“Starting to Figure it Out – Toward Better Diagnostic Strategies & Treatment for Health Problems related to Intimate Partner Violence”

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MMRW ‘08 – BRFSS ‘05 – 4 questions – physical &/or sexual or threats; weighted; 16 states

- **Lifetime IPV** – 11.5% for men; 23.6% for women
  - Significantly higher among multiracial, non-Hispanic & AI/AN women; & lower-income respondents.
  - 600,000 injuries to men 1.2 ml injuries to women

- **Average of 1600-1700 IP homicides per year of women** – 500-600 for men (BJS ‘09) – addition of ex-BF/GF
  - 45-47% of women killed seen in health care system before homicide; 83% of cases somewhere in system (Campbell ‘03; Wadman ’01)

- **Past year** – higher rates - in low income settings, IPV specific, w/safety protocols &/or anonymous inquiry
  - Urban, 12 cities pop based - 9.8% past 2 yrs (Walton-Moss et al ‘05)
  - Clinic based computerized – 18% - (Campbell ‘10)
Overlap between physical, sexual and emotional abuse (N = 889) (Campbell et. al. ’02 from Ellsberg ’00)
PHYSICAL HEALTH EFFECTS
(NIH, CDC funded interdisciplinary research)

- Physical Injury (Facial, fractures, dental, neurological - soft tissue, internal, “falls”- Grisso ’91)
  - TBI & Strangulation: (McClane ’05; Corrigan’03; Valera’03; Banks ’07)
- Neurological Sx - Coker ’00; Campbell ’02
  - IPV & stroke or Sx consistent w/stroke (Black ’08; Lown,’01; Loxton ’06)
- Chronic Pain (Back, abdominal, chest, head) (Campbell ’00; Coker ’02; Wuest et al ’09) – after IPV
  - Fibromyalgia (Alexander ’99; Walker ’00)
  - Immune system activation (Gill, Page & Campbell ’05)
- Chronic Irritable Bowel Syndrome (Drossman ’98)
- Hypertension (Schollenberger et al ’02; Coker ’99)
- Smoking (30-34% IPV 13-15% controls) (MMWR ’08)
TBI in Abused Women – From Repeated Choking &/or Head Injury – ACAAWS study

HI = Head Injury
HI w/LOC = with Loss of Consciousness
Choking = Attempted Strangulation

Research supported by the Abuse Status and Health Effects among African Caribbean and African American Women (ACAAWS) study (J. Campbell & D. Campbell, Co-PI’s) from the Caribbean Exploratory NCMHD Research Center of Excellence (CERC), University of the Virgin Islands, Grant # SP20MD002286, National Institutes of Health, G. Callwood PI
Headaches  Memory Loss  Blacking Out  Dizzy Spells  Seizures  Difficulty Concentrating

87%  87%  40%  25%  57%  52%
P = 0.977  P = 0.977  P = 0.977  P = 0.0002  P = 0.006  P = 0.0002

P = 0.0002  P = 0.006  P = 0.059  P = 0.056  30%
ACAAWS Study – TBI - CNS Sx

X Sx #  CNS X Sx
Sev

IPV
No IPV

Choking CNS Sx#
HI CNS Sx#

Yes
No
TBI Related Injuries Result from Primary and Secondary Causes

- Primary (Acute): related to damage to the neurons related to the direct impact of the injury
  - Injury can be blunt force, acceleration/de-acceleration OR anoxic injuries – “choking” – attempted stragulation
- Secondary (Delayed): Occurs within hours and days of injury and includes blood brain barrier (BBB) breakdown
Acute and Delayed Response

Traumatic brain injury

Blood vessel compromise (endothelial damage; impaired regulation of cerebral blood flow)
Tissue damage (excitotoxicity; metabolic imbalance)

Blood–brain barrier breakdown

Edema
Inflammation
Hyperexcitability

Delayed response

Neovascularization
Impaired regulation of cerebral blood flow
Compromised blood–brain barrier
Dysfunction of astrocytes and microglia
Network plasticity and degeneration

Coma and death
Seizures and epilepsy
Cognitive and emotional disabilities

Shlosberg, 2010
Vulnerability to TBI’s in Abused Women – Jessica Gill, PhD, RN

- Abused women have higher levels of inflammatory cytokines (IL6) (Woods et al., ‘05; ‘10; Gill, ‘07)
- High levels of inflammatory cytokines may increase vulnerability to TBI’s through increased disruption of the blood brain barrier (BBB)
- Lower levels of neuropeptides in abused women with PTSD, which may impair neuronal repair following TBI’s (Gill et al)
- Use of epigenetic modifications: differential expression and transcription of genes following an event such as a TBI, and reflects chronic symptoms and experiences – lifetime, multiple traumas – injury & psychological harm
New Data from BRFSS (MMWR ’08; Breiding, Black & Ryan ’08a & b)

- Women - lifetime IPV
  - High Cholesterol: AOR 1.3 ([CI] = 1.1--1.4)
  - Disability AOR = 1.7; activity limitations 2.1
  - Arthritis AOR = 1.6
  - Heart Attack; Heart Disease; Stroke :1.4; 1.7; 1.8
  - Smoking AOR = 2.3
  - Risk factors for HIV/STD’s 3.1 (CI = 2.4--4.0).

