

Predictors of Major Depressive Disorder during Infertility Treatment

Sarah R. Holley

San Francisco State University and
University of California, San Francisco

Infertility and Psychological Distress

- Infertility and its treatment are associated with psychological distress (i.e., depression)
- Consequences of depression during treatment:
 - Can lead to treatment discontinuation
 - The depression can persist even after treatment ends
- Most research has used self-report questionnaire measures to assess depressive symptomatology

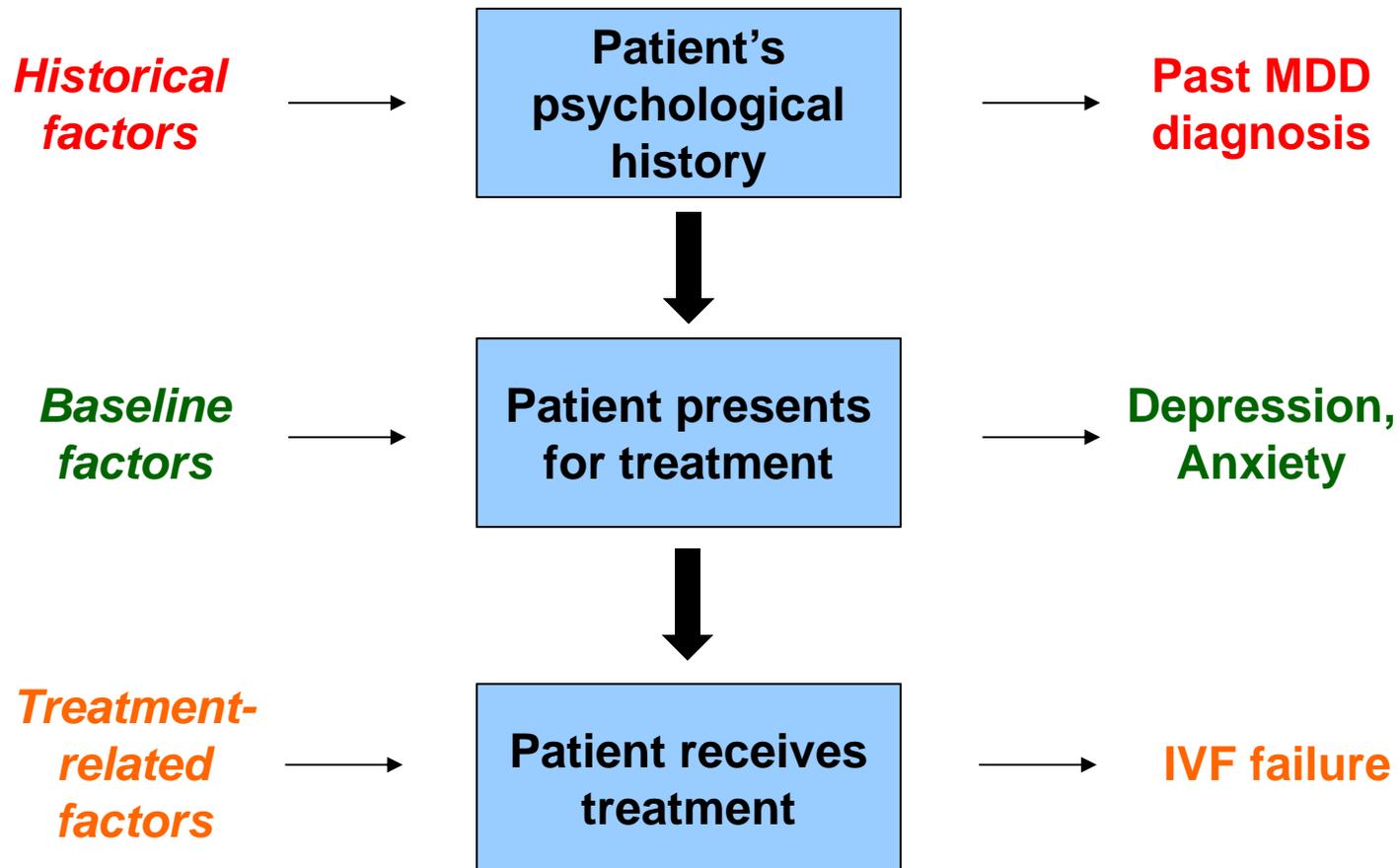
*e.g., Eisenberg et al., 2010, Gameiro et al., 2009; Verhaak et al., 2005
Cousineau & Domar, 2007; Zimmerman & Coryell, 1994*

