Welcome to the Learning Network Forum: *Violence Against Women and Traumatic Brain Injury*

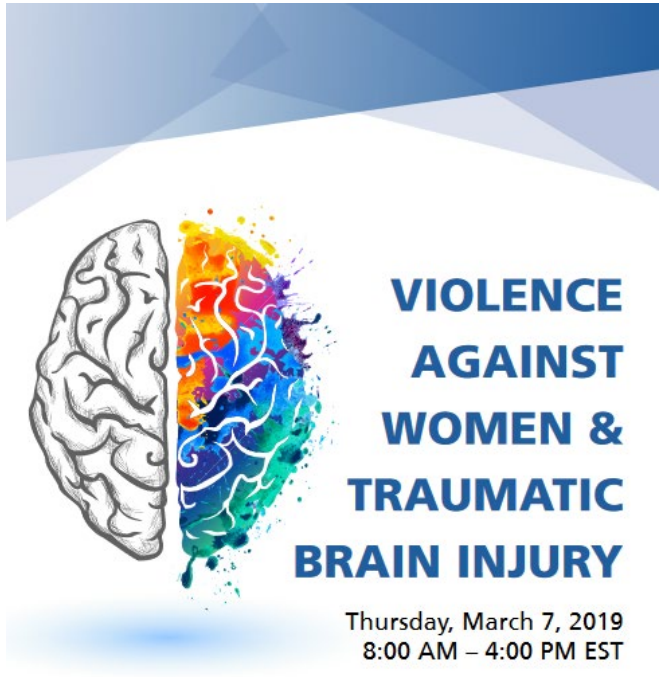
Western

Centre for Research & Education on Violence Against Women & Children

LEARNING NETWORK

#VAWTBI

Forum Program



Agenda

TIME	SPEAKER
8:00 – 8:30 AM	**BREAKFAST AND REGISTRATION**
8:30 – 8:45 AM	**WELCOME AND LAND ACKNOWLEDGEMENT** *Linda Baker* **TRADITIONAL OPENING CEREMONY**
8:45 – 9:25 AM	**TBIS AND STRANGULATION: UNDERSTANDING AND RECOGNIZING THE HIDDEN DANGERS OF INTIMATE PARTNER VIOLENCE** *Eve Valera*
9:25 – 9:55 AM	**BATTERED, BRAIN INJURED, BUT UNBROKEN** *Nneka MacGregor, Jeannie Quinn, Winnie Muchuba, and Deirdre Reddick*
9:55 – 10:15 AM	**DISCUSSION**
10:15 – 10:30 AM	**BREAK**
10:30 – 11:00 AM	**AN INDIGENOUS PERSPECTIVE ON TBI AND VAW** *JoLee Sasakamoose*
11:00 – 11:30 AM	**MANIFESTATIONS IN THE LIVES OF AFRICAN AMERICAN WOMEN: INTIMATE PARTNER VIOLENCE AND TRAUMATIC BRAIN INJURIES** *Akosoa McFadgion*
11:30 – 12:00 PM	**HEAD INJURY AMONG WOMEN AND TRANSGENDER WOMEN DOING SEX WORK: WHAT WE KNOW** *Flora Matheson*
12:00 – 12:15 PM	**DISCUSSION**
12:15 – 1:00 PM	**LUNCH**

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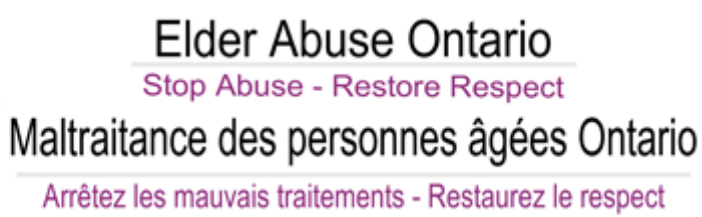
Provincial Resource Group



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Traditional Opening Ceremony

Gloria Alvernaz-Mulcahy

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Invisible but Dangerous: Understanding Concussions and Strangulation in Women Victims of Partner Violence

Eve Valera

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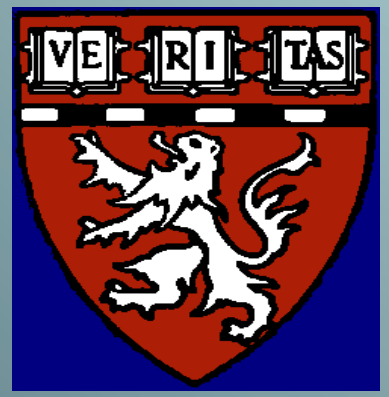
Invisible but Dangerous: Understanding Concussions and Strangulation in Women Victims of Partner Violence

Eve M. Valera, Ph.D.
Assistant Professor, Harvard Medical School
Research Scientist, Massachusetts General Hospital

Psychiatric Neuroscience Program



Intimate Partner Violence (IPV) is a public health epidemic

- Intimate partner violence is violence perpetuated by a current or former spouse, partner, significant other, boyfriend or girlfriend.
- IPV is the **leading cause of homicide** for women globally.
- It is the **most common form** of violence against women.
- Traverses **all socioeconomic** boundaries.
- But is it really that common??

1 in 3 women experience physical or sexual IPV

Daughters

Sisters

Mothers

Friends

Colleagues

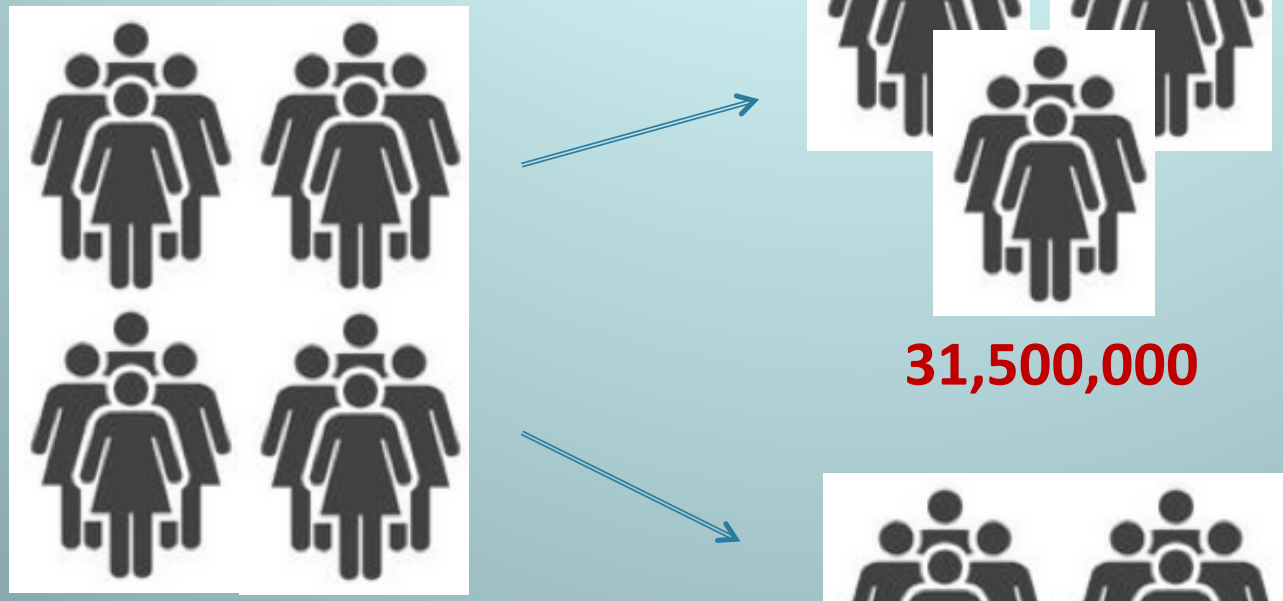
Partners

Women endure violent abuse to the head with an estimated 80-90% of injuries to the neck and higher

Women who experience IPV report high rates of cognitive, physical and emotional problems

Cognitive	Physical	Emotional
Memory problems	Headaches/migraines	Anxiety/irritability
Taking longer to think	Fatigue and sleep problems	Depression/mood swings
Decreased concentration	Balance problems	Impulsive behavior
Impaired word finding	Dizziness	Restlessness
Impaired judgment	Nausea	Inappropriate behavior
Difficulty with initiation and follow through	Visual disturbances	Aggressive behavior

The majority of women experiencing IPV sustain IPV-related TBI



42,000,000

31,500,000

21,000,000

75% ≥ 1 IPV-TBI

50% repetitive IPV-TBI

(Valera and Berenbaum *JCCP* 2003; Valera et al *J Neurotrauma* In press)

IPV-related TBIs are associated with poor cognitive and psychological outcomes

- Having more TBIs was associated with:
  - Poorer performance on tests of memory, learning and mental switching abilities
  - Higher ratings of general distress, depression, worry, anxiety, and traumatic stress

- Was NOT accounted for by:
  - abuse severity
  - psychopathology
  - substance abuse

(Valera and Berenbaum, 2003)

A TBI or concussion involves an external force to the brain and an alteration in brain function

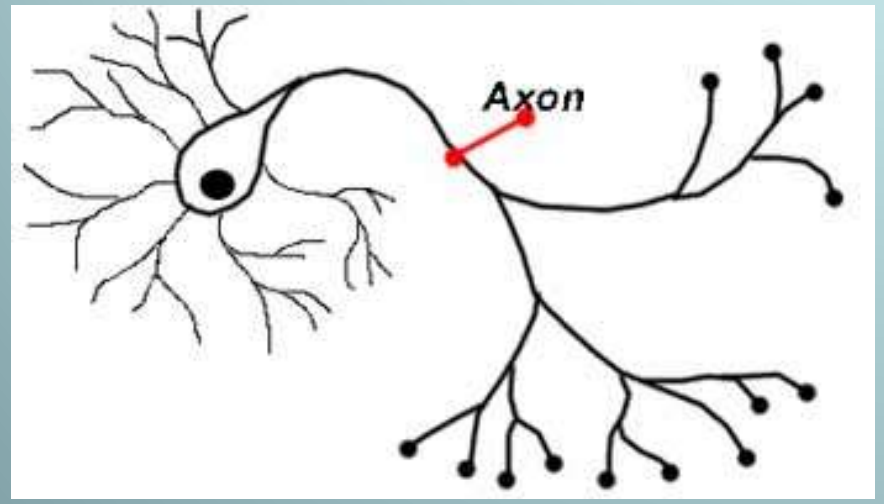
- https://youtu.be/Sno_0Jd8GuA
- https://www.cdc.gov/headsup/basics/concussion_whatis.html)

Healthy functional and structural connectivity are critical for optimal thinking and behavior

- Functional connectivity provides information on inter-regional correlations of brain activity.
  - Is this brain region communicating with other brain regions?
  - To what degree are these brain regions communicating?

