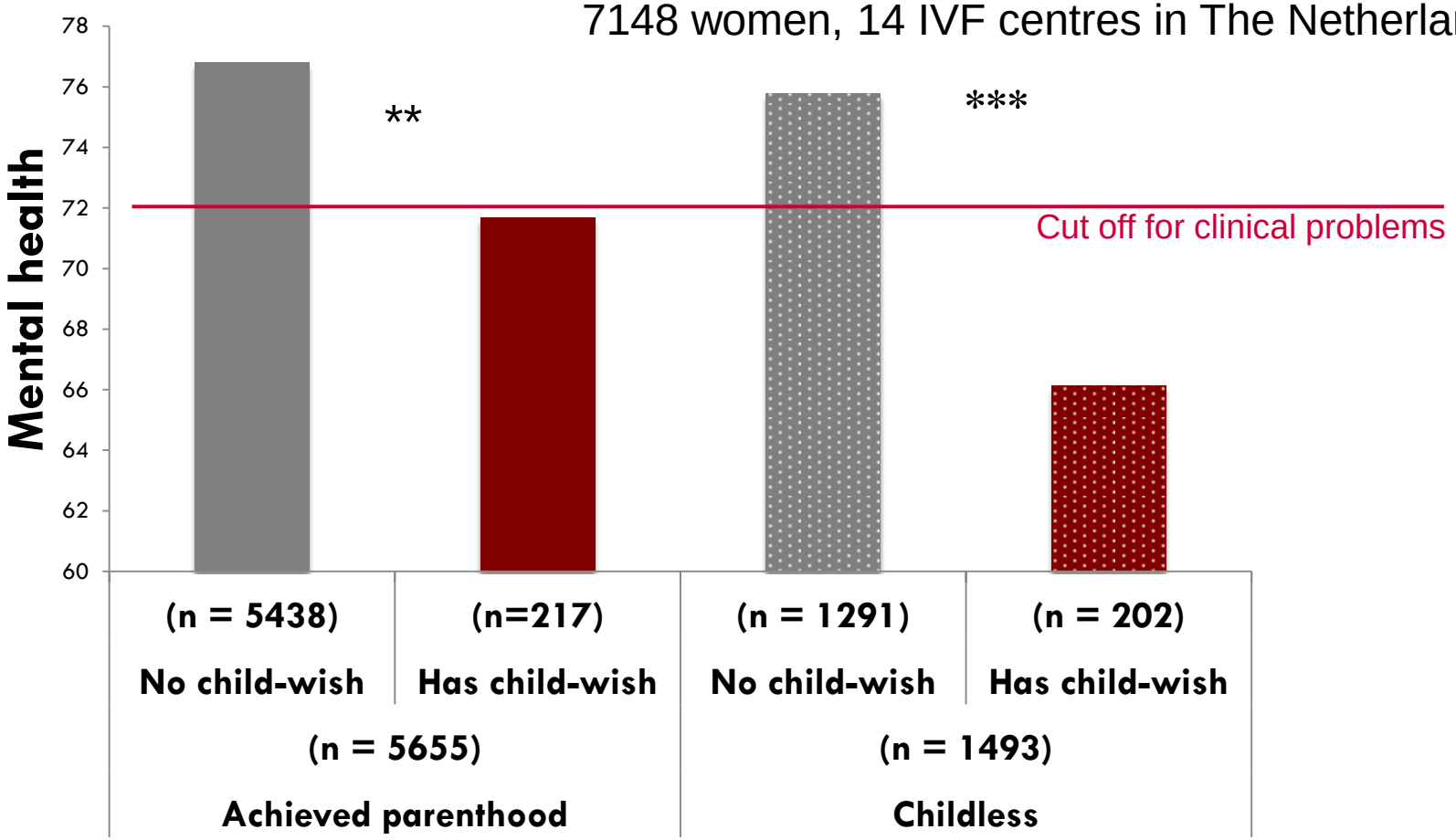
Boivin et al., 2007. *Human reproduction.*
Bunting & Boivin, 2007. *Human Reproduction.*

