

Enhancing methodological rigor in studies of complementary health approaches for perinatal mental health: Biobehavioral research study design considerations

[in Symposium: Complementary Approaches for Perinatal Mental Health]

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Objectives

- Discuss the need for rigorous biobehavioral research regarding complementary health approaches for perinatal mental health
- Appreciate recent research findings related to the feasibility, acceptability, and preliminary effects of prenatal yoga with diverse pregnant women
- Describe implications of research findings for the design and development of future studies regarding complementary health approaches for perinatal stress and depression

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Centering Pregnancy Care plus Yoga for Diverse Pregnant Women

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Biomarkers in a Study of Centering Pregnancy Care plus Yoga for Diverse Pregnant Women

P60 MD002256-06 (PI: York) 5/16/12-4/30/17

National Institute on Minority Health and Health Disparities (NIMHD)

Sub-study: Racial Differences in Epigenetic Mechanisms of Preterm Birth

American Nurses Foundation (PI: Kinser) 9/1/15-8/31/16

Epigenetic, social, and environmental mechanisms underlying postpartum depression

VCU CCTR Endowment Fund (PI: Kinser) 9/01/14-3/31/16

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Social, environmental, and epigenetic mechanisms underlying postpartum depression: A pilot study

Background: Biobehavioral Research

- Goals
 - Understanding associations, mechanisms, pathways
 - Developing, targeting, and evaluating interventions

Background: Methodological rigor

- Major critique of research on complementary health approaches is centered around lack of methodological rigor
 - For example:
 - lack of adequate control
 - lack of conceptual framework
 - lack of objective outcome measures

Why the “bio” in biobehavioral?

- Health: interaction of biological, social, behavioral, environmental factors
- Stress and biomarkers
 - HPA axis (e.g., CRH, ACTH, cortisol)
 - Autonomic nervous system (e.g., epinephrine, norepinephrine, dopamine, salivary α -amylase)
 - Immune function (cytokines, c-reactive protein)

Nater, U., Skoluda, N., Strahler, J. (2013). Biomarkers of stress in behavioural medicine. *Curr Opin Psychiatry*, 26(5): 440-5.

Non-invasive stress biomarkers

- sAA
 - an indicator of ANS dysregulation
 - sensitive to intervention
- sNGF
 - neurotrophic aspect of stress-response system
 - relates to both ANS and HPAA changes

Example: Current Study using Non-Invasive Stress Biomarkers

Integration of Yoga into Group Prenatal Care: Centering Pregnancy Care + Yoga [CPC+Y] (STTI; PI: Kinser)

- Aim 1: evaluate feasibility & acceptability of CPC+Y
- Aim 2: explore preliminary effects on psychological outcomes compared to those who participate in CPC alone
- Aim 3: explore preliminary effects of CPC+Y on maternal biological outcomes (weight, blood pressure, non-invasive stress biomarkers: salivary α -amylase, salivary NGF)