- Structural connectivity - axons connecting different brain regions

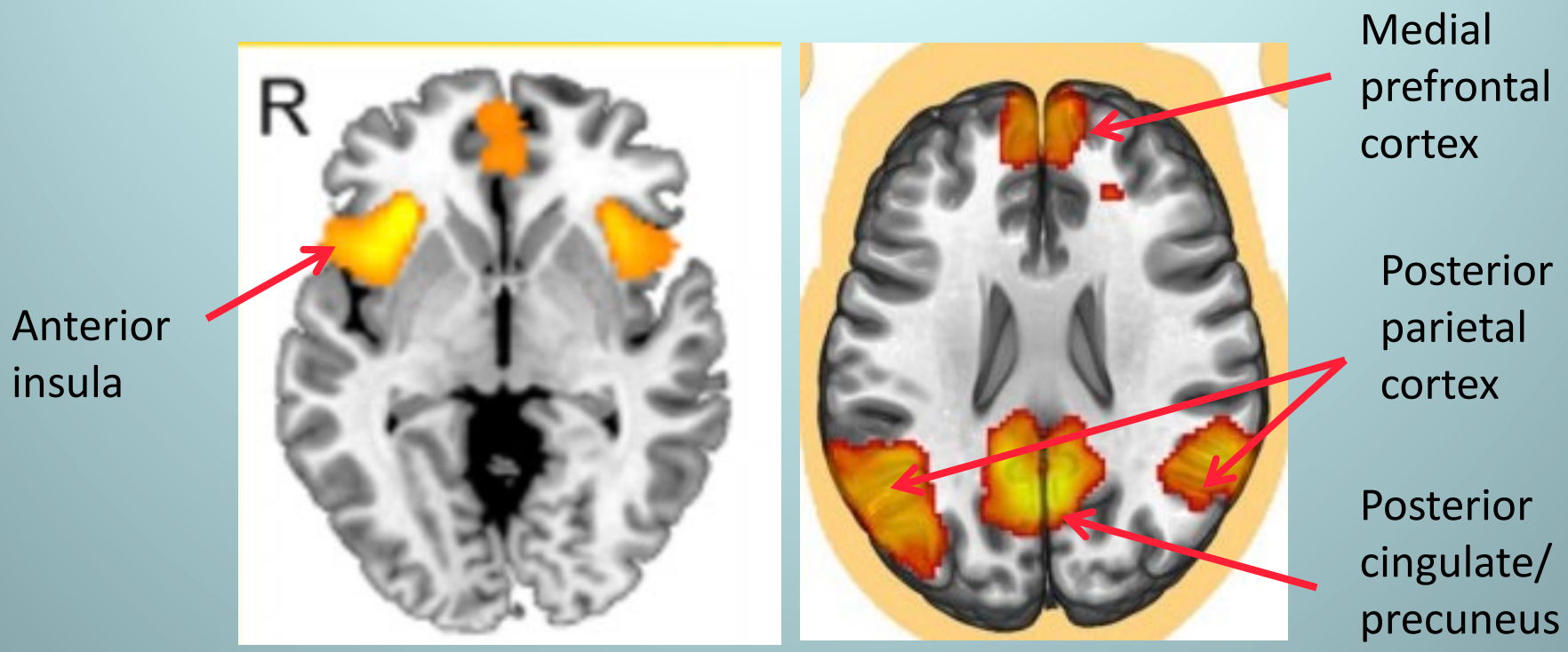
Diffuse axonal injury from TBI may affect functional and structural connectivity



Traumatic shearing - occurs when head rapidly undergoes acceleration, deceleration, or rotational forces

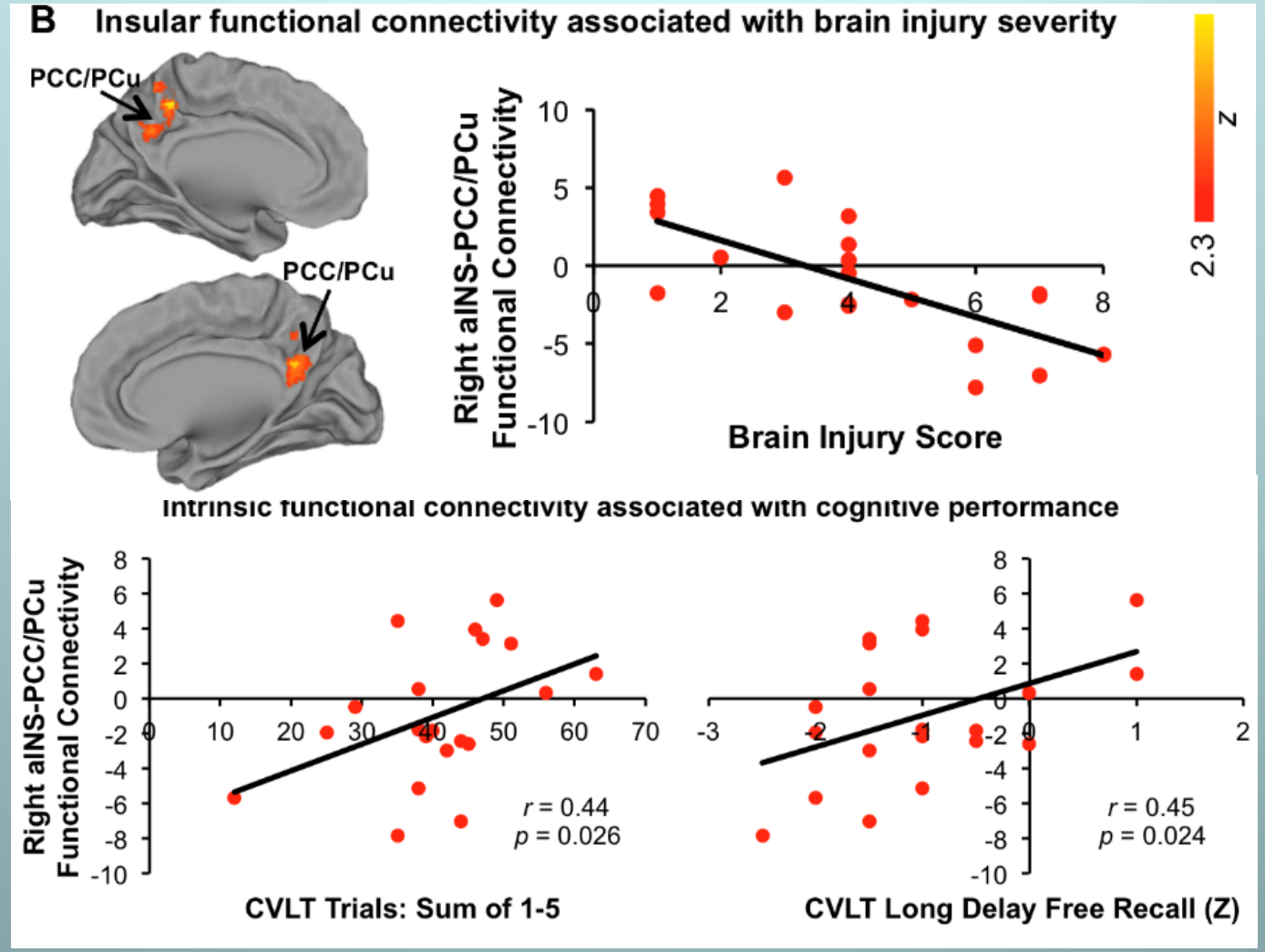
Neuron can be injured - so neurons can not communicate with one another efficiently or at all.

Neural networks need to work together for efficient cognition



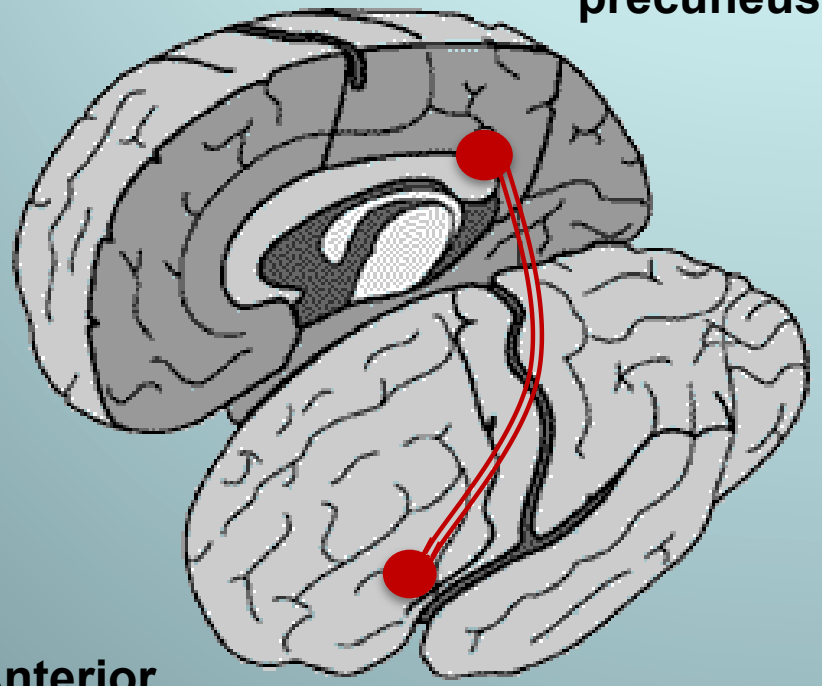
Anterior insula coordinates inter-network interactions

TBIs are associated with network connectivity which is associated with memory and learning



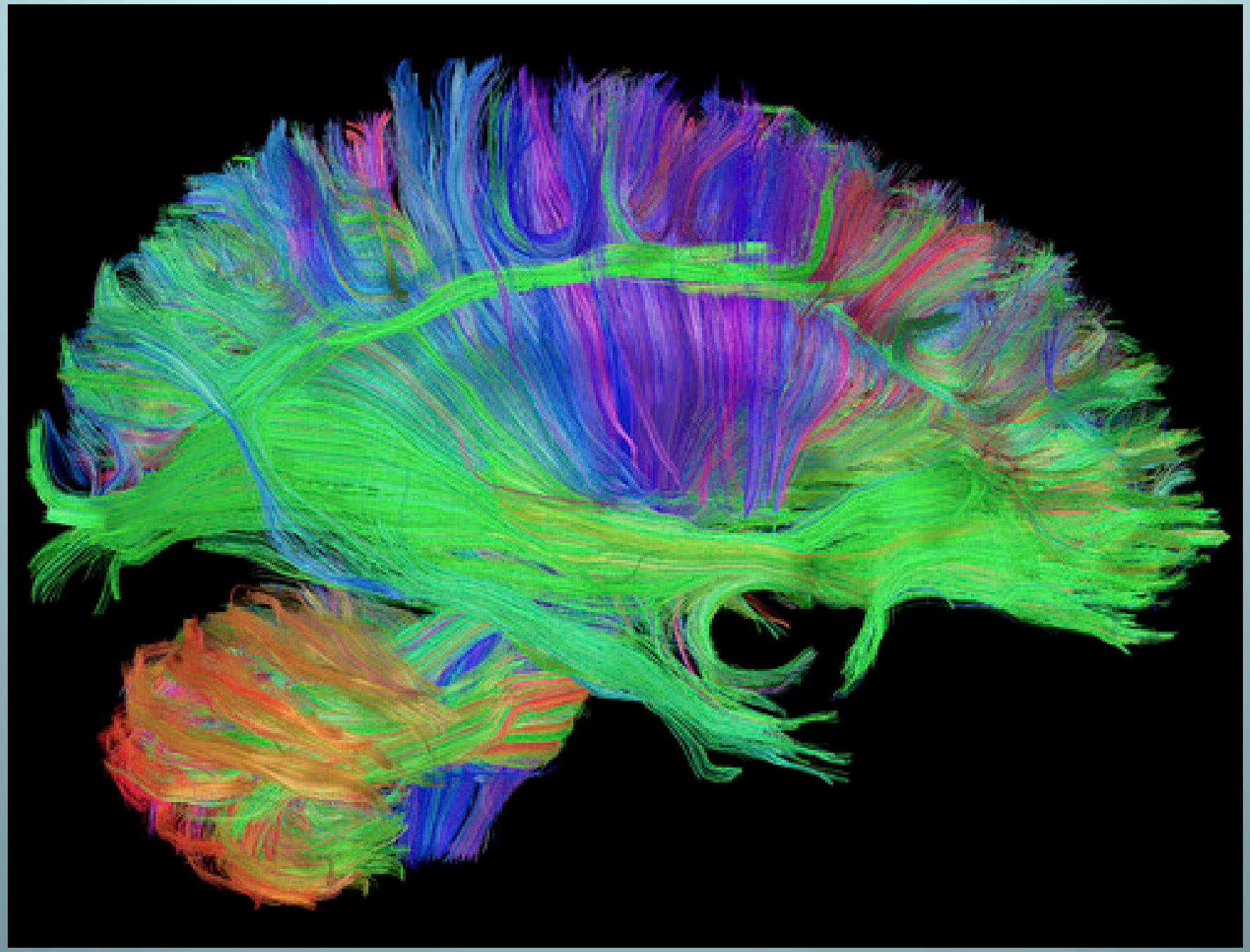
Valera & Kucyi *Brain Imag Behav* 2016

Network communication is associated with number of IPV-related TBIs and cognition