- 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

Gameiro et al., 2013. *Human Reproduction.*

In conclusion

- Comprehensive Models of Infertility
  - Psych → Infertility
  - Infertility → Psych
    - Loss / Grief → Challenge

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

Additional information

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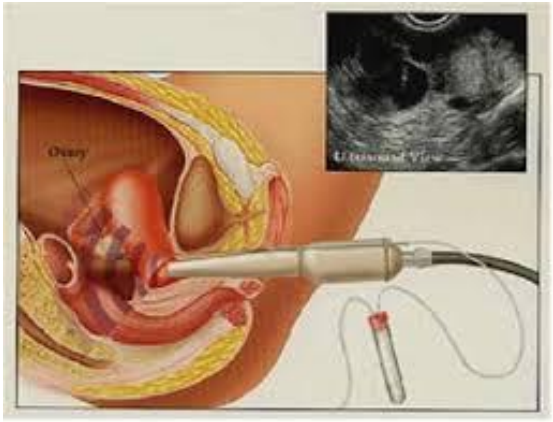
Stress & Infertility

- 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[1]

Tewes H. Wischmann[2]

- 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

BMJ

RESEARCH

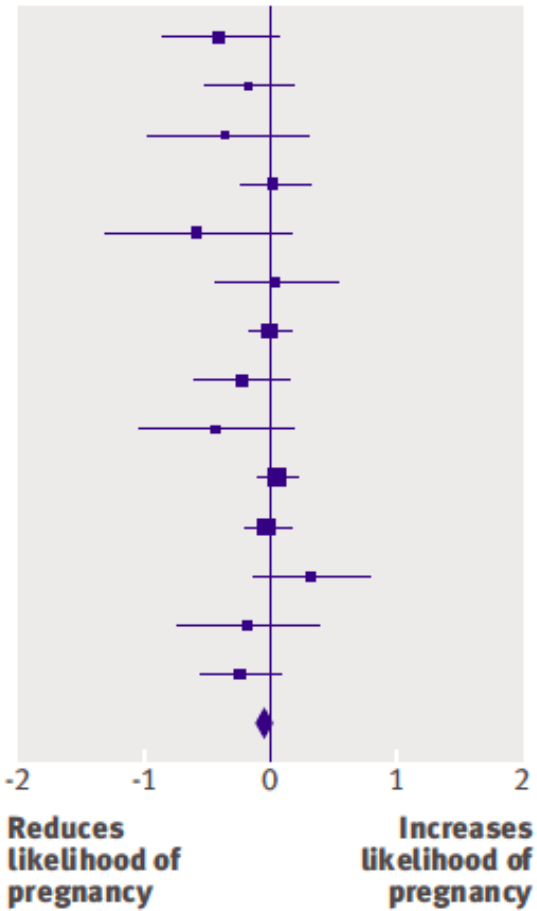
Emotional distress in infertile women and failure of assisted reproductive technologies: meta-analysis of prospective psychosocial studies

J Boivin, professor and health psychologist,[1] E Griffiths, assistant clinical psychologist,[2] C A Venetis, research fellow[3]