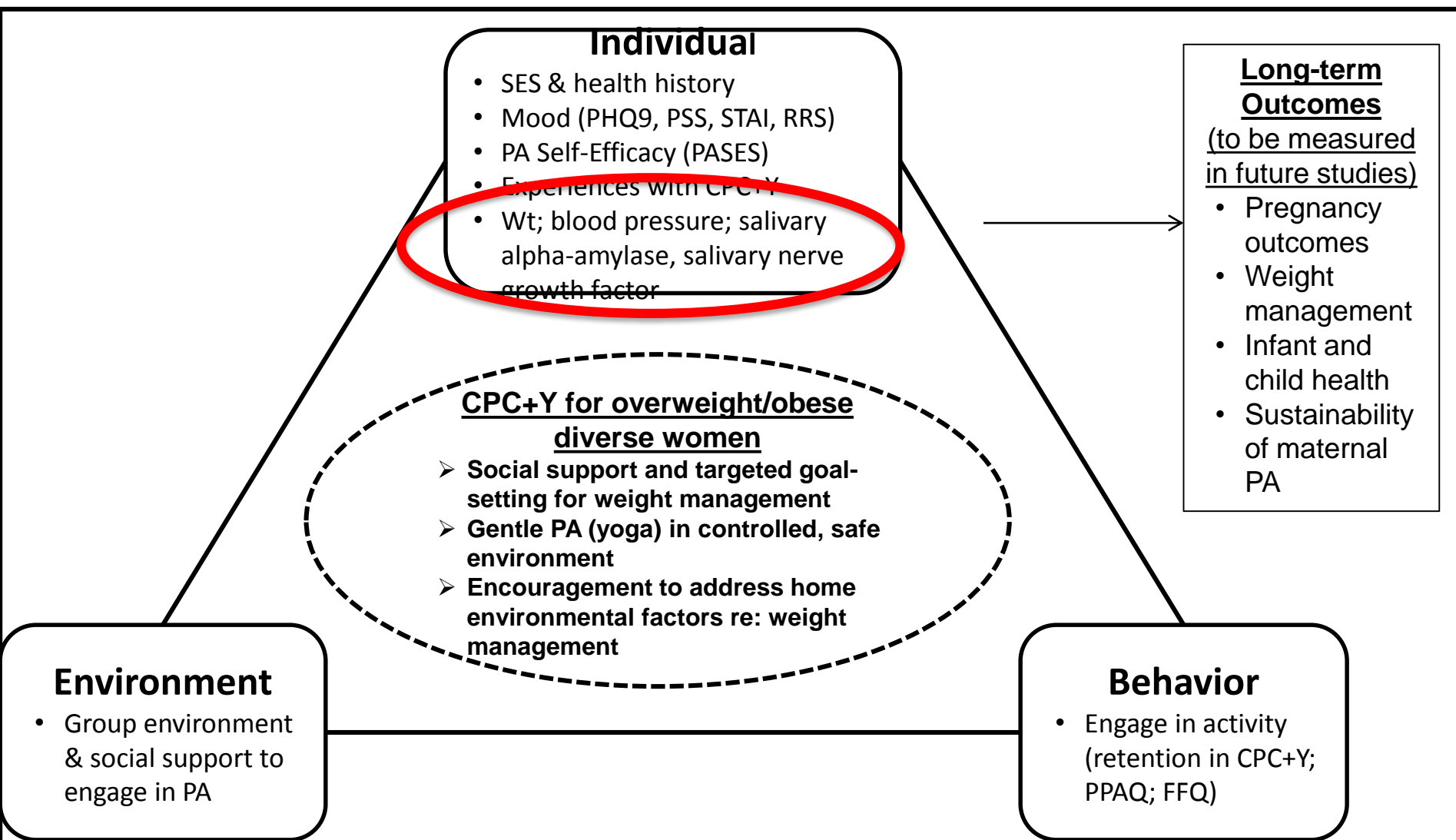
