Testing the Validity of a Model of Depression Dynamics

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### Background
- Major Depressive Disorder (MDD) affects about 16% of the U.S. population (Kessler et al., 2003).
- Prior research supports depression as a systemic syndrome with diverse and complex causes (Wittenborn, Rahmandad, Rick & Hosseinichimni, 2016).
- Conflictual interpersonal relationships, economic diversity, cognitive dysfunction, neurotransmitter deficits and poor physical health can all create or exacerbate depressive symptoms.
- Prior review and synthesis of 600 publications on major depressive disorder generated a theoretical feedback loop model of the mechanisms of depression used in this study.

### Purpose
- To validate and refine through clinical case analysis a descriptive system dynamic model of depression.
- To better understand the causal mechanisms of depression and how these agents evolve and intersect over time.
- To validate a model capable of informing the design of individualized interventions for depression treatment.

### Method

#### DATA
- Intake interview transcripts and videotaped therapy sessions from 3 couples with a depressed partner who completed a course of emotionally focused therapy (15-17 1-hour sessions)
- Two female and one male partner who were diagnosed with depression at baseline were included in this study.

#### PROCEDURES
- Using a semi-structured coding system, sessions were analyzed to identify reinforcing feedback loops that give rise to depression or stabilize it:
  1. General depression mechanisms were identified.
  2. Codes were related to the qualitative model of depression dynamics to either validate the existing patterns or determine if new patterns would emerge from the analysis.
RESULTS: Case 1

Background
- M's parents divorced early on
- M was raised by mother & grandmother
- Distant relationship with father
- Mother died from terminal illness when M was 17

Active loops
- R1: Consolidation of negative cognitive representations
  - Felt pressures to become a lawyer and despite the mother's support, the pressure was overwhelming and contributed to negative representations of self and others
- R2: Rumination
  - All emotions become exaggerated, and difficulties understanding others and managing stress, leading to further stress and rumination
- R3: Social isolation
  - Rumination drives dysfunctional behaviors such as avoidance, self-disembowelment, fear of intimacy, and further stress and rumination

RESULTS: Case 2

Background
- S was sexually abused by her father throughout childhood
- M's parents divorced early on
- Diagnosed with ADD and mood disorder
- Recent breast cancer survivor

Active loops
- R1: Consolidation of negative cognitive representations
  - Trauma of being assaulted as a teenager, increased stress and compounds rumination
- R2: Rumination
  - Rumination drives dysfunctional behaviors such as avoidance, self-disembowelment, fear of intimacy, and further stress and rumination
- R3: Social isolation
  - As a controlling parenting style and rigid adherence to rules, contributors to negative representations and further stress and rumination
Discussion

- This study aimed to validate our qualitative system dynamics model of depression.

- Findings supported the structure of our model and indicated potential homeostatic mechanisms related to depression dynamics.

- Future research is needed to quantify this model. A quantitative model will enable interventions to be tested in simulation on diverse patient profiles thereby enhancing personalized treatment of depression.

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Selected References