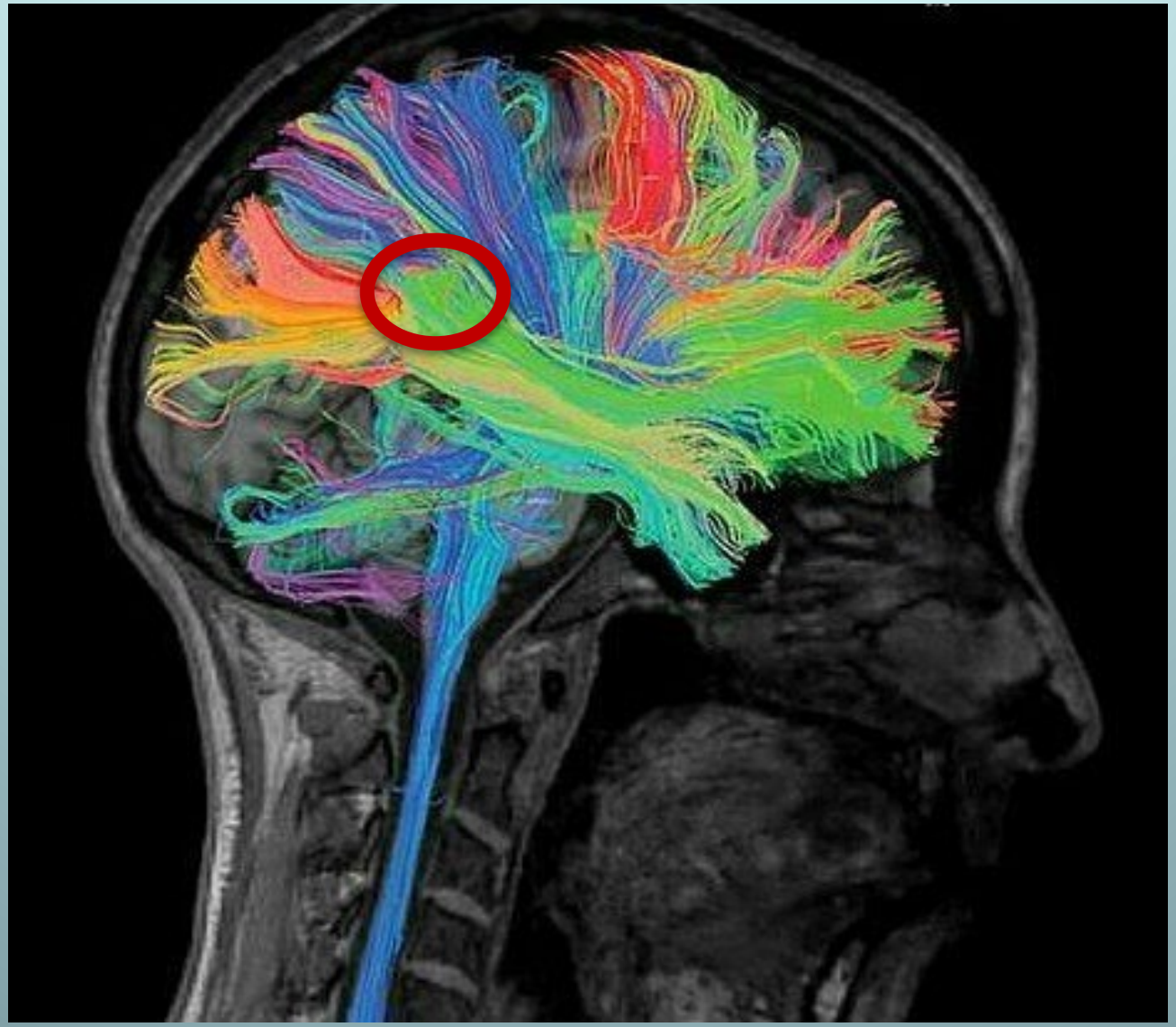


(Brain illustration by Eric Chudler)

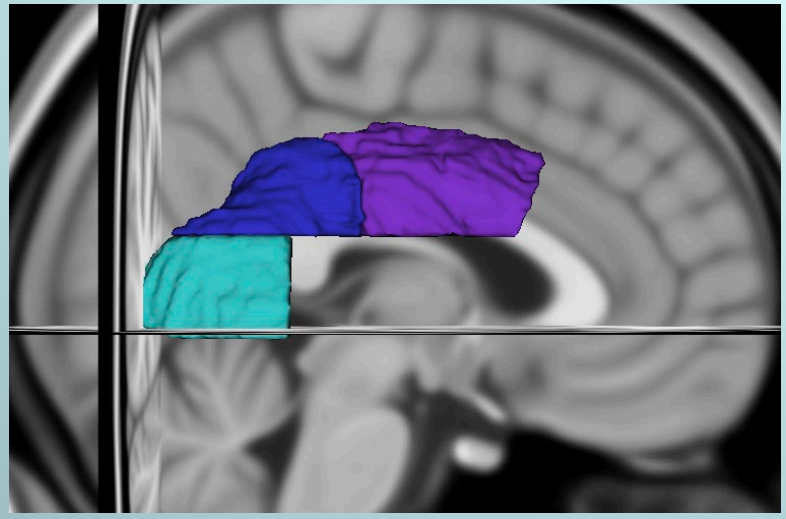
- The more recent and greater number of TBIs a woman had, the less positively these two brain regions communicated with one another.
- The less these two brain regions communicated with one another, the worse a women tended to be able to learn a list of words and remember them 20 minutes later.



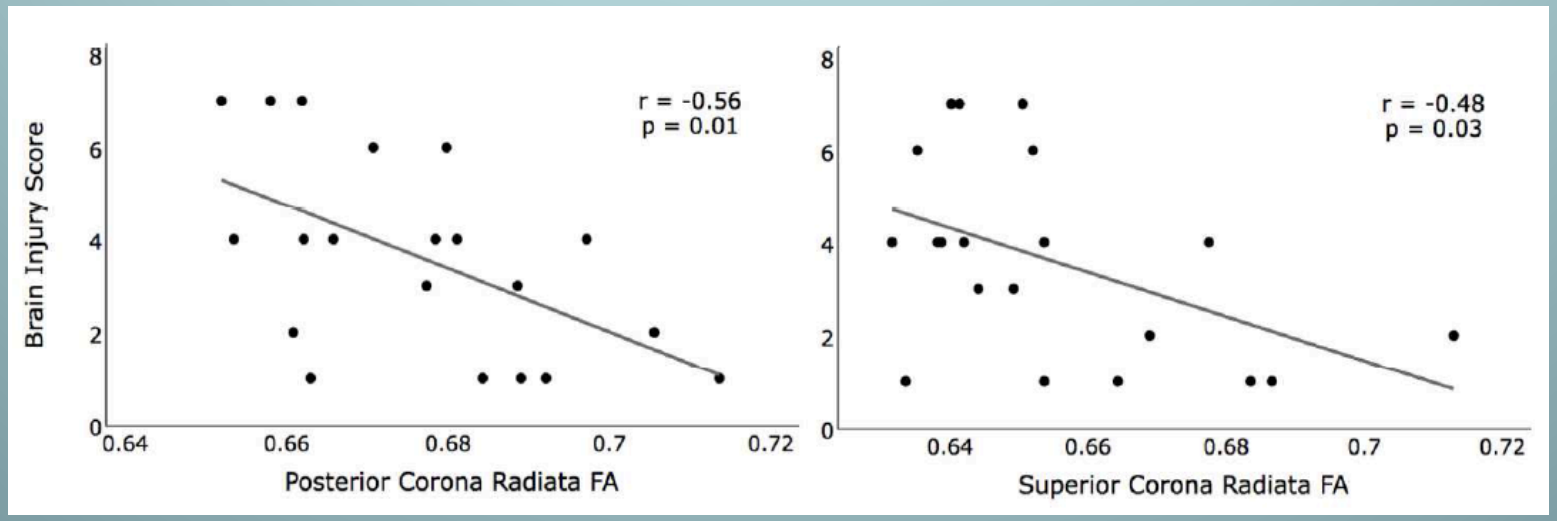
Long axonal fibers are susceptible to injury



IPV-TBIs are associated with structural connectivity in the posterior and superior corona radiata



Superior corona radiata: Purple
Posterior corona radiata: Blue
Posterior thalamic radiation: Cyan



Valera et al *J Neurotrauma* In press

Women subjected to IPV report a range of post-concussive symptoms

- Post-concussion syndrome is a complex disorder in which various symptoms (headaches, dizziness) last for weeks and sometimes months after the TBI
- Occurs within days
- Typically resolves within 3-6 months but may persist for a year or longer

Post-Concussive Syndrome is common in women subjected to IPV (of 99 women)

- 71% met criteria for at least mild PCS
- 43% met criteria for moderate-severe PCS
- Excluding women with MTBIs occurring within 4 weeks of assessment
  - 70% mild
  - 31% moderate-severe

Post-Concussive Syndrome is common in women subjected to IPV (of 20 women)

- 63% met criteria for at least mild PCS
- Most common symptoms
  - Feeling depressed or tearful (58%)
  - Headaches (53%)
  - Being “irritable or easily angered”, “frustrated or impatient”, restlessness (47%)
  - Poor concentration (42%)
  - “Sleep disturbances”, “forgetfulness, poor memory”, “taking longer to think” (37%)

Women experiencing IPV have poor TBI recovery factors

- Acute management of TBI
- Previous concussion
- Biological – other bodily injury, general health
- Psychological distress
- Acute intense stress
- General life stress
- Sex

Women sustaining concussive blows to the head tend to fare worse than men

- Still very little evidence BUT most tends to suggest that TBI for women:
  - Occurs more easily
  - Takes longer to resolve
  - Results in slightly different symptom presentation

  - Female axons were found to be consistently smaller and at greater risk for failure during trauma compared to male axons

TBIs can make it harder for a woman to survive, escape, or keep children

- Having a TBI might make it harder to:
  - Assess danger and defend herself against further abuse
  - Make and remember safety plans
  - Go to school or hold a job (financial dependence)
  - Leave abusive partner and live on her own
  - Access necessary services
  - Adapt to living in a shelter
  - Retain custody of her children
- Having a TBI does **NOT** = “unfit”!

Custody Dilemma? In an IPV situation, the children are likey safer with the non-abusing parent

two out of three of those reports result in an investigation. In 2004 alone, an estimated 872,000 children were victims of abuse or neglect as substantiated by CPS (U.S. Department of Health and Human Services, 2006). However, given that child abuse is underreported to authorities, actual rates of child abuse are likely higher.

Child abuse and IPV are quite likely to happen in the same families; the rate of overlap is estimated to be between one third and two thirds. In the majority of overlapping cases, it is a father or father figure abusing both the mother and child(ren) (Salcido Carter, Weitherorn, & Behrman, 1999; Stark & Flitcraft, 1998).

Although estimates do vary, between three and 10 million children witness IPV each year (Edleson, 1999). Many, but not all, of these children are also subjected to physical abuse or neglect. Currently, states, and even counties within states, differ in the policies that address the overlap between child maltreatment and IPV. For instance,

Take Home Points for IPV-Related TBI

IPV-related TBIs, especially repetitive mild TBIs occur at a high rate.

Recognize the strong potential for a TBI in every IPV case.

IPV-related TBIs have a negative effect on:

- **-cognitive functioning**
- **-psychological health**
- **-functional connectivity**
- **-structural connectivity**

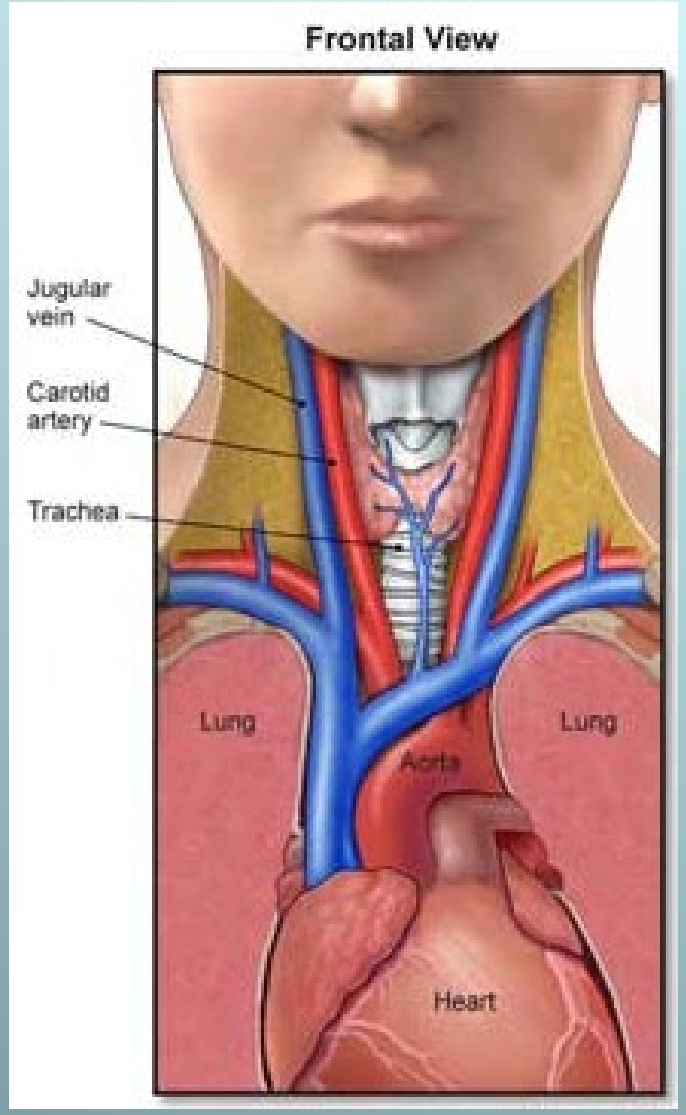
IPV-related TBIs can interfere with a woman's ability to escape a dangerous or lethal situation.