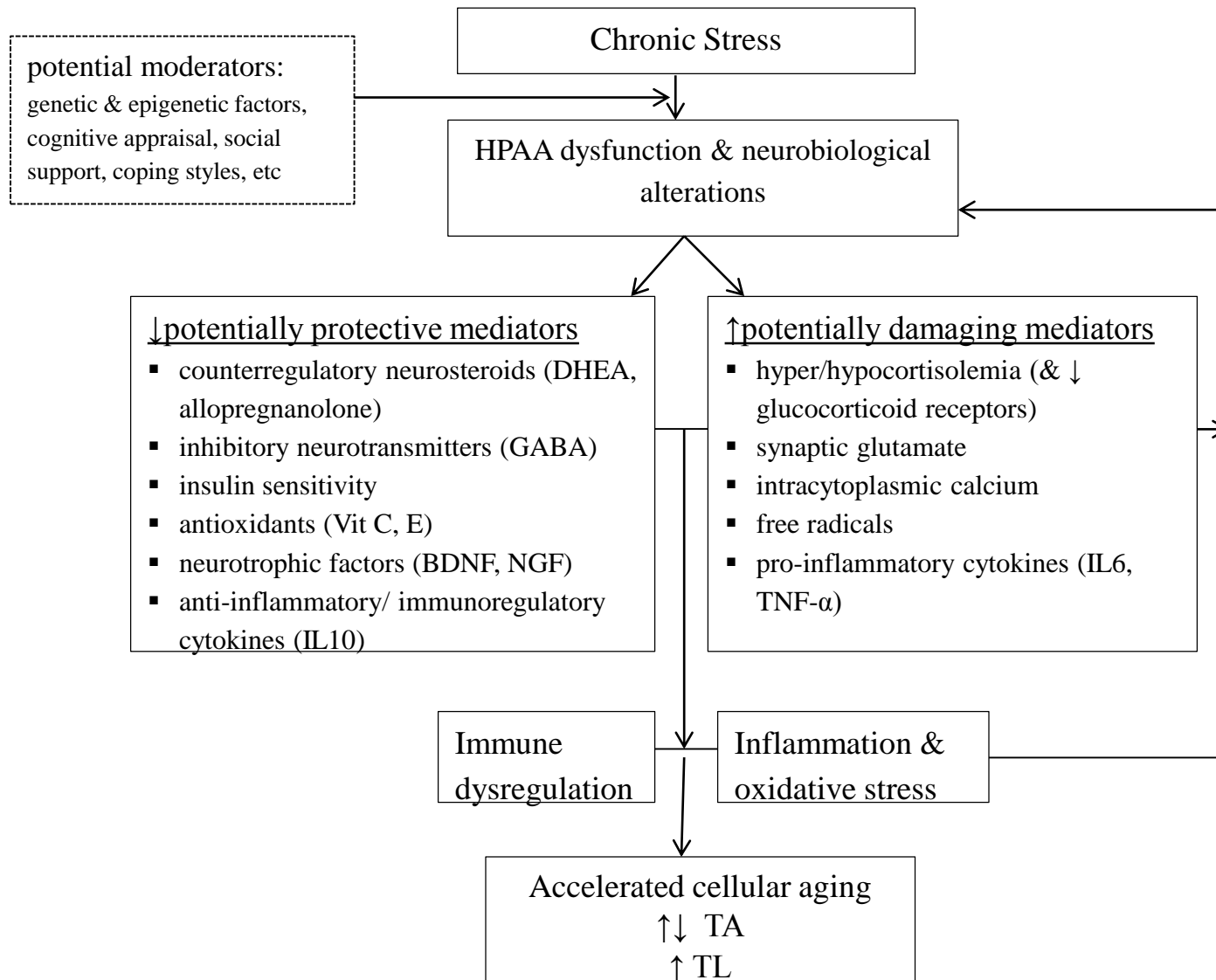