- Men: increased use of disability equipment, arthritis, asthma, activity limitations, stroke, risk factors for HIV infection or STDs, smoking, and heavy or binge drinking. (AOR’s 1.4 (CI = 1.0--2.0) - stroke to 2.6 (CI = 2.0--3.6) – HIV/STD risk
Needed Future Directions with Population Based Studies – Lifetime IPV

• BRFSS – combine the ACE’s module with the IPV module (states are trading off)
  • Also need full range of continuum of sexual assault, WPV

• ACE’s data – combining adult IPV & SA w/ACE’s as IV’s

• Health disparities/inequities analyses
  • What proportion of variance in health inequities – various conditions (e.g. cardiovascular disease, HIV/AIDS, maternal child health px) is related to lifetime trauma
  • Examine for African Americans, Aboriginal peoples, Immigrants
  • Intersections (& multiplicative effect) with stressors of poverty, discrimination, institutional racism, hx trauma, violent neighbor hoods
  • Issues of lack of access to appropriate care -
Well established negative health outcomes of IPV – new findings

- Forced sex
  - HIV/AIDS intersections – physiological as well as “negotiating” safe sex
- UTI’s
- Increased STI’s; cervical cancer (Coker et al ’03)
- Forced first sex – Stockman et al ‘09 – up to 21% of US women whose first sexual experience <14
- Other GYN problems
Abuse During Pregnancy – Health Correlates

- Patterns of abuse during pregnancy – from PRAMS (‘03)
- Unintended pregnancy (Saltzman ’03; Pallito et al, ‘04)
- Maternal health correlates: depression, substance abuse, low social support, spontaneous abortion, smoking, risk of homicide (Gielen et al ‘94; Campbell ‘92)
- Infant outcomes: LBW (Murphy et. al. ’01 – meta analysis - CMAJ), through connections w/ smoking, low weight gain & substance abuse & stress (Curry et al ’99; Altarac & Strobino ‘02) & SGA (Alhusen ’11)
- Child abuse (most severe - nonbiological father)
- Maternal Mortality (Chang et al ‘10, Chang, Saltzman et al)
- Post partum depression – PRAMS analysis – MMWR ‘09
MENTAL HEALTH EFFECTS – (Golding ’99; Stith ’04; Mitchell ’09)

- Depression 10 - 43 pop; 32 - 70% clinical (9.3% non abused)
- Suicidality 14 - 40% (4.9% non abused)
  - Among African American & African Caribbean women – IPV & suicidality AOR = 10.39 (Campbell ‘10; Houry ‘09)
- Post Traumatic Stress Disorder 2 - 12% pop; 31 - 84% clinical (weighted X prev 64% vs. 5% non abused)
- Alcohol Abuse 4 - 16% pop; 23 - 44% clinical
- Drug Abuse 5 - 16% pop; 23 - 44% clinical (2% non abused)
- Eating Disorders - bulimia (McCaulley et. al. ‘95)
Bio-Psycho-Immunologic Response to Trauma (Woods et al, ‘02; Gill et al. 04)

IPV

Depression

Comorbid

PTSD

HPA axis

↑ cortisol

Th2 shift

Immune Suppression

IgE/IgA Response

HPA axis

↓ cortisol

Th1 shift

Pro-Inflammatory – IL6
Co-Morbidity of PTSD & Depression in Battered Women

- Far more comorbidity in battered women than rape victims or Vietnam Vets – recent research suggests that only depression IF PTSD (Woods ’05; Resick ‘07)
- Predictors: childhood victimization, – importance of child abuse on physical health – ACE
- Importance of severity of physical abuse
- Lifetime trauma response
- Issues of ongoing trauma
Pro Inflammatory Response

- Associations with chronic pain – Woods et al ’05 (fibromyalgia)
- Other inflammatory conditions – asthma – chronic fatigue syndrome, urinary tract infections
- Implications for BMI, obesity
- Implicated with cardiovascular disease -
  - ACE study
  - Cardiovascular risk factors with BFRSS -
CHANGES IN DEPRESSIVE SYMPTOMS
Ford – Gilboe et al 2010 – Women’s Health Effects Study - WHES

Growth Parameters
Intercept 26.61 Variance 45.57* Child Abuse
Slope -3.069 Variance 5.88* IPV Severity
Quadratic 0.121 Variance 0.50
CHANGES IN PTSD SYMPTOMS
Ford – Gilboe et al 2010