Study	Pregnant Total	Pregnant Mean	Pregnant SD	Not pregnant Total	Not pregnant Mean	Not pregnant SD	Standardised mean difference (95% CI)	Weight (%)	Standardised mean difference (95% CI)
Akyuz et al 2006	39	45.0	4.6	41	47.6	7.8		2.6	-0.40 (-0.84 to 0.04)
Anderheim et al 2005	58	21.0	4.7	81	21.8	4.8		4.5	-0.17 (-0.50 to 0.17)
Boivin and Takefman 1995	17	34.1	8.2	23	37.9	12.4		1.3	-0.34 (-0.98 to 0.29)
de Klerk et al 2008	73	5.1	3.9	216	5.0	3.4		7.3	0.03 (-0.24 to 0.29)
Demyttenaere et al 1992	10	42.0	8.5	30	47.4	9.3		1.0	-0.58 (-1.31 to 0.15)
Demyttenaere et al 1998	23	52.8	8.8	75	52.4	10.1		2.3	0.04 (-0.43 to 0.51)
Ebbesen et al 2009	215	7.2	6.1	566	7.2	6.5		20.7	0.00 (-0.16 to 0.16)
Klonoff-Cohen et al 2001	46	14.2	5.1	90	15.5	6.0		4.0	-0.23 (-0.58 to 0.13)
Lancaster and Boivin 2005	13	36.0	12.3	63	41.0	11.2		1.4	-0.43 (-1.04 to 0.17)
Lee et al 2006	364	13.7	10.2	440	13.2	11.0		26.5	0.05 (-0.09 to 0.19)
Linsten et al 2009	196	17.6	4.7	494	17.7	5.0		18.7	-0.02 (-0.19 to 0.15)
Merari et al 2002	23	43.0	15.5	90	39.2	10.6		2.4	0.32 (-0.14 to 0.78)
Sanders and Bruce 1999	15	35.9	9.2	75	37.8	10.7		1.7	-0.18 (-0.73 to 0.38)
Verhaak et al 2001	59	35.6	8.3	148	38.0	10.9		5.6	-0.23 (-0.54 to 0.07)
Total (95% CI)	1151			2432				100.00	-0.04 (-0.11 to 0.03)

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

Human Reproduction Update, Vol.13, No.1 pp. 27–36, 2007
Advance Access publication August 29, 2006

C.M.Verhaak[1,3], J.M.J.Smeenk[2], A.W.M.Evers[1], J.A.M.Kremer[2], F.W.Kraaimaat[1] and D.D.M.Braat[2]

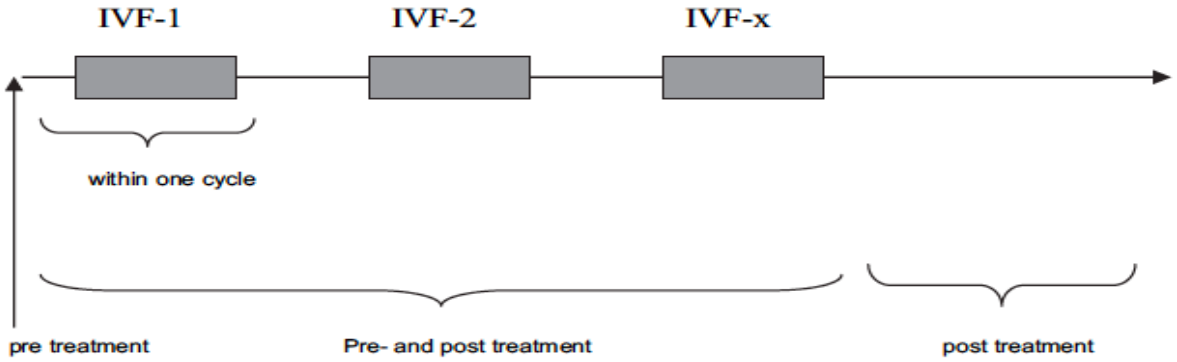


Table VI. Studies investigating prediction of emotional response after unsuccessful IVF

	Sample size and design	Predictors	Emotional response in terms of	Results
Verhaak *et al.* (2005a)	n = 187 after unsuccessful treatment; T1: before cycle 1; T2: after cycle 1	Personality characteristics, infertility-related cognitions, coping, social support	Change in anxiety and depression	Personality characteristics, infertility-related cognitions and social support predicted change in anxiety and depression
Lukse and Vacc (1999)	n = 100 after unsuccessful treatment; T1: before cycle 1; T2: some weeks after cycle 1	Coping (general), demographic factors, life events	Depression, grief	No prediction of coping variables on depression and grief. No control for baseline levels of depression and grief
Terry and Hynes (1998)	n = 171 after unsuccessful treatment; T1: before cycle 1; T2: after cycle 1; T3: 6 weeks after T2	Post-treatment coping (at T2, specific)	Composite of anxiety and depression T3 controlled for T1 levels	Problem appraisal, emotional approach and less avoidance coping predicted distress at T3 (controlled for distress at T1)