Figure 1. Application of Social Cognitive Theory to CPC+Y Activities and Outcomes Measured in Pilot Study

Figure 2. Highly simplified schema of mediators and moderators potentially related to cell damage or dysfunction, accelerated cellular aging, and chronic stress



Kinser, P. & Lyon, D. (2014). A conceptual model of stress vulnerability, depression, and health outcomes in women: Potential uses in complementary therapy research. *Brain and Behavior*, 4(5), 665-674.

Kinser, P., & Lyon, D. (2013). Major depressive disorder and measures of cellular aging: An integrative review. *Nursing Research and Practice*, vol 2013.

Why yoga?

- Gentle introduction to PA and mindfulness
- Yoga has been shown to assist with depression symptom management
- My research suggests women are interested in yoga for self-management
- Mindfulness-based strategies, such as yoga, appear to enact change via **bio**behavioral mechanisms



yoga

acceptance / resolution of conflict
coping with emotional pain

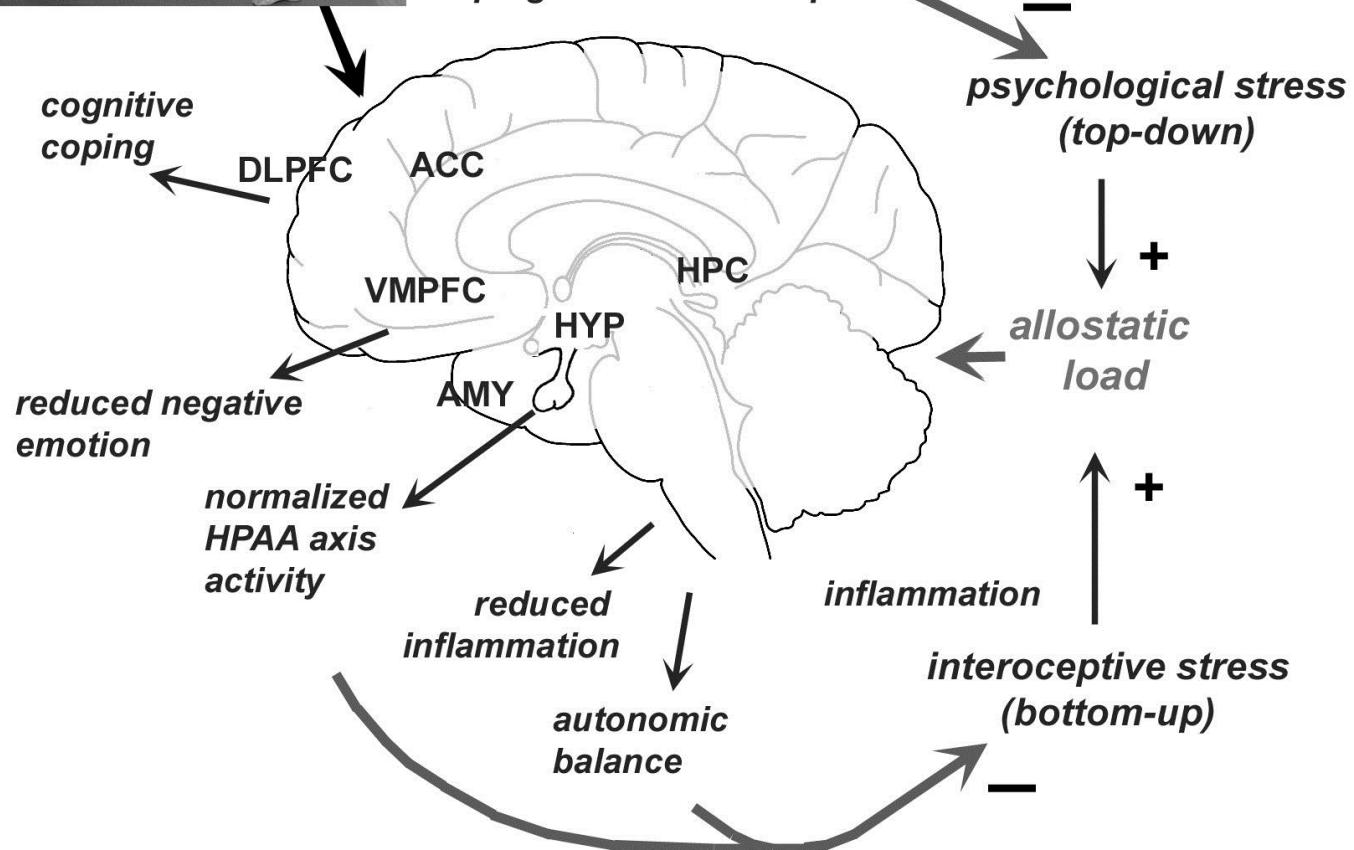


Figure from Kinser, P., Goehler, L., Taylor, A. (2012). How might yoga help depression? A neurobiological perspective. *Explore: The Journal of Science and Healing*, 8(2), 118-126.

More “bio” in biobehavioral

- Epigenetic measures
 - “epi”= on, upon, or over
 - “genetics”= DNA sequence

processes and mechanisms that affect activity of DNA but do not change the DNA itself