Major Depressive Disorder

- Major Depressive Disorder (MDD)
 - Sadness or anhedonia plus four symptoms:
 - Weight change; sleep disturbance; fatigue; psychomotor disturbance; guilt/worthlessness; concentration problems; suicidal ideation
 - *Causes significant distress and/or impairment*
- Few studies have assessed MDD during treatment
 - Chen et al. (2004): 26.8% of infertile sample met criteria for MDD or dysthymia
- Question: Which patients are at greatest risk for MDD?



Risk for MDD During Treatment



e.g., Pasch et al., 2012, Verhaak et al., 2005

Research Questions

- 1) What is the rate of MDD in infertility patients as they go through infertility treatment?
- 2) To what degree are historical (i.e., past MDD), baseline (i.e., depression, anxiety), and treatment-related risk factors (i.e., IVF failures) predictive of MDD during infertility treatment?
- 3) What is the relative contribution of each of these types of predictors to risk for MDD during infertility treatment?

Participants

- UCSF Fertility Experiences Project
 - Study of the psychosocial/economic consequences of infertility treatment (NICHD funded)
 - 438 participants recruited from 8 fertility clinics in Northern CA
- Eligibility criteria:
 - First visit to clinic
 - No previous use of IVF
 - Current difficulty getting pregnant
 - Trying to get pregnant with a male partner
 - No history of elective sterilization
 - English-speaking

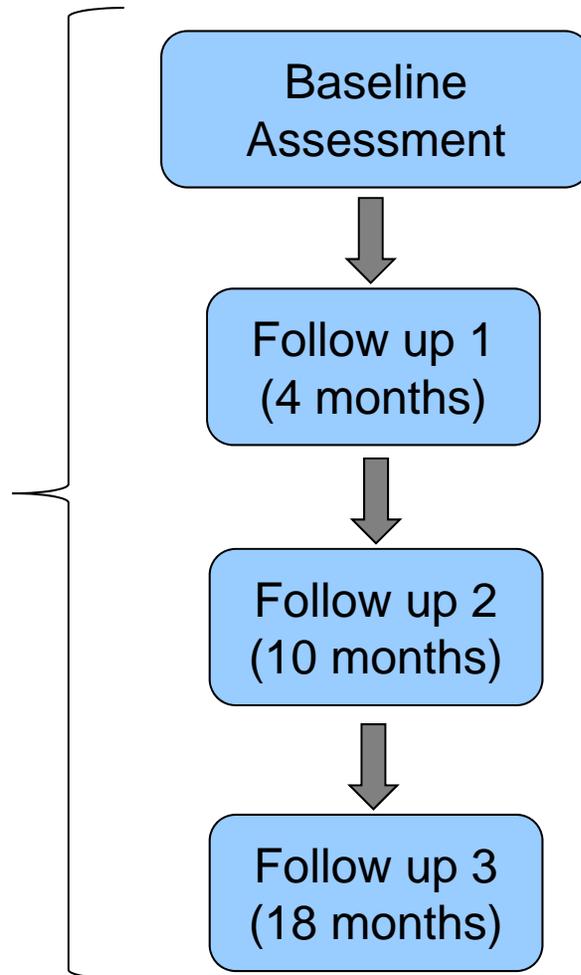
Sample Characteristics

- Final sample: 178 women (out of initial 438)
 - Were “still infertile” (i.e., no child in the home or not pregnant)
- Demographic information:
 - Average age: 36.5 years old
 - Ethnicity: 73.4% Caucasian
 - Education: 68.0% with a college degree or above
 - Average time trying to conceive at baseline: 2.4 years