IPV-related TBI should be considered great bodily injury!

Strangulation is a serious form or abuse that can cause acquired TBIs

- NOT “choking”
- External attack on neck
- Asphyxia – depriving the body of oxygen leading the body to unconsciousness or death
  - Hypoxia: partial loss of oxygen to tissue
  - Anoxia: complete absence of oxygen to tissue
- Ligature or manual

Strangulation is a form of asphyxia from external pressure placed upon the neck



Such that there is an obstruction of:

1) Blood flow either from or to the brain (via the jugular vein/or carotid artery)

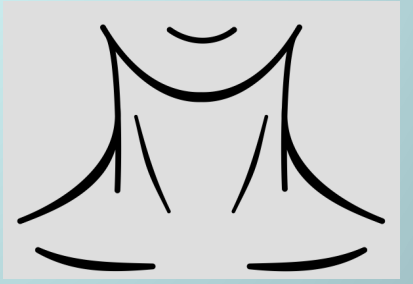
2) Airway

Blood buildup or lack of enough oxygen from strangulation can cause damage quickly

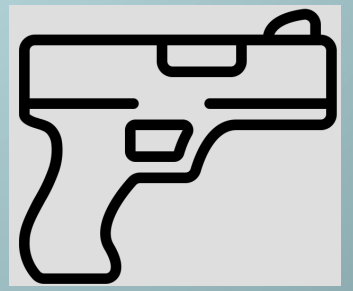
- Unconsciousness can result within 2 minutes from blood build-up
- Unconsciousness can result within 10 seconds from anoxia
- Strangulation can cause brain death in less than 4 minutes while leaving no external mark
- Damage may result in death weeks later (swelling, carotid dissection resulting in stroke, internal bleeding, respiratory problems and pneumonia)

Remarkably little force is required to render someone unconscious from strangulation

- **4.4** pounds of pressure (psi) to block the jugular
- **11** psi to block the carotid



- Compare to:
- **6** psi to fire a handgun



- **80-100** psi for average male handshake

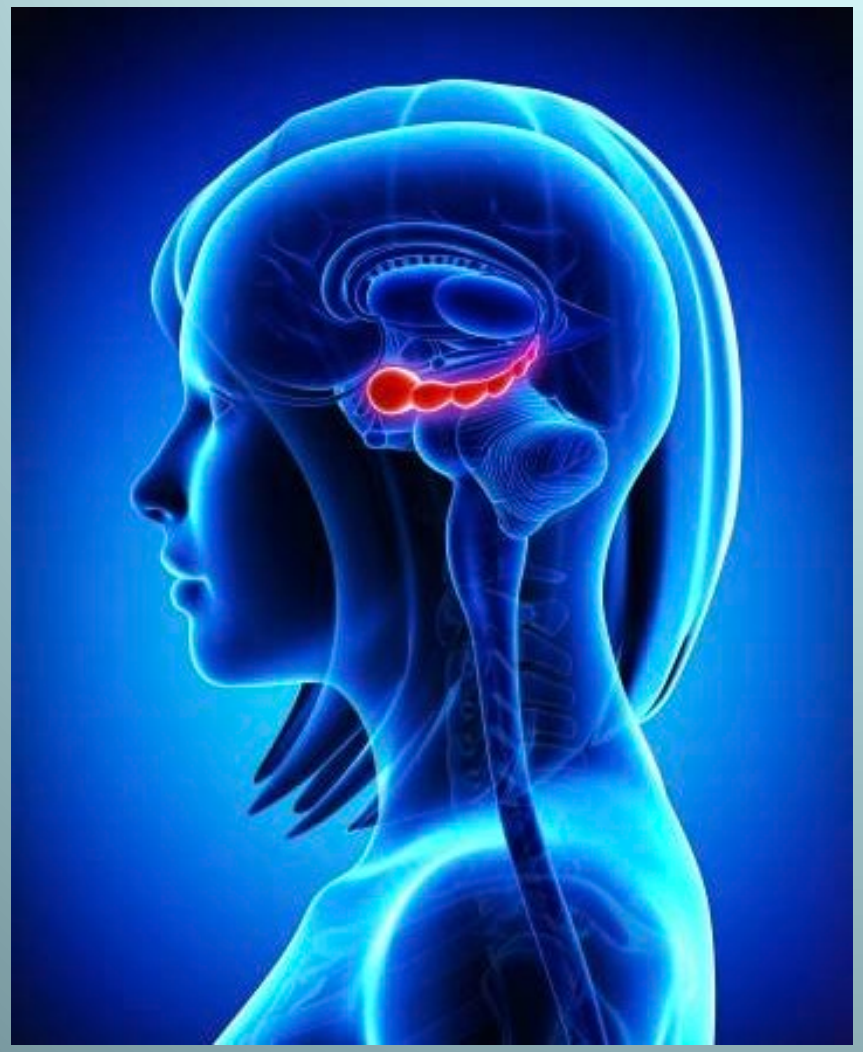
Strangulation is one of the best predictors of later homicide

7X

- The odds of becoming a homicide victim increased by about seven-fold for women who had been previously strangled by their partner

- Study of 57 murdered Chicago women: 53% were strangled in the year prior to being murdered

Strangulation with an alteration in consciousness is an acquired brain injury



- Hypoxia and anoxia kill brain cells
  - Hippocampus is particularly vulnerable and may result in memory loss for the incident
  - Other brain regions may also be affected depending on force, location, duration and previous history
- Exacerbates/interacts with other TBIs???

Strangulation with an alteration in consciousness occurs frequently

- 27% (27 out of 99; ½ from shelter, ½ non-shelter)
- 30% (6 out of 20; mostly shelter)
- 23% in another sample

Women do not leave because they can't!

Raising awareness everywhere is critical!

- First responders including police and paramedics
- Judges – custody, criminal, restitution
- IPV support staff
- Women themselves – understanding the potential impact of TBI and its sequelae on their lives
  - May be interfering with their ability to function
  - Hindering their ability to escape the abusive situation
  - Unaware of the possible long term effects and that they may be related to TBI; Chronic Traumatic Encephalopathy (CTE)

Acknowledgments

- All the women who entrusted me with their information and gave of their time to participate in this important research.
- Domestic violence shelter staff in the Boston and Champaign-IL areas
- University of IL, NIH and Harvard Center of Excellence for grant funding.
- Athinoula A. Martinos Center for Biomedical Imaging at MGH for scanning-related resources and additional scan time.

Collaborators

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PhamDuy Phuong Hung, DTDesign, Made, Jeff Portaro, Creaticca Creative Agency, Olena Panasovska

IPV-related TBIs are a public health epidemic in desperate need of being understood

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Battered, Brain Injured, But Unbroken

Nneka MacGregor, Jeannie Quinn, Winnie Muchuba, and Deirdre Reddick

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Discussion Period

Eve Valera, Nneka MacGregor, Jeannie Quinn, Winnie Muchuba, and Deirdre Reddick

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We will now be taking a 15 minute break.

After the break:

JoLee Sasakamoose

An Indigenous Perspective on TBI and VAW

Please refer to the program for the agenda.

An Indigenous Perspective on TBI and VAW

JoLee Sasakamoose

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Manifestations in the Lives of African American Women: Interpersonal Violence & Traumatic Brain Injuries

Akosoa McFadgion

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Manifestations in the Lives of African American Women:

Interpersonal Violence & Traumatic Brain Injuries

Presented by

Dr. Akosoa McFadgion, MSW

Presented to Western University

Centre for Research & Education on Violence Against Women & Children

March 7, 2019

Purpose

Provide attendees with information on traumatic brain injuries (TBI) and the associated symptoms that manifest among African American women who experience intimate partner violence

IPV & TBI

Intimate Partner Violence Statistics

- More than 1 in 3 women (35%) in the United States have experienced, rape, physical violence, and/or stalking by an intimate partner in their lifetime. Approximately 39 million women (33%) experienced physical abuse by an intimate partner (Black, et al., 2011).

Traumatic Brain Injury Statistics

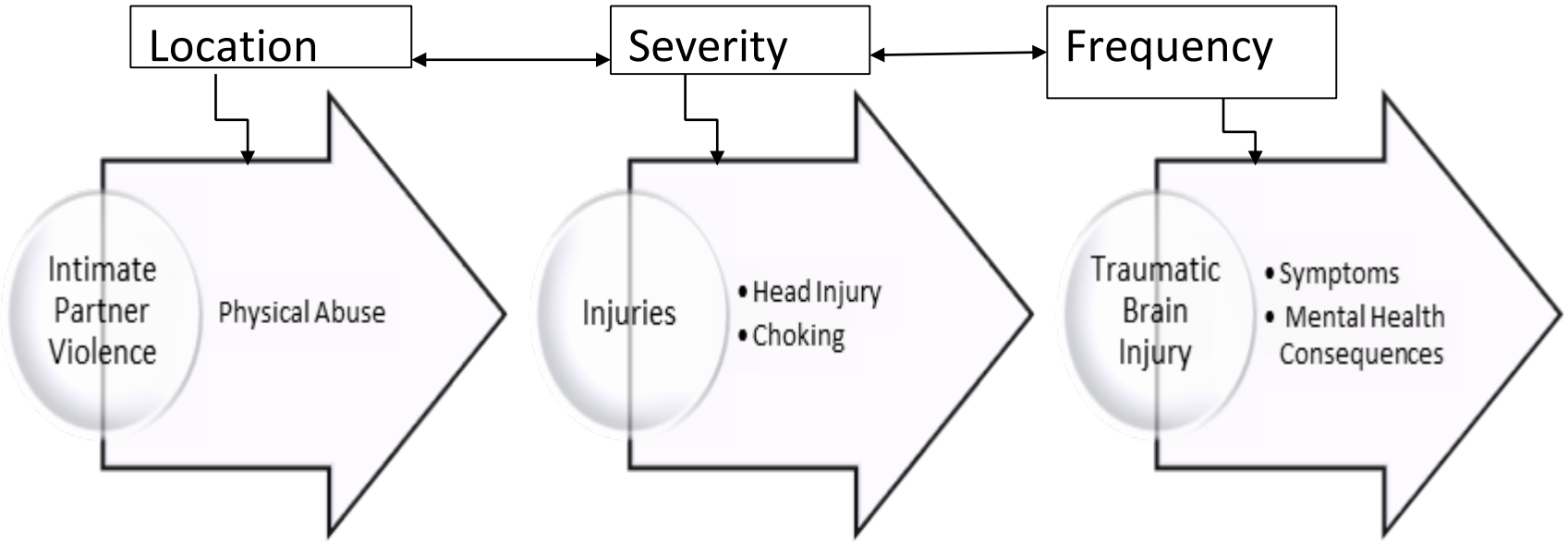
- Traumatic brain injuries affect approximately 1 to 1.8 million Americans annually and leave these individuals with “life-altering physical, cognitive, or behavioral disabilities” (Faul, Xu, Wald, Coronado, 2010; Webb, Wrigley, Yoels, & Fine, 1995, p. 1113).