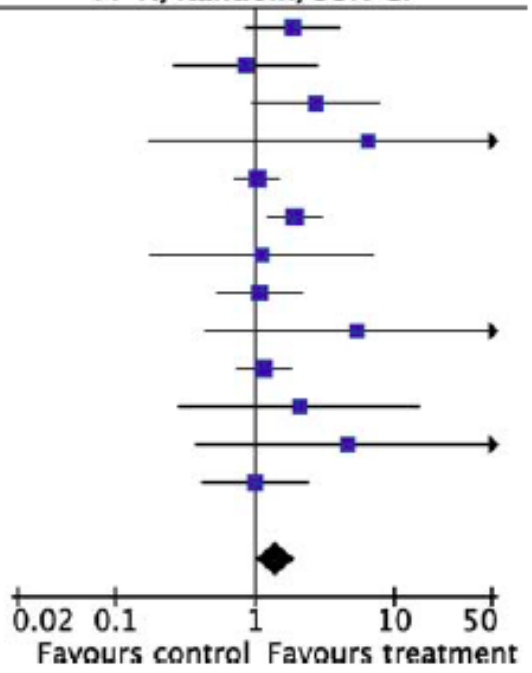
human reproduction update

The efficacy of psychological interventions for infertile patients: a meta-analysis examining mental health and pregnancy rate

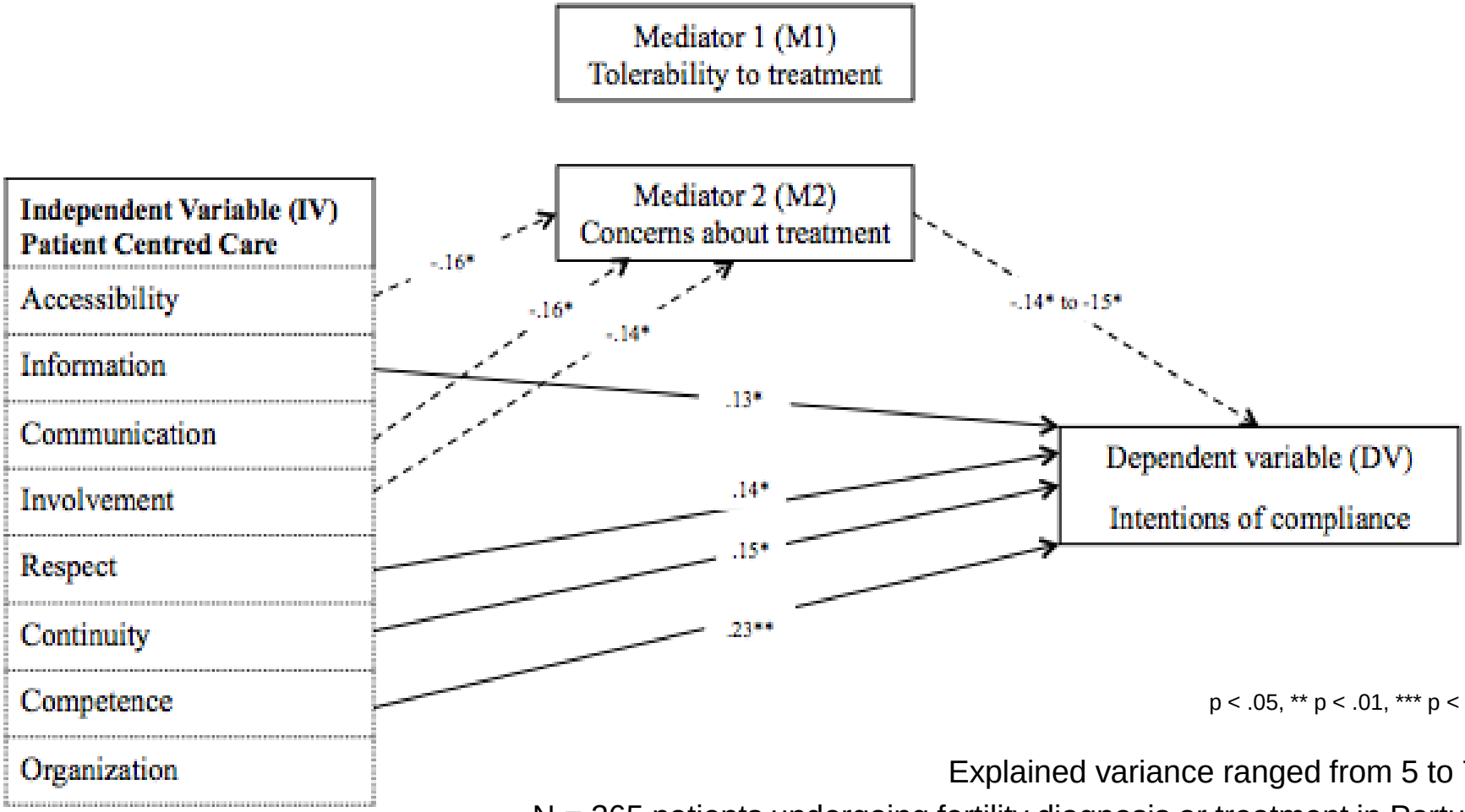
Katja Hämmerli[1,3], Hansjörg Znoj[1], and Jürgen Barth[2]