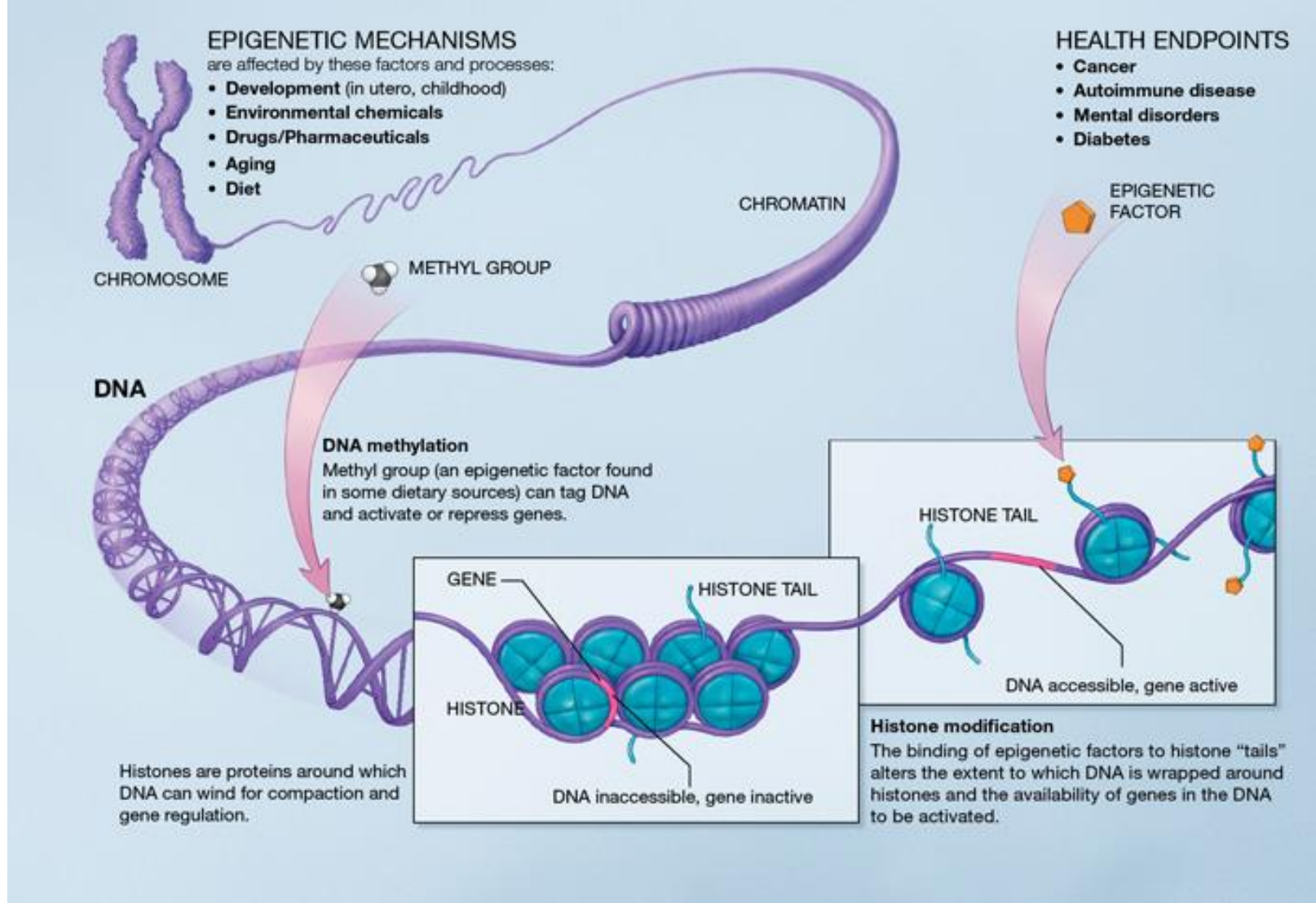


Image from <http://commonfund.nih.gov/epigenomics/figure>



DNAme: the “dimmer switch”