Previous Studies of Intimate Partner Violence & Traumatic Brain Injury

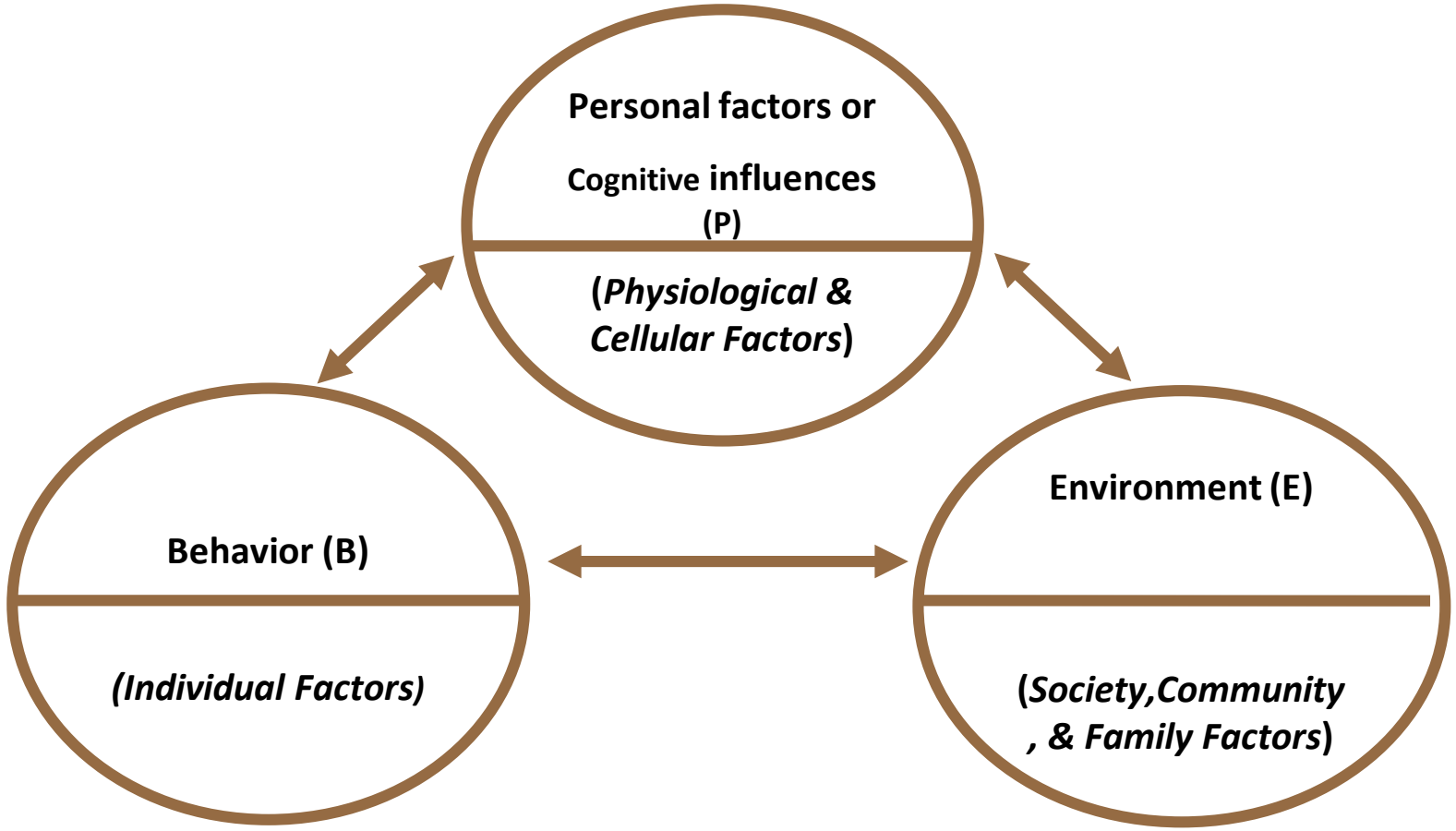
- Among women who are raped and/or physically assaulted, their perpetrators "will often target the woman's head, face or neck" in the violent attack (Banks & Ackerman, 2002, p.134; Wu, Huff, & Bhandari, 2010).

- Women who report head, neck, or facial injuries also report feeling more anxious, depressed, and more likely to experience PTSD (Banks & Ackerman, 2002).

Mechanisms of Traumatic Brain Injury in Violent Relationships



Conceptual Framework: Social Cognitive Theory & Society to Cells Framework



(Bandura, 1989; Szanton and Gill, 2010)

Mixed Method Research Design

- Gathered both quantitative and qualitative data
- Qualitative strand the dominant method
- Sequential framework
  - Quantitatively identified women who experience a probable TBI and/or post concussive symptoms
  - Qualitative data gained a deeper understanding of how these injuries and/or symptoms impact daily functioning.
  - Explored the underlying mechanisms of probable traumatic brain injury; an aspect of research that is noticeably missing in the literature.

Quantitative Research Questions

- Is there a significant relationship between experiences of trauma and probable traumatic brain injury among abused women?
- Is there a significant relationship between experiences of trauma and post concussive symptoms?
- Is there a significant relationship between probable traumatic brain injury and post concussive symptoms?
- Which set of the following factors best describes the impact of post concussive symptoms among women with a probable traumatic brain injury: coping, social support, resiliency or self-efficacy?

Qualitative Research Questions

- How do injuries, that are representative of a traumatic brain injury, impact the cognitive functioning of abused women?
- How do post concussive symptoms influence a woman's ability to successfully execute behaviors required to take care of her and her family?
- How do coping mechanisms and perceptions of social support help women living with probable traumatic brain injuries and experience post concussive symptoms?

Quantitative Phase

Measurement Instruments Used

Post-Traumatic Stress Disorder Symptom Scale- Interview -Assess the presence and severity of PTSD symptoms in individuals with a known trauma history

Brain Injury Screening Questionnaire- Records frequency of injuries and assess post concussive symptoms (including psychological distress) and impact on daily living. Scale includes 100 symptoms of traumatic brain injury.

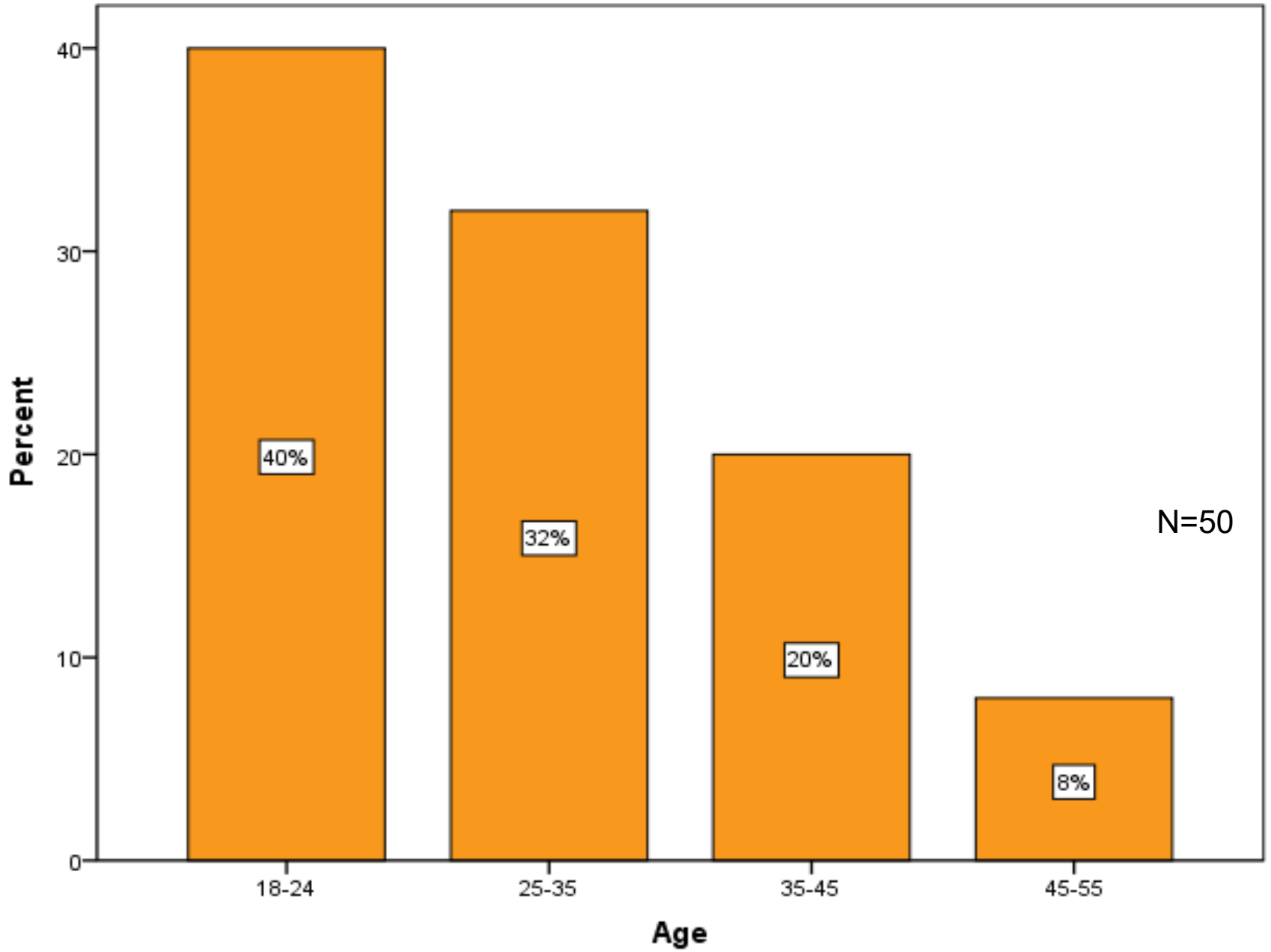
Ways Of Coping Scale- Measure coping efforts amidst stressful events

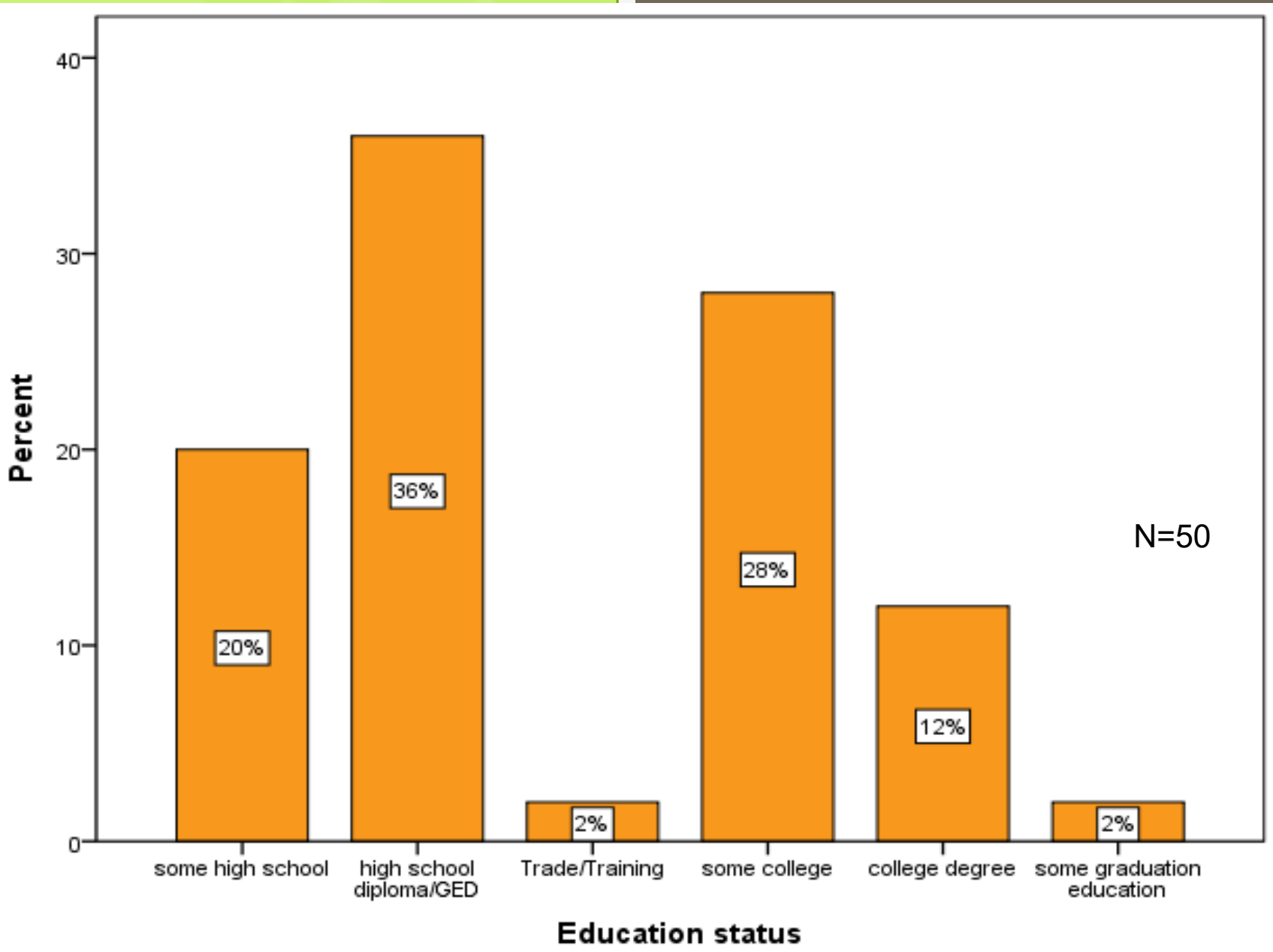
Multi-Dimensional Social Support Scale- Measure how satisfied an individual is with the social support available to them