Study or Subgroup	Treatment Events	Treatment Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 99% CI
Chan 2006	18	65	16	108	9.9%	1.87 [0.85, 4.11]
De Klerk 2005	6	22	7	22	5.6%	0.86 [0.26, 2.86]
Domar 2000	52	95	5	25	6.7%	2.74 [0.95, 7.88]
Ellenberg 1982	4	10	0	7	0.8%	6.55 [0.17, 251.46]
Emery 2006	50	98	44	90	17.7%	1.04 [0.72, 1.52]
Levitas 2006	52	89	29	96	15.8%	1.93 [1.22, 3.07]
Mc Queeney_1997	5	18	2	8	2.7%	1.11 [0.17, 7.11]
Rezabek 2003	11	21	15	31	10.9%	1.08 [0.53, 2.22]
Sarrel 1985	6	10	1	9	1.6%	5.40 [0.44, 66.98]
Schmidt 2005	22	30	19	30	15.9%	1.16 [0.73, 1.83]
Stewart 1992	6	39	2	27	2.4%	2.08 [0.28, 15.37]
Strauss_2002	12	31	1	12	1.5%	4.65 [0.37, 58.54]
Wischmann_1997	35	115	7	23	8.5%	1.00 [0.41, 2.43]
Total (99% CI)	**279**	**643**	**148**	**488**	**100.0%**	**1.42 [1.02, 1.96]**

Test for heterogeneity: Chi² = 20.92, df = 12 (P = 0.05), I² = 43%
Test for overall effect: Z = 2.76 (P = 0.006)