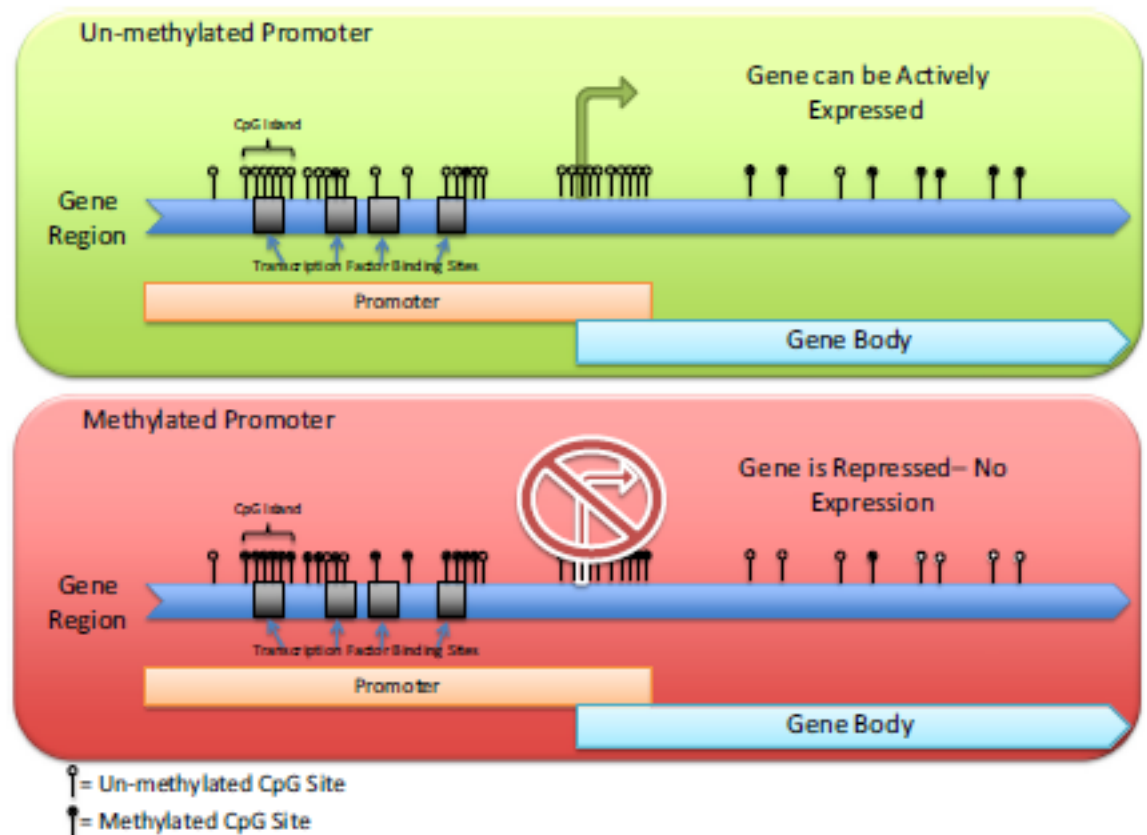


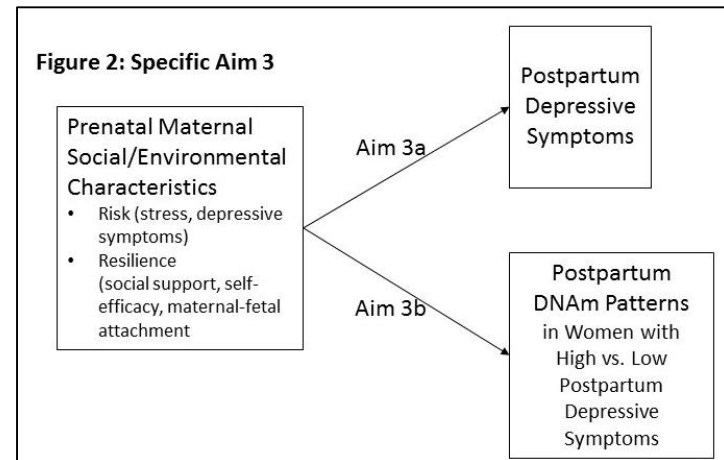
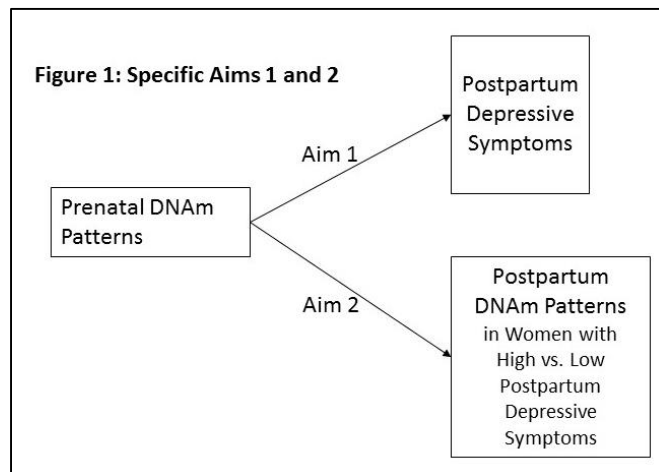
Image on right from Lester, B., Conradt, E., Marsit, C. (2016). Introduction to the special section on epigenetics. *Child Development*, 87(1): 29-37.



