TBI AND DOMESTIC VIOLENCE: WHEN LOVE IS MORE THAN A HEADACHE

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Objectives

- Brain Injury 101
- Mechanisms and Severity Most Common in DV Survivors
- Effects of TBI on DV survivors
- Barrow Center for Concussion and Brain Injury DV Project and Findings
- Strategies for Advocates
Then we left for Tucson..
“Donna”
Vulnerability Index

259 surveys completed: 27% responded positively to identifying with having a TBI

40% responded positively that they had been a victim of attack/violence

51 Homes in Tucson 402 surveys

26% TBI

41% victim of violence
Second Chapter
Defined: pattern of abusive behavior in any relationship that is used by one partner to gain or maintain power and control over another intimate partner\(^1\)

- National health crisis: 10 million victims per year
  - 76% women\(^2\)
- Affects females and males of all ages, races and socioeconomic classes (females ages 18-24 most at risk)

1 U.S. Department of Justice 2015, 2 NCADV 2015
Domestic Violence - Statistics

- 1 in 3 women, 1 in 4 men victims of physical violence at the hands of an intimate partner in their lifetime\(^1\)
- Domestic violence is the leading cause of injury to women

\textit{THIS IS MUCH MORE COMMON THAN MOST PEOPLE REALIZE}

- DV = violence by another member of household
- Intimate partner violence = specific to intimate partner
Domestic Violence

- This is a very difficult population to study, as victims are, understandably, wary to disclose injuries.
- Head, face and neck injuries among the most common inflicted by DV abusers (35-94%)\(^1,2\)
- Victims often do not seek medical care for injuries:
  - Control by abuser
  - Social and financial dependence on abuser
  - Social isolation by abuser
  - Lack of insight into severity of injuries
  - Poor decision-making abilities (as a result of repeat TBI)\(^1\)

The Violence Against Women Act

- Drafted by then-Senator Joe Biden (D-DE)
- Signed into Federal Law by President Clinton on 9/13/1994

- Improved criminal justice response to violence against women
  - Rape prosecution, victim’s protection order, sentencing

- Ensured that victims and their families have access to the services they need for safety and to rebuild their lives
  - National DV Hotline, focus on underserved, tribal
If you’ve seen one brain injury, you’ve seen one brain injury.
In the United States...

- 1.7 million people are diagnosed with TBI (not including those that do not seek medical care)
- TBIs cost Americans $76.5 billion in medical care, rehabilitation, and loss of work every year
In 2006 Traumatic brain injury (TBI) was reported more prevalent in the US than breast cancer, HIV/AIDS, multiple sclerosis, and spinal cord injuries (CDC, 2006).
Mechanisms of Injury

- 35.2% Falls
- 16.5% Struck By/Against
- 21% Unknown/Other
- 17.3% Motor Vehicle–Traffic
- 10% Assault
TBI demographics

- **Age**
  - 0-4, 15-19 and 65 years and older are most likely to sustain a brain injury
  - Almost half a million emergency department for TBI are made annually by children aged 0 to 14
  - Adults aged 75 years and older have the highest rates of TBI related hospitalization and death

- **Sex**
  - TBI rates are higher for males than females
Types of Brain Injury

- Congenital Brain Injury
- Acquired Brain Injury
  - Traumatic Brain Injury
  - Non-traumatic Brain Injury
    - Closed Head Injury
    - Open Head Injury

Source: Savage, 1991
TBI is caused by a blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain. Not all blows or jolts to the head result in a TBI. The severity of a TBI may range from “mild” i.e. a brief change in mental status or unconsciousness to “severe” i.e. an extended period of unconsciousness after the injury.
Defining Severity

Measures
- Glasgow Coma Scale (GCS)
  - Eye opening
  - Motor response
  - Verbal Response
- Loss of Consciousness (LOC)
- CT Scan

Mild:
- Altered or Loss of Consciousness <30 min. with normal CT and/or
- MRI GCS 13-15 PTA < 24 hours

Moderate:
- Loss of consciousness < 6 hours with abnormal CT and/or
- MRI GCS 9-12 PTA <7 days

Severe:
- LOC> 6 hours with abnormal CT and/or
- MRI GCS<9 PTA>7 days
Three main areas of impact

- 6.5 million living with some effect:
  - Physical
  - Cognitive
  - Behavioral
Physical Symptoms

- Headaches, neck pain
- Nausea and vomiting
- Changes in vision (blurred, sensitive, seeing double, blindness)
- Ringing or buzzing in ears
- Dizziness, difficulty balancing
- Increased sensitivity to noise or bright lights
- Seizures
Cognitive Issues

- **Attention problems:** difficulties with concentration, paying attention to visual details, and dividing one’s attention between two differing tasks.

- **Processing speed:** a person may report that all actions have slowed down...moving, talking, thinking and reading.