PCC is associated with compliance intentions



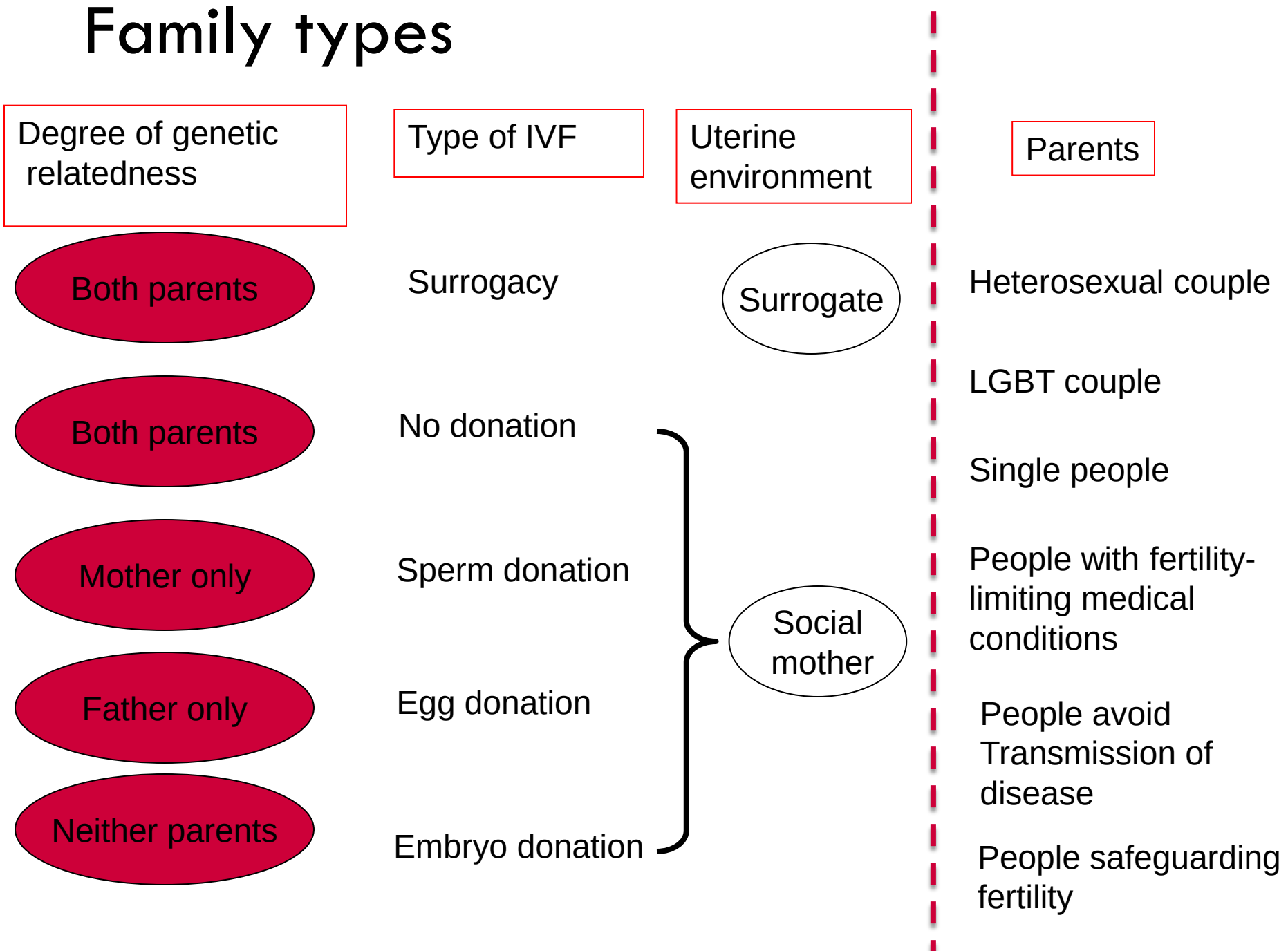
p < .05, ** p < .01, *** p < .001