Growth Parameters
Intercept 50.26  Variance 317.6*  Child Abuse
Slope -6.78  Variance 21.66*  IPV Severity
Quadratic 0.65  Variance 1.545
Growth Parameters

- **Intercept**: 4.95
- **Slope**: 0.19
- **Quadratic**: 0.01

Variance

- **Intercept**: 3.20*
- **Slope**: 0.05
- **Quadratic**: 0.00

Direct Effects

- **Child Abuse**: From Wuest et al ‘09 – injury also
It all matters

- For appropriate diagnoses and complete treatment and prevention of further, longterm problems
- And to decrease health disparities
- To consider in our burgeoning study of epigenetics (Humphreys ‘09; Weiss ’11) and HPA stress responses
- And to increase effectiveness of other treatment/interventions – obesity, smoking cessation, hypertension, substance abuse, home visitation, workplace injuries, burnout, HIV prevention
- And to build resilience; repair damage
- Need to test evidence based interventions with physiological outcomes also
Interventions in Health Care

- We know routine assessment/inquiry (vs screening language) does no harm – MacMillan et al (JAMA ‘09)
  - Creating an opportunity
- We know women – abused & not – support routine inquiry – in many samples & contexts – ED’s, military, US national population based (Gielen et al ‘06)
- We know what to “assess” with – Abuse Assessment Screen (Helton & McFarlane – ’86; Rabin et al ‘09 AJPM, 36, 439–45)
- But women are afraid to disclose
  - _IF_ they think we automatically report to police (but offer!)
  - _IF_ they think we automatically report to CPS (Renker ‘06)
  - _IF_ they think someone will be deported (Rodriguez ‘09)
And if we do not **routinely assess & appropriately refer**

- Indicator based assessment – so many indicators – will we remember?
- We will often mis or incompletely Dx & inadequately treat if we fail to identify current or past IPV (e.g. CNS Sx w/o identifying TBI from IPV HI or choking)
- **RADAR (MASS Medical Assoc) - National Consensus Guidelines at [www.endabuse.org](http://www.endabuse.org)**
  - **R** = Routine Inquiry
  - **A** = Assessment – types of IPV, associated px, forced sex, HIV risk, mental health, lifetime trauma (if not ACE assessment)
  - **D** = Document – for now & for later – child custody, citizenship
  - **A** = Assess immediate safety – homicide & suicide risk
  - **R** = Review Options; appropriate referral
Single Question – Gender Neutral

- Are you safe at home? (JHH) – does NOT work well
- Are you afraid (or concerned) that someone at home or someone you love has (or may) hurt you or tried to hurt you?
- If yes, need to ask specifically about forced sex – or have a separate forced sex question
We know

- How to “assess” – computer based approaches well supported - 3 studies – women prefer computerized inquiry – build into HIT – computer tablets?
  - Trautman et al –’07 - ED – increased disclosure through computerized assessment
  - O’Connor et al – pediatric primary care setting – well child and acute illness – handheld
  - McMillan et al . – ED’s & primary care in Canada
  - Current study in Baltimore, MD – X3- X4 prevalence using ACASI system than question on history form or over phone assessment in same population
  - Takes away issues of asking badly!! – (Rhodes ’09)
What matters – how you ask—“You’re not a victim of Domestic Violence, Are You?”

- ED provider (46 attendings, 47 residents, 4 NP’s) communication behaviors associated with women disclosing IPV:
  - Included probing (asking 1 additional topically related question),
  - Providing open-ended opportunities to talk
  - Being generally responsive to patient clues (any mention of a psychosocial issue)

- Rhodes et al ‘09
What Matters – System Change – Campbell et al ‘02

- How you introduce the screen
  - Because domestic violence happens to so many women, we are asking ALL women
  - Because domestic violence results in so many health problems for women…..

- The environment – posters – signals we care

- How to signal under what conditions we will report

- Notices in rest rooms

- Forms changing

- Incentives for staff
We Know What Works

- G. Feder systematic review – ‘09 Tiwari (& Humphreys) adaptation of the 10 minute intervention (McFarlane & Parker) in Hong Kong – clinical trial supporting health care system intervention IPV
  - For pregnant women/prenatal care
  - Sharps, Bullock – DOVE adaptation

- RCT - significantly less repeat IPV & fewer very LBW babies & preterm deliveries w/brief computerized intervention- based on McFarlane & Parker’s (Kiely-OB/GYN ‘10)

- MacMillan Trial – asked but info not acted on by providers
NATIONAL DOMESTIC VIOLENCE HOTLINE: 1 800 799-SAFE (7233)

DATING VIOLENCE HOTLINE
1-866-SAFEYOUTH
1-866-723-3968