- **Learning and memory:** these are most common following brain injury.
Executive Functioning

- Difficulty in day to day functioning
  - Keeping appts, taking meds as prescribed, relating to others, difficult to engage, poor historian etc.
- Difficulty planning and setting goals
- Difficulty being organized
- Difficulty being flexible
- Difficulty problem solving
- Difficulty prioritizing
Behavioral Issues

- Changes in behavior, personality or temperament
- Increased aggression and/or anxiety
- Decreased or increased inhibitions
- Quickly agitated or saddened
- Changes in emotional expression (flat, non-emotional, inappropriate or overreactions)
- Avoidance of people, family, friends
- Difficulty sleeping
- Increased irritability or impatience
Common Psychosocial problems after brain injury

- Educational/Vocational Problems
- Interpersonal difficulties
- Intra-Personal Difficulties
- Family Issues
  - Intimacy
  - Dependency Issues
  - Alcohol and Drugs
  - Loss of Self esteem
  - PTSD
Substance Abuse

- Before their injury, people who sustain a TBI are twice as likely as others in the community to have issues with substance abuse – the use may have led to the injury
- Some studies suggest that use may get worse 2 to 5 years post injury
- Some studies indicate that between 10% and 20% of persons with TBI develop a substance abuse issue for the first time after their injury

Mount Sinai Medical Center
Ohio Valley Center for Brain Injury Prevention and Rehabilitation
(Corriigan et al. 1995; Kreutzer et al, 1996)
Ideal Rehabilitation

- Physical therapy
- Occupational therapy
- Speech therapy
- Psychology
- Psychiatry
- Social Work
- Vocational Rehabilitation
Greater than 90% of all injuries secondary to DV occur to the head, neck or face region:

- Forcefully hitting partner on the head with an object
- Smashing her head against a wall
- Pushing her downstairs
- Shaking her
- Strangling her

New York State Office for the prevention of DV (Monahan & O’Leary, 1999)
9,057 women between the ages of 19 and 65 who presented to the ED’s of 10 hospitals

280 injured, battered women were identified during the study period 11.2 % were to be determined to be positive for battering

Battered women were more likely to be injured in the head, neck, thorax and abdomen than were women injured by other mechanisms

20% with head abrasion or contusion  32% with face laceration
A study in DV shelters in NY showed:

- 92% had been hit by their partners more than once
- 83% had been both hit in the head and severely shaken
- 8% had been hit in the head over 20 times in the past year
Repeated Concussions

- IPV often involve repeated incidents of abuse and can have cumulative effect.
- Symptoms related to post concussive syndrome can be significant life long impairments and have debilitating effects on those who survive them.
Brain Injury Association of America Reports:

- 51 Women were surveyed out of 169 women who came to three ED’s over a 7-9 month period with injuries related to assault or abuse.
- Overall 35% of the participants were identified as having a mTBI.
30% of battered women reported a loss of consciousness at least once

67% reported residual problems that were potentially head injury related

(Corrigan 2003)
Presence of brain injury determined by number of minutes during LOC

35 women

Brain Injury Questionnaire, Beck Anxiety Questionnaire, Inventory of PTSD

28 included, 6 were excluded

21% reported TBI as a result of battery

Findings supported that women with TBI demonstrated greater levels of PTSD symptomology than women without
99 battered women were assessed using neuropsychological, psychopathology and abuse history measures

- ¾ of the sample sustained at least one partner related brain injury and ½ sustained multiple partner related brain injury

57 women:

- Brain injury severity was negatively associated memory, learning, cognitive flexibility
- Positively associated with general distress, worry, PTSD symptomology

Valera and Berenbaum, 2003
Literature Review

- 53 battered women, 92% reported having received blows to the head
- 40% reported LOC
- Correlations between frequency of being hit in the head and severity of cognitive symptoms were significant

Jackson, Nuttall, Philp & Diller, 2002
Literature Review

- Descriptive case study
- Residents in a DV shelter over a three month period
  - 35% prevalence rate of battered women who had experienced head injury during a battering incident with their intimate partner
- Head injured battered women had more difficulty than the non head injured women with decision making, retaining information, initiating self directed activity, abstract thinking, memory loss and mental fatigue.

Monahan and O’Leary, 1999
Barrow Steps Up!
BBICC - Community Partnership

- Established in 2012
- Partnership with 5 local homeless and domestic violence shelters
- Residents screened for TBI upon admission
- If concern, referred to BBICC
- Care covered by grants
Mission: To improve outcomes of those who suffer from neurological injury through comprehensive, patient-centered care, collaboration, and research.
Developed in 1991 by Pickard et al\(^1\) as a brief screening assessment to determine if a person may have suffered from a TBI. 

5 basic questions:

- If “Yes” to \(\geq 2\) questions, more evaluation/referral warranted.
Goal of Intervention

- Was this worse than a mild injury?
- Is there a physical symptom that is prolonging recovery?
- Is there an emotional component?
- Did the injury exacerbate something that was already going on (premorbid anxiety, headaches)
Retrospective chart review of all patients seen through this program from its inception in April 2012 through November 2015

- 208 patients

- All ages included

- Exclusion criteria: TBI due to cause other than DV, no history of TBI

- n = 115
Demographics

- 109/115 female (94.8%)
- Age: 4-68y
  - Mean = 37.9y (SD 10.8)
  - (only 1 child in study)
  - Compared to 18-24 risk age
Race:
- Caucasian = 64 (55.6%)
- Hispanic = 29 (25.2%)
- African American = 18 (15.7%)
- American Indian = 4 (3.5%)
All acquired via patient report (no medical records available)

97/115 (84.3%) reported a history of a psychiatric disorder
- 69/115 (60%) – depression (17% lifetime general population)
- 54/115 (47%) – anxiety (18%)
- 13/115 (11.3%) – bipolar disorder
- 13/115 (11.3%) – PTSD (6.8%)
- 10/115 (8.7%) – psychiatric symptoms (AH, VH, etc.)