Procedure

At each time point:

- Clinical interview
- Questionnaires



Measures

- MDD: Composite International Diagnostic Interview (CIDI)
 - Structured interview administered by trained interviewers
 - Assessed MDD according to DSM-IV-TR criteria
 - At baseline: In patient's lifetime, was there a history of MDD?
 - At each follow up point: Did a major depressive episode (MDE) occur since the last interview?

Measures

- Baseline depressive symptomatology:
 - Center for Epidemiological Study of Depression Scale (CESD)
 - 20 items; “I felt sad.”
- Baseline anxiety symptomatology:
 - State-Trait Anxiety Inventory (STAI)
 - 20 items; ex: “I feel anxious.”
- IVF failed cycles
 - Count of the number of IVF cycles during 18 month period
 - Average number failed IVF cycles: 1 (range = 0 – 6)

Radloff, 1977; Spielberger et al., 1983

Procedure

Predictor Variables

- History of MDD
(*CIDI interview*)
- Baseline depression
(*CESD*)
- Baseline anxiety
(*STAI*)

- IVF failure
(*count of cycles*)

Baseline
Assessment

Follow up 1
(4 months)

Follow up 2
(10 months)

Follow up 3
(18 months)

Outcome Variable

- Met criteria for
MDD at any point
during 18 months
(*CIDI interview*)

Results

1) What is the rate of MDD in infertility patients as they go through treatment?

- 38.8% (N=69) met the criteria for MDD
 - 44 met criteria at 1 time point
 - 18 met criteria at 2 time points
 - 7 met criteria at 3 time points

Results

- 2) To what degree are historical (i.e., past MDD), baseline (i.e., depression, anxiety), and treatment-related risk factors (i.e., IVF failures) predictive of MDD during treatment?
- To test predictors, logistic regression models used
 - DV: MDD during the 18-month follow up
 - Controlled for patient's age, ethnicity, and education

Model and Variable	β	Nagelkerke R ²	<i>p</i>
Past MDD	1.83	0.22	<.001
Baseline CESD (depression)	0.98	0.22	<.001
Baseline STAI (anxiety)	0.87	0.20	<.001
Failed IVF Cycles	0.29	0.05	.07

Results

3) What is the relative contribution of the three types of predictors to risk for MDD during treatment?

Model and Variable	β	Nagelkerke R ² Change	<i>p</i>
Step 1: Age	-0.18		
Ethnicity	-0.06	.02	ns
Education	-0.15		
Step 2: Baseline Depression	0.59	.23	<.001
Baseline Anxiety	0.44		
Step 3: Failed IVF Cycles	0.52	.04	<.05
Step 4: Past MDD	1.60	.10	<.001
Total Variance of model:		.37	