Explained variance ranged from 5 to 7%

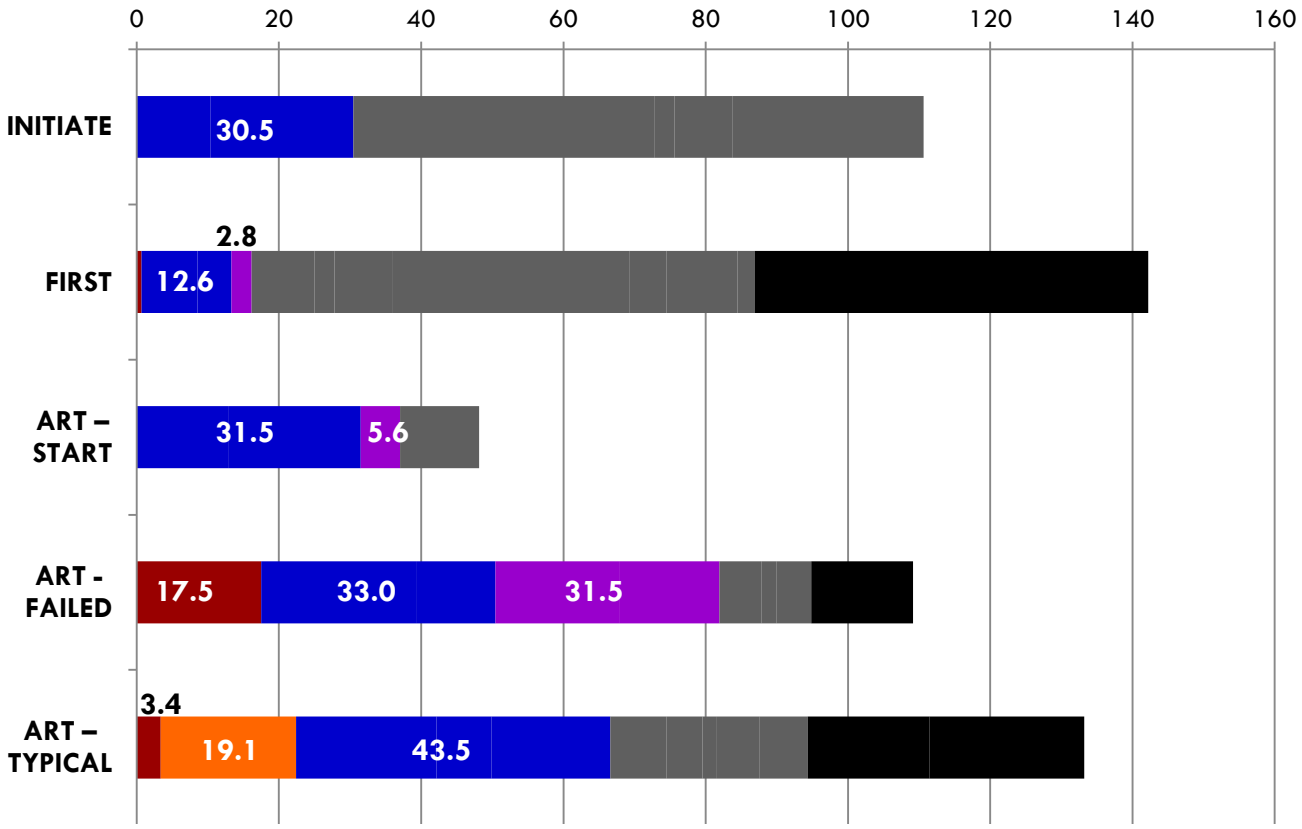
N = 265 patients undergoing fertility diagnosis or treatment in Portugal

