


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



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Disclosures

- + Research carried out under the direction of this speaker is or was funded by the Robert Wood Johnson Foundation, Virginia Department of Health, and the Sigma Theta Tau Nursing Honor Society
- + No proprietary products or services, and no unlabeled or unapproved uses of drugs or devices are referenced in this presentation.

Biobehavioral Approach

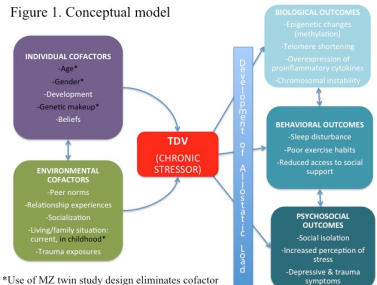
- + Biobehavioral characteristics are those where biological, behavioral, and psychosocial factors interact (McCain, 2013; Buerhaus, 2006)

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

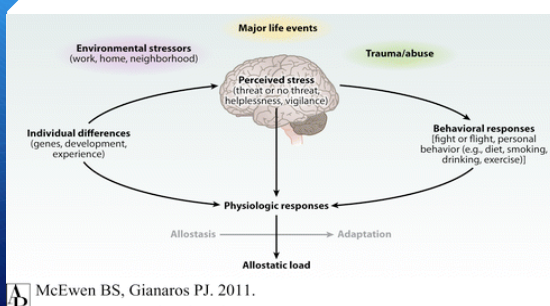
Figure 1. Conceptual model



The diagram illustrates a conceptual model where Individual Cofactors (Age, Gender, Development, Genetic makeup, Beliefs) and Environmental Cofactors (Peer norms, Relationship experiences, Socialization, Living/family situations, careers, education, Trauma exposures) both influence TDV (Chronic Stressor). TDV then leads to three categories of outcomes: Biological Outcomes (Epigenetic changes, Telomere shortening, Overexpression of proinflammatory cytokines, Chromosomal instability), Behavioral Outcomes (Sleep disturbance, Poor exercise habits, Reduced access to social support), and Psychosocial Outcomes (Social isolation, Increased perception of stress, Depressive & trauma symptoms). A vertical bar labeled 'Developmental and Allostatic Load' is positioned between the TDV and the outcomes.

*Use of MZ twin study design eliminates cofactor and improves data interpretation

Pathway to Impact: Allostatic loading



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, & Miskowski, 2011; Humphreys et al., 2012; Burton, Halpern-Felsher, Rehm, Rankin, & 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)

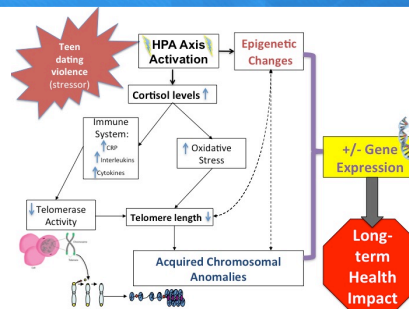
So what, exactly?

- 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, Rehm, Rankin & Humphreys, 2013)
- Women experiencing chronic stress display higher, **sustained secretion of cortisol** (Epel et al., 2000)
- Associated with adverse mental states such as **depression and anxiety** (Walker, Newman, & Koss, 2004)
- Stress accelerates **telomere attrition** & cell senescence and abuse survivors **EXHIBIT SHORTENED TELOMERES** (Tyra, et al., 2010; Kananen, et al., 2010; Epel, et al., 2004; Humphreys, Epel, et al., 2011)



What is "biobehavioral impact"?

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



Sample and Methods

- + Female, monozygotic (identical) twins ages 18-21
- + Recruitment via established twin registry
- + Classical twin study design (discordant)
- + Self-report instruments, serum sampling for biologic markers

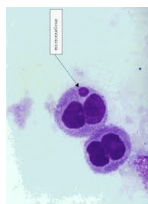


Preliminary results...and a few pitfalls...

- + 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"?

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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!