The EMBODY Study: A Biobehavioral Study of Dating Experiences in Young Women

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Biobehavioral Approach

- Biobehavioral characteristics are those where biological, behavioral, and psychosocial factors interact. (McCubbin, 2013)

The goal of the EMBODY study is to examine relationships among epigenetic alterations, acquired chromosomal changes, biologic stress measures, and biobehavioral characteristics in identical, female twin pairs who are discordant for an experience of TDV.

EMBODY = Effect of Multiple factors in a Biobehavioral study Of Dating among Young women

Conceptual model: Chronic stress & allostatic loading

[Diagram showing the conceptual model of chronic stress and allostatic loading]
**Pathway to Impact: Allostatic loading**

- **Environmental stressors** (work, home, neighborhood)
- **Personal stressors** (trauma, illness, caregiving)
- **Psychological responses** (high or low, personal, behavioral, bio, emotional, stress-related)
- **Physiological responses**
- **Allostatic load**

**IPV, Allostatic Load & Women's Health: Inflammation**

- Frequent headaches, chronic pain, difficulty sleeping, activity limitation, asthma, irritable bowel syndrome, and diabetes (Black et al., 2011)
- Arthritis, chronic pain, migraine, STI's, ulcers, and complications of pregnancy (Humphreys, Cooper, & Miaskowski, 2011; Humphreys et al., 2012; Burton, Halpern-Felsher, Basili, & Humphreys, 2014; Cha & Masho, 2014; Cha & Masho, 2014; Silverman, Raj, & Clements, 2004; Miller et al., 2010)
- Women who have experienced IPV are 80 percent more likely to have a stroke, 70 percent more likely to have heart disease, 60 percent more likely to have asthma and 70 percent more likely to drink heavily than women who have not experienced intimate partner violence. (CDC, 2008)

**So what, exactly?**

- Young women have powerful emotional responses & increased psychological trauma following abusive relationships → creating a chronic stress state (Cercone, Beach, & Arias, 2005; Lewis, Travea, & Fremouw, 2002; Burton, Halpern-Felsher, Basili, & Humphreys, 2012)
- Women experiencing chronic stress display higher, sustained secretion of cortisol (Quarantes, 2008)
- Associated with adverse mental states such as depression and anxiety (Dipietro, Newman, & Katz, 2008)
- Stress accelerates telomere attrition & cell senescence and abuse survivors EXHIBIT SHORTENED TELOMERE(S) (Tycko, et al., 2009; Ivanovski, et al., 2006; Ng, et al., 2008)

**What is "biobehavioral impact"?**

(figure acknowledgments to Dr. C. Jackson-Cook and Dr. A. Montpetit)
Sample and Methods

- Female, monozygotic (identical) twins ages 18-23
- Recruitment via established twin registry
- Classical twin study design (discordant)
- Self-report instruments, serum sampling for biologic markers

Preliminary results...and a few pitfalls...

- Mid-Atlantic Twin Registry: recruitment and subject identification
- “Airlock” system for contacting twins
- Difficulty identifying what “teen dating abuse” means
- Revised recruitment procedures
- Broader geographic base
- High prevalence of TDV in population

Findings

- 3 pairs of eligible twins (out of 15 planned) identified
- No major comorbidities
- Depression and anxiety prevalent
- Supports allostatic loading model
- Ongoing symptoms
- Cellular data...

Discussion

- Allostatic loading and...? Structural stress?
- Role of developmental "moment" and foregrounding of relationships
- Lifetime health & social impacts
- Reversibility? Plasticity? “Re-programming”? 
Conclusions/Future directions

- Health related impact of TDV is similar to other abuse in several dimensions
- Relational development “moment” may increase the psychological burden
- Development of health relationship supports
- Screening and identification of affected women is critical to remediation of both physiologic & psychosocial (“biobehavioral”) effects

Thank you!