Interestingly, the large majority of patients who reported a psychiatric history had received psychiatric care

*Headache history unreliable, not quantified*
98/115 (85.2%) – Adulthood abuse

44/115 (38.2%) – Childhood abuse

27/115 (23.5%) – Both

Of patients abused as a child, 61% went on to be abused as an adult
Abused as Adult Victims:
- 94/98 (95.9%) - IPV
- 4/98 (4.1%) - other

Abused as Child Victims:
- 39/44 (88.6%) - parent
- 10/44 (22.7%) - parent plus other

Overall, 45/115 (39.1%) had more than
101/115 (87.8%) = >1 injury
- Prior studies = 25-72%¹
- Of these: 93/101 (92.1%) = too many to count

*Inconsistencies in disclosure of injury types; unreliable

¹ Kwako et al 2011
93/115 (80.9%) reported loss of consciousness associated with at least one of their injuries
- Prior studies = 30-80%¹,²

Only 24/115 (20.9%) sought medical care at the time of at least one of their injuries
- Prior studies = 25-74%³,⁴
DV Study – Symptoms at Visit

- **Chief Complaint**
  1. Headache (60/115, 52.2%)
  2. Memory loss (31/115, 27%)
  3. Other cognitive complaints (13/115, 11.3%)

- **Prior studies:** headaches, dizziness, memory loss

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1 Kwako et al 2011, 2 Corrigan et al 2001
All BBICC patients complete symptom severity scale

Symptoms in 3 categories: Physical, Behavioral, Cognition

Data collected from all patients’ scales and overall average taken for each symptom to identify most severe average reported symptoms
Most severe reported symptoms:
1. Headache (4.51)
2. Sleep problems (4.39)
3. Sad/Depressed (4.17)
Most severe symptoms by category:
1. Behavioral (3.63, SD 0.55)
2. Cognitive (3.39, SD 0.25)
3. Physical (2.96, SD 1.3)
80/115 (69.6%) returned for follow up appointments

Medications prescribed for 81 patients (usually headache):
- 45/81 (56.6%) confirmed compliance

Psychiatry consultation ordered for 45 patients (many already had providers)
- 21/45 (46.7%) presented for their appointment
MRI brain ordered in 108 patients

- 78/108 (72.2%) completed
- Abnormal in 11 patients (14%)
Formal testing ordered in 30 patients:
- Complete in 19/30 (63.3%)
- Abnormal in 17/19 (89.5%)
  - BUT, 8/17 invalid due to significant mood disturbance
Most patients:
- Too many injuries to quantify
- Did not seek medical care for their injuries

Over half of the patients who experience abuse as a child went on to be abused as an adult

Most common chief complaint was Headache
- Behavioral and Cognitive domains overall most severe

Neuro psychology evaluation was abnormal in 89.5%
- Almost half were invalid due to mood

MRI was abnormal in 14% of patients (excluding nonspecific white matter lesions)

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Focus on one task at a time. Break down messages or conversations into smaller pieces and allow for repetition to assist her to understand and process information.

- Repeat instructions to demonstrate understanding.

- Monitor and check for understanding.
Memory Deficits

- Write information down. Provide a day planner or calendar to help her remember important information such as police numbers, Order of Protection information, and court dates.
- If she is going to use her phone confirm she is able to use the calendar feature
- Encourage the use of a journal
- Provide repetition of information.
- Develop checklists.
Memory Deficits

- For multi step instructions a visual schedule would be helpful
- Repetition
- Decrease feelings of being overwhelmed by giving short periods of learning, shorter and more frequent sessions are better
- Structured one on one environment
Minimize distractions when having detailed conversations.

Meet individually in quiet locations, with minimum bright lights, and keep meeting times limited.

Incorporate short breaks.
Executive Functioning

- Assist in prioritizing goals and break them down into smaller, tangible steps.
- Reduce distractions and allow time when completing tasks.
- Write out steps to a planning or problem-solving task.
Backpacks-if they allow it help organize their things, binder with dividers for paperwork, medical records etc.
Provide written documentation to supplement verbal discussions
Errorless Learning

- Repetition, Repetition, Repetition


Defense Medical Surveillance System (DMSS). Theater Medical Data Score (TMDS) provided by the Armed Forces Health Surveillance Center (AFHSC)

http://www.vawnet.org/Assoc_Files_VAWnet/IntersectionBrainInjuryDV.pdf
National Coalition Against Domestic Violence
www.ncadv.org
Muelleman, Lenaghan & Pakieser, 1996