Example: Current Epigenetics Study

Social, environmental, and epigenetic mechanisms underlying perinatal depression (ANF; PI: Kinser; P60, PI: York)

- Goal: understand biobehavioral mechanisms of perinatal depression in diverse women



Example: new study combining Intervention & Epigenetic Research

*Self-management of chronic depressive
symptoms in pregnancy* (NIH/NICHD; PI: Kinser)

Goal: evaluate psychobehavioral and epigenetic outcomes (DNAm) of a self-management intervention (involving motivational interviewing and mindful physical activity) for pregnant women with depressive symptoms

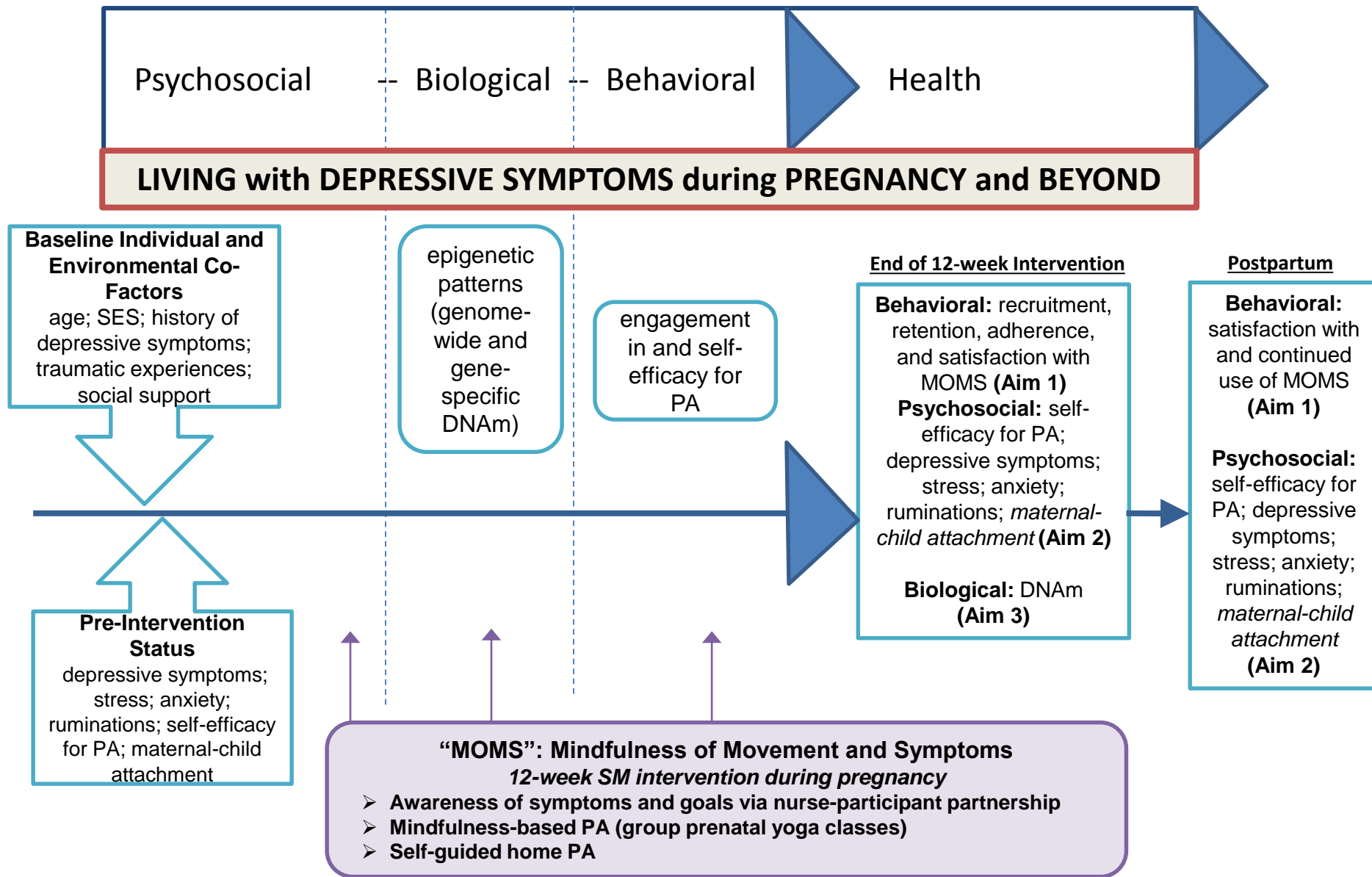


Figure 3. Framework of factors involved in chronic depressive symptoms during pregnancy, aspects of MOMS intervention, and outcome measures [SES: socioeconomic status; PA: physical activity; DNAm: DNA methylation patterns; SM: self-management]

Questions?

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