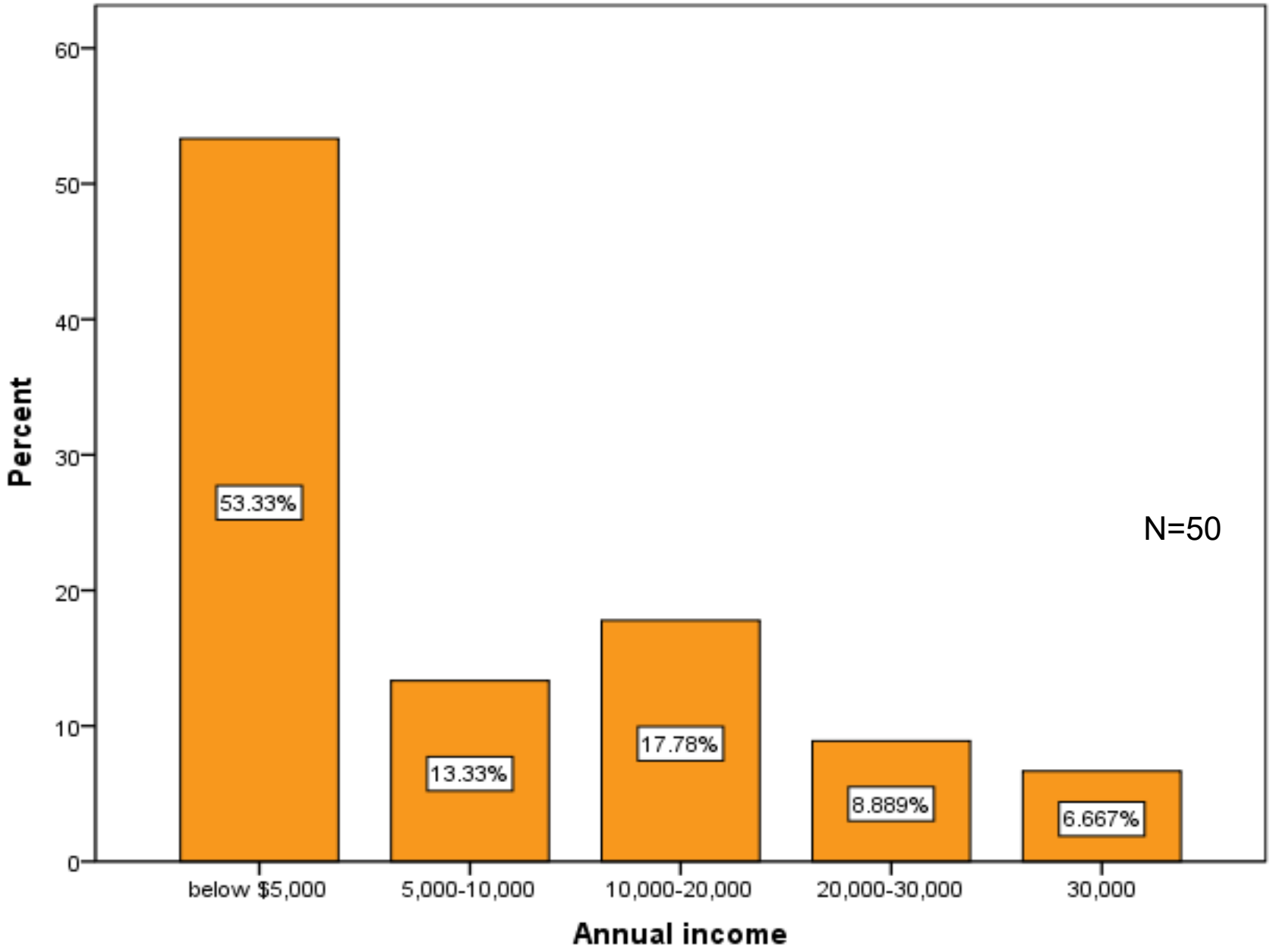
Self Efficacy Scale for Abused Women- Assess belief in one's ability to make decisions and take action

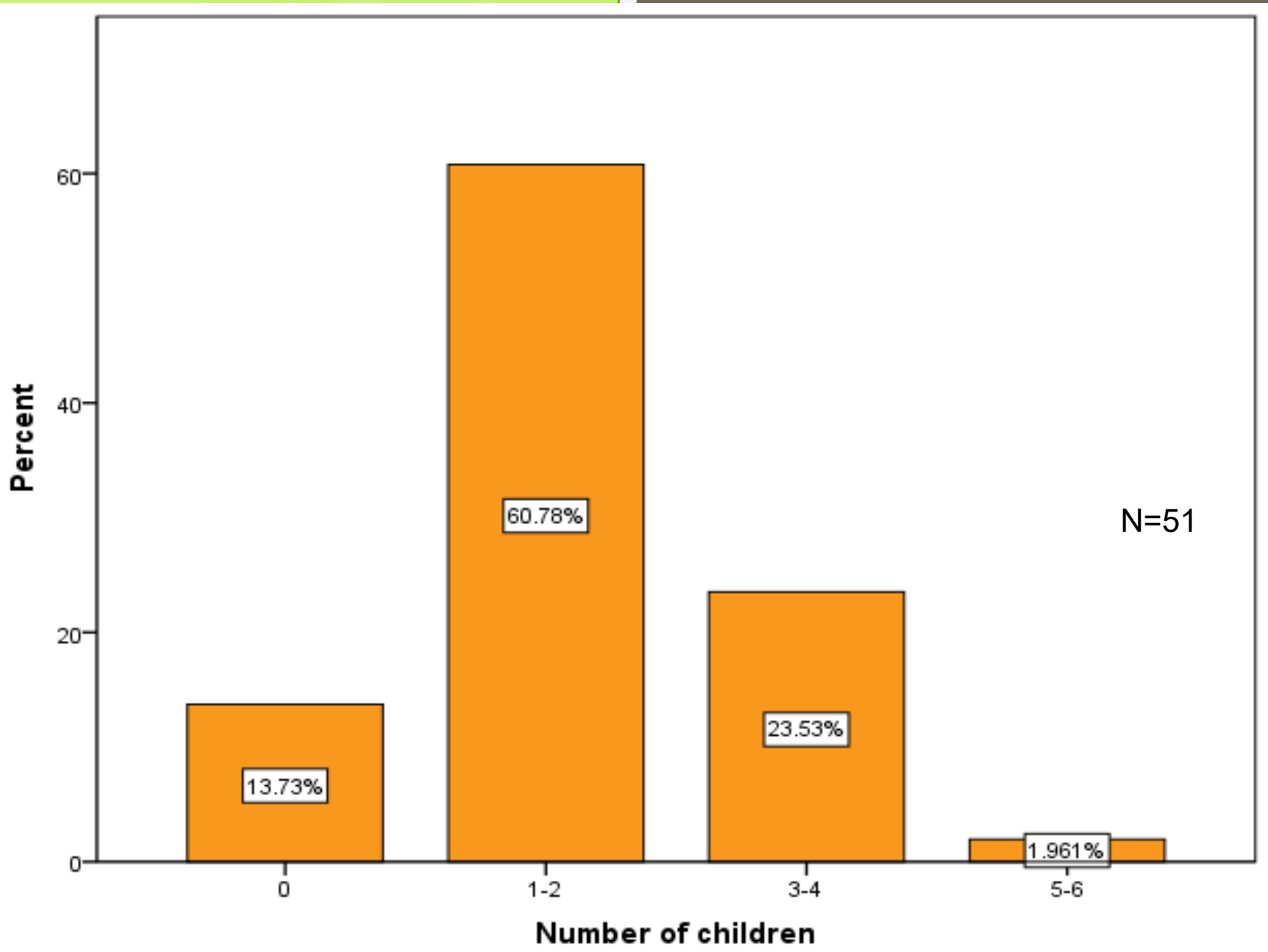
Connor Davidson-Resiliency Scale- Assess personal qualities that enable one to thrive in the face of adversity

Quantitative Results


40
30
20
10
0
Percent
40%
32%
20%
8%
18-24
25-35
35-45
45-55
Age
N=50


Percent
40
30
20
10
0
20%
36%
2%
28%
12%
2%
some high school
high school diploma/GED
Trade/Training
some college
college degree
some graduation education
Education status
N=50


60
50
40
30
20
10
0
Percent
53.33%
13.33%
17.78%
8.889%
6.667%
below $5,000
5,000-10,000
10,000-20,000
20,000-30,000
30,000
Annual income
N=50


Percent
60
40
20
0
60.78%
13.73%
23.53%
1.961%
0
1-2
3-4
5-6
Number of children
N=51

Quantitative Phase

Question 1

Is there a significant relationship between experiences of trauma and probable traumatic brain injury among abused women?

Variable	**r**	**r^2**	**p**
Blow to the Head	.46	.21	<.05
Other Physically Abusive Events	.27	.07	>.05

Quantitative Phase

Question 2

Is there a significant relationship between experiences of trauma and post concussive symptoms?

Variable	r	r^2	p
Post Concussive Symptoms	.65	.42	<.05

Quantitative Phase

Question 3

Is there a significant relationship between probable traumatic brain injury and post concussive symptoms?

Variable	r	r^2	p
Blow to the Head	.39	.01	<.05
Other Physically Abusive Events	.28	.8	>.05

Quantitative Phase

Question 4:

Which set of the following factors best describes the impact of post concussive symptoms among women with a probable traumatic brain injury: coping, social support, psychological distress, resiliency or self-efficacy?

Factor	R	R^2	β	t	p	F	df	p
Risky Coping	.54	.29	.41	2.81	.008	13.74	1	.001
Family Support	.63	.39	-.35	-2.41	.022	10.74	1	.000

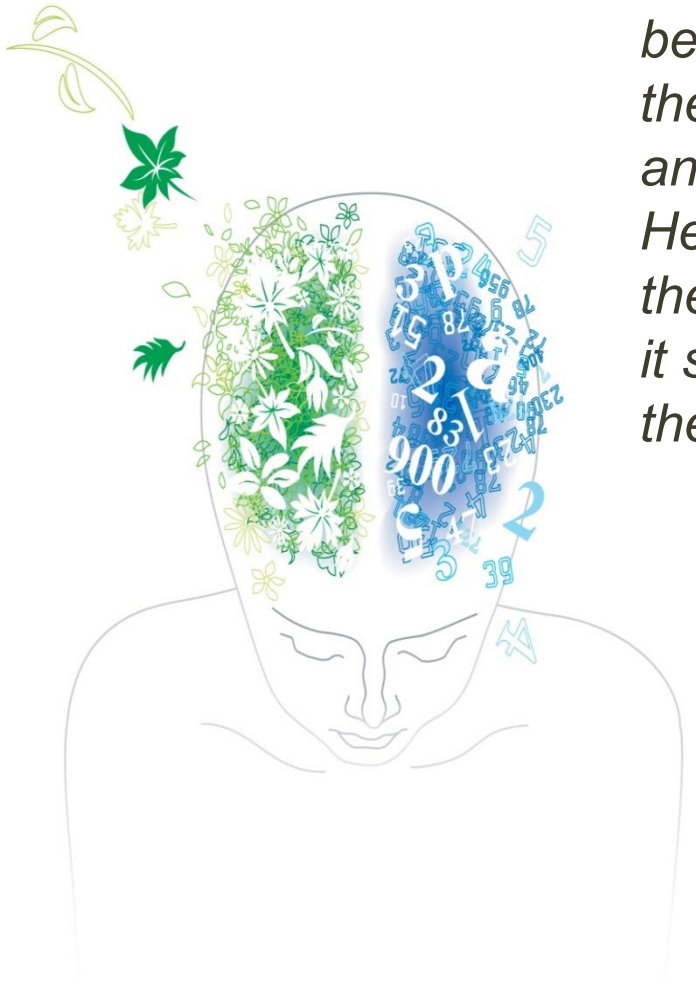
Qualitative Method

Grounded Theory

- **Phase1:**
  - Codes were created based on the meanings, feelings, and actions, that the women assign to their experiences of
    - Trauma
    - Injuries
    - Coping strategies
    - Support
    - Resiliency
    - Self efficacy
  - In-Vivo codes assigned to the “interactive process” the women described with their social environment
  - Interpretive Codes assigned to the interaction of trauma, TBI, self efficacy, support, and resiliency
  - Short memos regarding codes created
- **Phase 2:**
  - The emerging categories were reviewed repeatedly to “differentiate and account for variation” among the data (i.e. meanings, feelings, and actions provided by the women).
  - Clusters based on the literature were created from the research questions and conceptual framework and compared to the In-vivo categories during analysis.
  - After the codes start to gel and no new codes emerged, data was selected for insertion in manuscript to summarize experiences.
  - Quotes that captured similar events or thoughts were moved under core categories or that represent key elements of the emerging model that explains TBI among abused women

Qualitative Results

TBI in Abusive Events



He beat me with the belt, he was like I'm not gon' put my hands on you I'ma beat you so he beat me with the belt then so once I got a hold of the belt and that one popped he choked me. He got a blow up bed and I just fell on the blow up bed, blacked out, my head it started getting light headed first and then my eyes just closed.