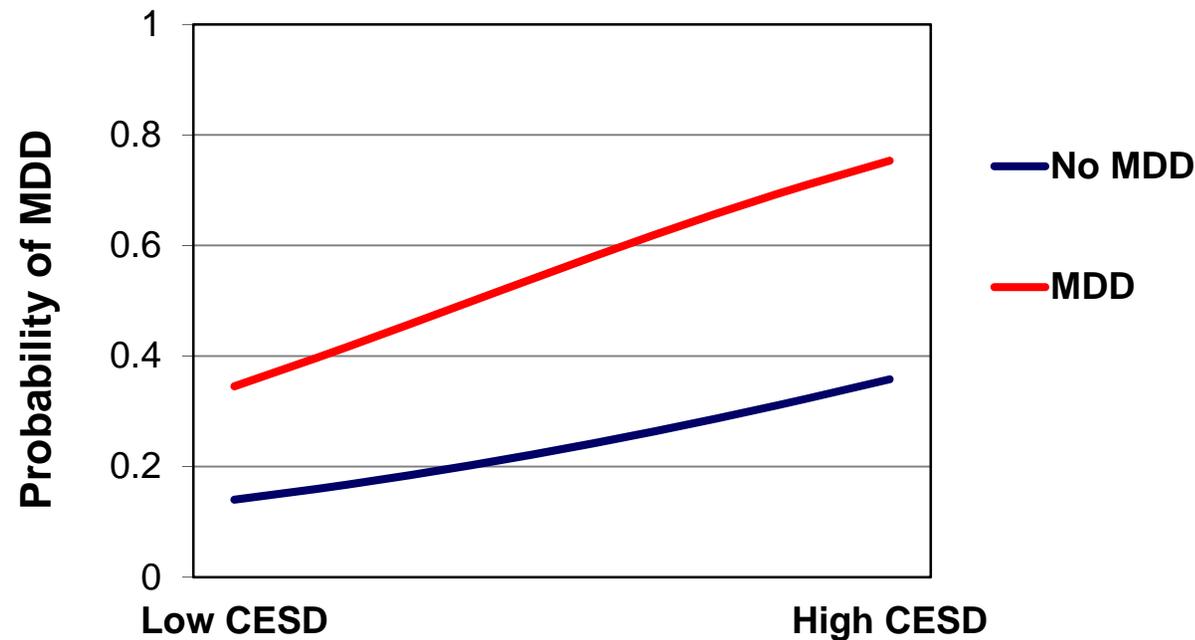
Results: Follow Up

- If we account for all shared variance, what factors are most predictive of MDD?

Model and Variable	β	p
Step 1: Age	-0.18	.25
Ethnicity	-0.06	.82
Education	-0.15	.73
Step 2: Baseline Depression	0.51	.14
Baseline Anxiety	0.34	.26
Failed IVF Cycles	0.52	<.01
Past MDD	1.60	<.001
Total Variance of model:		.37

Results: Follow Up

- Are interactions between past MDD and the other predictor variables significant?
 - No, none of the interactions were significant. For example:



Conclusions

- MDD is prevalent during treatment
- Commonly assessed indicators of risk are important
 - Baseline depression and anxiety symptomatology
 - IVF failure
- A less commonly assessed factor, a history of MDD, appears to be a critical contributor to risk

Implications and Future Directions

- Primary implications:
 - Screening of past MDD recommended for infertility patients
 - Those with a history of MDD may benefit from preventative interventions before or during the course of treatment
- Future directions
 - Assess effect of past MDD relative to other risk factors:
 - Historical: coping style, personality traits
 - Baseline: support system, meaningfulness of parenthood
 - Treatment-related: cost, duration of treatment
 - Evaluate risk for other psychological outcomes (i.e., anxiety)



Thank You



NICHD PO1 to Nancy Adler, PH.D.

Steering Committee

- Nancy Adler PhD
- Mary Croughan PhD
- Steven Gregorich PhD
- Patricia Katz PhD
- Susan Millstein PhD
- Robert Nachtigall MD
- Lauri Pasch PhD
- Jonathan Showstack PhD

Talk Co-Authors

- Lauri Pasch, Ph.D.
- Maria Bleil, Ph.D.
- Patricia Katz, Ph.D.
- Nancy Adler, Ph.D.

Study Contributors

- Suzanne Benson MA
- Martha Castrillo BA
- Davide Dimauro MA
- Kristin Dougall MA
- Julie Duff PhD
- Kelly Forsberg BA
- Sandi Kaplan BA
- Annie Larson
- Stefani Machi-Harris BA
- Amy Ouimette BA
- Christy Ponte BA
- Dena Shehab PhD
- Jessica Spry, BA
- Stephanie Whitzell MA
- Holly Wing MA
- Wendy Wolfson BA
- Loretta Camarano MA/RN
- Steve Gregorich