Pedro et al., 2013. *Human Reproduction.*

Family types



Reasons for discontinuation by patient/treatment & clinic factors



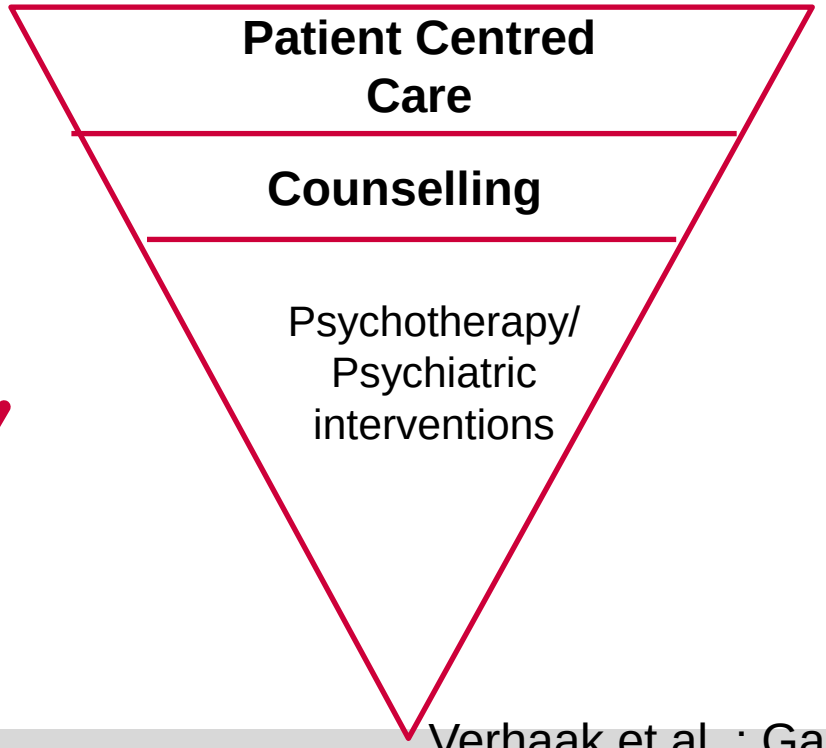
- Physical burden
- Physical / psychological burden
- Psychological burden
- Relational problems
- Marital and personal problems
- Clinic related reasons
- Organizational problems
- Rejection of treatment
- No Faith in treatment success
- Perception of poor prognosis
- Logistics/practical reasons
- Other personal reasons
- Adoption
- Other parenting options
- Abandonment of childwish
- Postponement of treatment
- Postponement of treatment or unknown

Gameiro et al., in press. *Human Reproduction Update* , 18, 652-669.

Horizontal time-line & Vertical approach

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

Level of Support



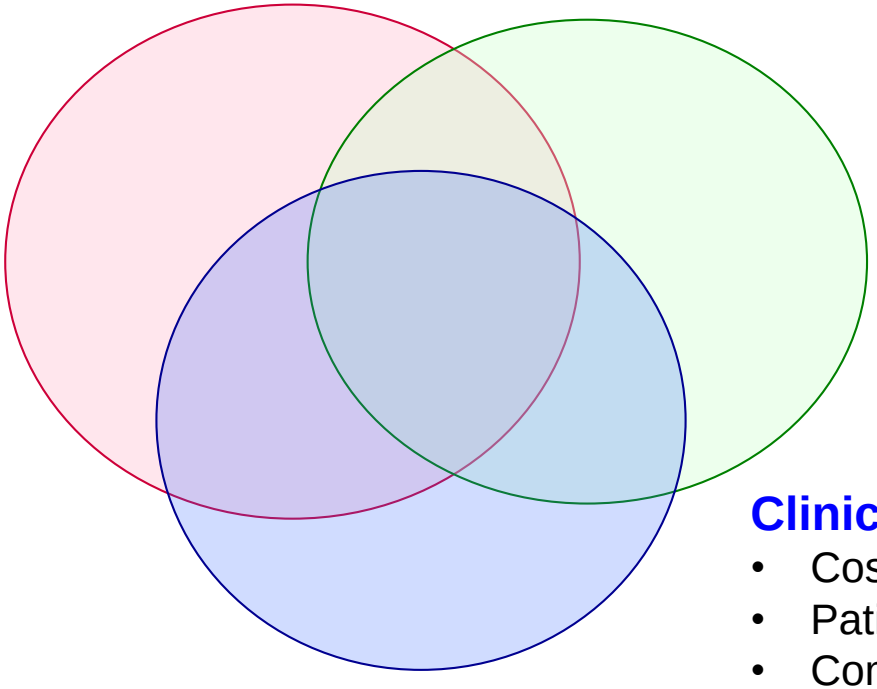
Domains of needs addressed

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 if infertility
2. Recognize the major theories of the psychology in infertility
3. Become aware of past and current trends in infertility psychology & counselling