TBI in Abusive Events

"my eyes were, I guess he was choking me so tight that I had like red lines in my eyes. I had lines in my eyes and I had the marks, fingerprints around my neck.

"I got slapped so hard one time he broke a vessel…in the eye you can see that red string across…that was a ringing of the ear kind of day."

Post Concussive Symptom Cluster: ‘Stuck in my tracks’

- *I’m almost stuck in my tracks, [*when outdoors for fear of seeing him*].*

- *I would have to sit and um and be patient and wait for a thought to occur or happen. And then I would have to remember what am I sitting here waiting on? I thought I was probably losing my mind or about to have a nervous breakdown or something.*

Traumatic Stress, Post Concussive Symptoms Not Related to TBI

Cause like I said he never left any bruises and like I said with the stars thing it was less than a minute and the doctors are gonna be like why you here you should've called the police.

He choked me…I just blacked out and once I realized it is when I woke up I was like did I just black out? So once I did that I was trying to get out the door but he was chasing me out the door and so he just dragged me out the door..

Traumatic Stress, Post Concussive Symptoms Related to TBI

I kinda slipped and he took and banged my head into the and I can't really say if it was the sink or the bathtub but it was one or the other… I passed out…

How long you think you were out or unconscious?

I really don't know but it was long though …

So after that happen how were you feeling?

I was really light headed and I had a really, really bad headache…I was also vomiting. Like a migraine headache and I had a knot at the back of my head.

Let me ask about the red lines again. How long did they stay?

A couple days. Headaches lasted a couple days.

Traumatic Stress, Post Concussive Symptoms Related to TBI

- Impacted employment
  - Abuser punched her in the eye and driving was **"*a way that I made money and that's at zero right now.*"**
- Impacted health
  - ***I have um almost like a migraine, like if I get too frustrated I'll black out and my head will start hurting on the left side and he gave me medication for that***.
- Impact ability to cope with stressful situations
  - ***It is because I seem to cry a lot…I'm so frustrated***.

Post Concussive Symptoms Impact

- Feeling stuck impacts goals
  - ***Um it keeps me stuck some days I don't wanna move. Like I said some days I have to push myself to even get up out the bed because of the depression.***

- *Depression impact caring for children*
  - ***I did a lot of hiding. Staying in the house. A lot of crying. Sunk into depression. Really couldn't take care of the kids, you know what I'm saying, cause I didn't want them to see it***

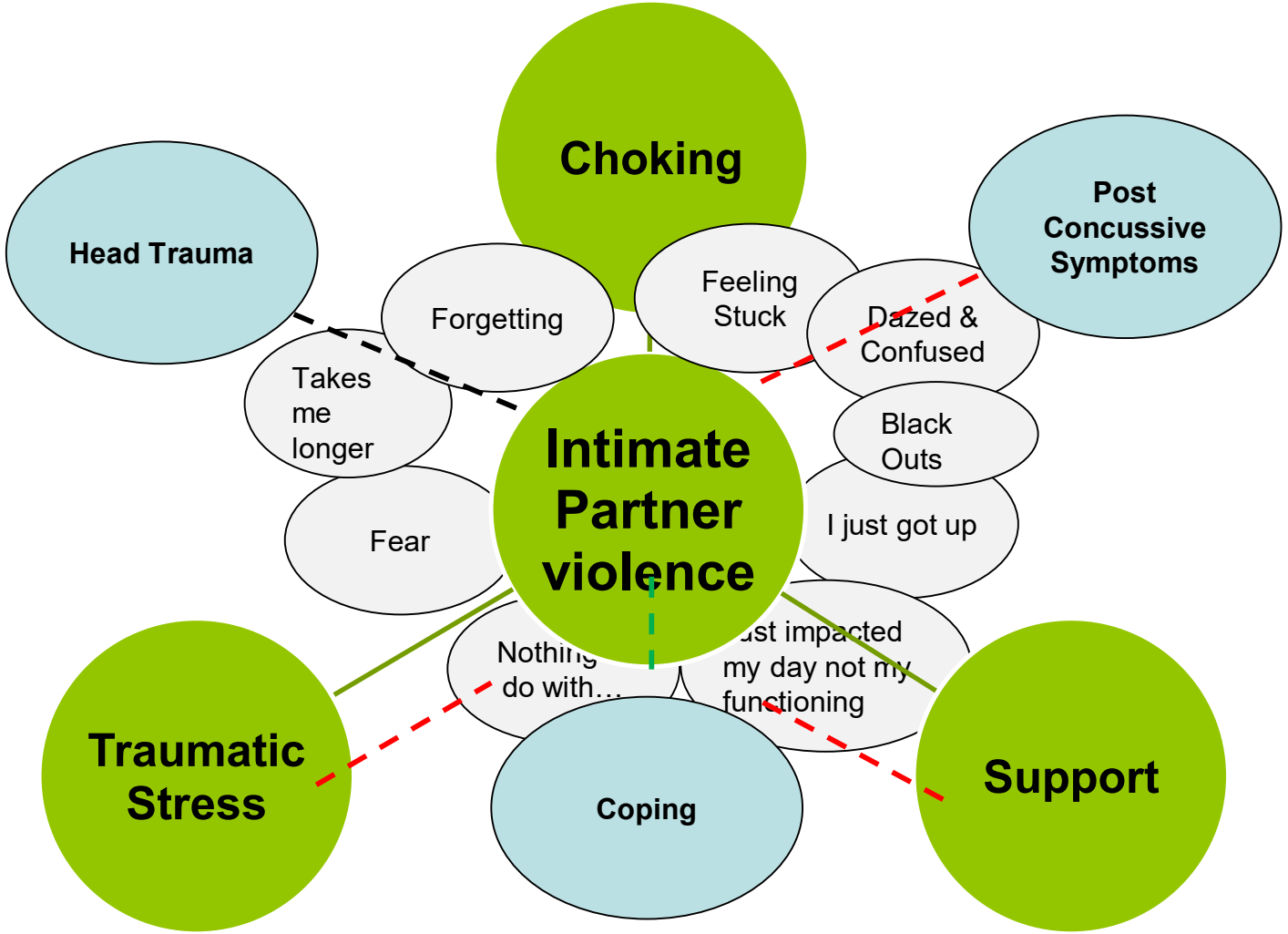
Nothing to do with…

‘You have difficulty making decisions?’ *Because family doesn’t want me in relationship. My husband wants to see the baby. So confusing*

No it didn’t have nothing to do with the forgetting it was just the situation I was in. As far as the housing that have something to do with not having a job and the job it just seem like it’s so hard for me to get one.

Ok difficultly learning new information…? I probably be giving up or something. I told you I can’t keep appointments with my psychologist or therapist. Like I'm supposed to be meeting up to get my license I don’t even know where the book at I can’t do it. I can’t concentrate like that.

Manifestation Model



Manifestation Model: Themes

- *A circuitous Relationship: Post Traumatic Stress & Traumatic Brain Injury*
  - Context important
- *Resiliency Among an Unknown Threat: Relationship Violence & Post Concussive Symptoms*
  - insignificant relationship between relationship violence and post concussive symptoms
  - abusive context was often to blame for their symptoms

Manifestation Model Themes, cont.

- *Choices to Make: Me, Traumatic Stress & Post Concussive Symptoms*
  - significant relationship between traumatic stress and post concussive symptoms
  - the overlap in these symptoms is not the prevailing issue
  - The context itself can pose as a challenge to identifying traumatic brain injury among abused women.

strategy codes- I have to get things done, almost stuck, God and prayer, now I literally write things down, stuck in tracks strategy, my daughter is inspiration

Attention Deficits

- Rehabilitation focuses on restoring attention abilities through repeated practice
- How?
  - Inform case managers or advocates of the need to have tasks, appt., goals, etc. repeated
  - Not consider the client as difficult
  - Provide context-centered cognitive rehabilitation
    - “I was really good about writing my things down that I had to do. It was focusing on them…”

Irritability & Aggression

- Symptoms of brain injury can sometimes be mistaken as mental illness; leading to inappropriate pharmacological responses
- Rehabilitation focuses on information processing- how she perceives and interpret her experiences
  - “We have no place to live. My life is really not…life is just like turned upside down...”

Memory & Problem Solving

- Self-Regulation
- Rehabilitation focuses on being able to perform a series of steps in a particular sequence
  - Compartmentalize tasks associated with goals for treatment
  - Incorporate support system (advocate, family, friends, women in the shelter)

Manifestation Model Themes, cont.

- What does the literature say about co-morbidity with depression and PTSD?
- TBI education and interviewer training
  - Staff
  - Clients
- Instrument
  - Integration with other measures
  - Need translation
- data processes
  - BISQ- computerized scoring format that must be purchased
- Referral and network building
  - What to do with a positive screening?

Limitations

- Traumatic brain injury cannot be diagnosed solely from self-reports of experiencing the injury, and the symptoms associated with TBI. Especially if there is no loss of consciousness (Wilson, 2009).
- Knowing they may have a TBI did not really make a difference to the women
- Self-efficacy based on task completion and not perception of one's overall beliefs of self in various settings
- Sampling strategies prohibit generalizations to be made to the larger population of abused women

Thank You

Traumatic Brain Injury among Women and Trans Women who engage in Sex Work

Flora Matheson

Western
Centre for Research & Education on Violence Against Women & Children
LEARNING NETWORK

#VAWTBI

Traumatic Brain Injury among Women and Trans Women who engage in Sex Work

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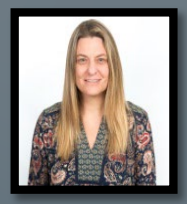

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When you hear the words “traumatic brain injury” what comes to mind?

Definition of Traumatic Brain Injury

"An alteration in brain function, or other evidence of brain pathology, caused by an external force" (CDC Brainline.org)

The Centers for Diseases Control (2016) define traumatic brain injury as a bump, blow, or jolt to the head or a penetration head injury that disrupts the normal function of the brain; this disrupted function can be measured by change in or loss of consciousness.

Why should we care about “traumatic brain injury” what comes to mind?

Why Investigate Traumatic Brain Injury (TBI)?

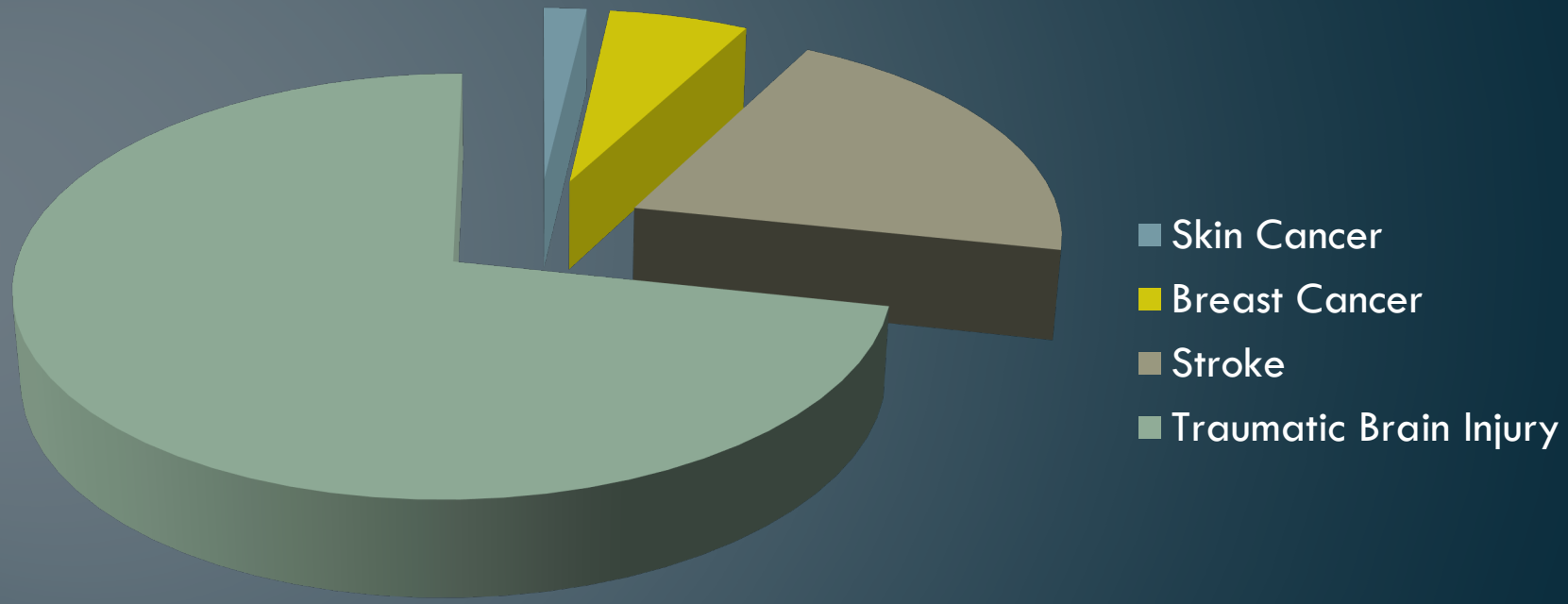
- TBI can adversely affect a person's quality of life in numerous ways, including cognitive behavioral/ emotional, and physical effects that affect interpersonal, social and occupational functioning.

Negative Impact individual

- TBI can negatively impact families, communities, and the economy.

Negatively Impact Community

Diagnosed Instances of TBI Compared to Other Well Known Illnesses



For Diseases Control and Prevention, USA Gov 2013

Traumatic Brain Injury (TBI) – The Silent Epidemic/Hidden Health Condition

- It is estimated that every year, 10 million people are affected by a TBI globally.

10 million affected globally

- In 2021, an estimated 640,000 people will suffer from TBI in Canada. By 2031, this number is expected to exceed 730,000.

2021- estimated 640,000
2031- expected to exceed 730,000

- According to the World Health Organization TBI will **surpass** many diseases as the **major** cause of death and disability by the year 2020.

2020 TBI major cause of death

People with traumatic brain injuries more likely to go to prison

For 13 years, researchers followed more than 1.4 million people who were eligible for health care in Ontario, Canada and were between the ages of 18 and 28 in 1997.

As reported in CMAJ Open, the open-access journal of the Canadian Medical Association, the research team linked subjects' health records to correctional records, adjusted for a variety of factors like age and substance abuse, and found that men with traumatic brain injuries were 2.5 times more likely to serve time in a Canadian federal prison than men without head injuries.

Female prisoners were even more likely to have survived traumatic brain injuries. For women with these injuries, the risk of winding up in a Canadian federal prison was 2.76 times higher than it was for uninjured women, although the authors caution that the pool of incarcerated females was small, accounting for only 210 of the more than 700,000 women studied.

McIsaac KE, Moser A, Moineddin R, Keown LA, Wilton G, Stewart LA, Colantonio A, Nathens AB, Matheson FI: **Association between traumatic brain injury and incarceration: a population-based cohort study.** ***CMAJ open 2016, 4(4):E746.***

Story by:
Ronnie Cohen

Traumatic Brain Injury (TBI) - Facts

- Severity of TBI classified as mild, moderate or severe, based on unconsciousness, score on the Glasgow Coma Scale and duration of posttraumatic amnesia. (Lverson, 2012)

- Symptoms of TBI headache, dizziness, fatigue, irritability, difficulties with concentration and memory, insomnia, and reduced stress tolerance. (WHO, 2015)

TBI - Classification

TBI - Symptoms

Traumatic Brain Injury (TBI) - Facts

- TBI is associated with higher mortality rates, behavioral and emotional problems.(Baumann et al 2018)
- TBI is prevalent among people of the criminal justice system.(Baumann et al 2018)
- TBI has high prevalence among people experiencing homelessness. (Baumann et al 2018)
- Prevalence of TBI in women involved prostitution, 53 % & 72%.(Farley et al, 2003, 2006)

TBI - Association

TBI – Prevalent in criminal justice system

TBI – Prevalent in homelessness

TBI – Prevalent among women involved in sex trade

TBI understudied in which population?

In a study in Minnesota of 105 women working in sex work, 72 % suffered TBI and face injuries which included, broken jaws, fractured cheekbones, missing teeth, punched lips, black eyes, blood clots in head, hearing loss, memory loss, head aches and neck problems. (Farley et al., 2011)

Violence is pervasive in prostitution and causes traumatic brain injury.
In a study TBI correlated among 66 women in prostitution
95% - hit with objects or have head slammed into objects,
61% - sustained head injuries in prostitution. (Farley et al, 2018)

Aim Of Study

Understand experiences of violence and head injury among females and transgender women sex workers

Methods

Study Design

Interview Protocol co-created by study team and E-Fry (Ohio State University TBI Identification /method & River mead Post-Concussion Questionnaire)

Sampling technique

Purposive Sampling

Study Setting

Elizabeth Fry Toronto Agency-support women who are, have been, or are at risk of being in conflict with the law

Study duration

Participants interviewed from November 2015- February 2016

Recruitment and Data Collection Procedure

Ohio State University TBI Identification Method (OSU TBI-ID)

Pre-defined scores from the OSU TBI-ID classified head injury based on the categories of head injury comprised:

- **No TBI no loss of consciousness** (LOC) or memory gap, or not dazed),

- **Mild TBI without LOC** (dazed, or gap in memory),
- **Mild TBI with LOC** (less than 30 min unconscious),

- **Moderate TBI** (**30 min to 24 h unconscious**), and
- **Severe TBI** (**over 24 h unconscious**).

Defining TBI in the Study

- If a participant reported a head injury that did not result in LOC, feeling dazed, or a memory gap, we considered this **an unclassified head injury** but not a TBI.

- If a participant indicated she lost consciousness, but for an unknown length of time, we classified it as a **mild TBI with LOC** (unconscious for <30 min).

OHIO Brain Injury Quantitative Report

Brain injury classification	Participants (n=10)	Incidents (n=10)
Mild TBI without LOC	7	14
Mild TBI with LOC	< 5	5
Severe TBI	< 5	< 5
Unclassified	8	19

Nine participants reported lifetime TBI, and six of these nine participants reported multiple TBIs.

Participants Experience of Violence Within Families

"That's the only way communication could be taught to me was I guess by beating me, slapping me, yelling at me, or saying something so horrible that you didn't have to hit me."

"They fought , and they drank , and they were alcoholics."

"My brothers raped me, but my father didn't rape me."

Ex-Partner Abuse Of Participant

“ There is a bald spot on the back of my head from where he ripped my hair out and dragged me across the carpet floor.”

Participants Abused During Street Sex Work

" I've had a knife pulled on me, I've had a gun pointed at my head. I've been raped and robbed by tricks"

"Started hitting me… he grabbed me by the hair.. and had me in his lap and he was pounding me in the head with his fists.

"I've got like thrown out of the car and not paid, punched in the mouth and kicked out, left on a deserted road."

Consequences of Traumatic Brain Injuries

"Short- term memory problems right now and I get constant headaches…my neck's out of whack"

Participants Management of Traumatic Brain Injury

"I didn't even go to the doctors ..but whatever, I figured the worst was my kidneys. I figured if I could get through it without having any blood in my urine, I was, I could heal."

"My head felt really hot and I looked and there was like blood. What I do is I put my head down right and in a matter of seconds there was a big pool of blood so I went 'Ah, quick, I'm bleeding, I'm dying .. They gave me two stiches."

Fear Seeking Medical Attention

"If I have to go the hospital, I'd lie and say I was drunk and fell or something stupid, like I was in a fight, drinking even though I wasn't. If I got punched in the mouth from a date, I'd just say you know, "I was drunk and got in a fight." I wouldn't tell the whole truth."

Negative encounters of Police

“ The police look down on us. They think, ‘Oh you got what you deserved. If you weren’t out there it wouldn’t happen to you, you know. But financially, they don’t understand the struggles that we have to go through to make ends meet, right?”

“And was I made to feel like shit from them and was I treated like shit from the [local] police department, yes I was”

Women Deterred from Reporting Violence – Judged By Police

"Well if you weren't wearing that. Never mind what I was wearing, that's irrelevant and you know it. Doesn't matter what I'm wearing, I don't deserve this and you know that. All kinds of stigma and discrimination and bullshit."

Report Perpetrators When Had Corroboration With Fellow Workers

"I always tell girls on the corner the next night I go back to work, 'Yeah, I was attacked by this and that.' If it matches with someone else, then boom, when that happens, we usually go to the cops. It only makes sense right? We can all just say who our attacker was whenever. But still, other than that, you just feel alone. That's what it eh? A lot of us just feel like, it's just another story, I don't want to tell the girls."

Participants Voice – Anti-Oppression Training

"More trans people come in or maybe a couple of addicts, recovering addicts, and voice their opinion on how they should be treated, whether he's high or not."

Participants Suggestions To Health Workers on to Improve Services

"Care workers at the hospital should come out and see what it is like here at night. Come out and walk with us. If you don't walk the walk, how do you know, right?"

"There needs to be more trans workers everywhere. Not like just sex workers but, trans front-line workers, at OW, drop-ins, wherever."

Recommendation
Peer Led Education & Trans Front-Line Workers

"There needs to be more trans workers everywhere. Not like just sex workers but, trans front-line workers, at OW, drop-ins, wherever. Going to different drop-ins or like [sex worker organization] and doing small workshops like that with people."

"One participant emphasized that education should be peer-led: "It's a conversation, it's not a presentation, 'cause we're friends, cause we know each other'

Recommendation
Improve Safety and Harm Reduction Education

"I really think you should have a 24 hour safe sex drop-in, we really need that in Toronto, really, really do with a nurse on sight and some mental health crisis people.

The care workers at the hospital should come out and see what it is like here at night. Come out and walk with us. If you don't walk the walk, how do you know, right"

"Deborah proposed safety training: They can have some seminar and invite people. And tell them how to do it [sex work] properly and not get injured. Make some kind of booklet, and print it, then give it to…people working the street"

Recommendations
Education for Sex Workers and Service Providers

Create awareness among sex workers to enable them to assess the severity of their head injuries so they can make an informed decision whether to seek care or not.

Health care professionals and **police** require anti-oppression education to reduce discrimination towards people involved in sex work.

Peer-support programs may provide a mechanism to improve help seeking and an opportunity for education and improve health outcomes.

THANKS!

Any questions

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Acquired Brain Injury, Causes

Traumatic Acquired Brain Injury

Non-Traumatic Acquired Brain Injury

Acquired Brain Injury, Causes

Traumatic Acquired Brain Injury

- Falls
- Assaults
- Sports injuries
- Motor vehicle accidents
- Gunshot wounds
- Domestic violence
- Sports injuries

Non-Traumatic Acquired Brain Injury

- Ischemic stroke
- Hemorrhagic stroke
- Hematoma
- Aneurysm
- Seizure disorders
- Brain tumor
- Poisoning
- Opioid overdose
- Substance abuse
- Meningitis
- Enceplitis
- Hydrocephalus
- Vacuities
- Asphyxiation

Discussion Period

JoLee Sasakamoose, Akosoa McFadgion, Flora Matheson

Western Centre for Research & Education on Violence Against Women & Children

LEARNING NETWORK

#VAWTBI

We will now breaking for lunch.

We'll start again at 1:00pm!

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