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Extreme Control and Instability: Insight into Head Injury from Intimate Partner Violence

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In the United States, 2.5 million emergency department visits, hospitalizations, or deaths in 2010 were related to traumatic brain injury (TBI, Centers for Disease Control and Prevention, 2015). However, these numbers are underestimated because not all people who receive a head injury, specifically a mild traumatic brain injury (such as a concussion), seek medical treatment (CDC, 2015). There is a small but growing body of literature showing high prevalence rates among a population in need of increased screening for TBI: women who are survivors of intimate partner violence (IPV). IPV survivors are seven times more likely (OR 7.21, CI 2.79–18.61, $p < 0.001$) than women who are not abused to receive a TBI with loss of consciousness (Anderson, Stockman, Sabri, Campbell, & Campbell, 2015) and estimates range from 60–92% of women reporting injuries to the head or face during episodes of IPV (St. Ivany & Schminkey, 2016). A recent study of 208 women in homeless and women's shelters found 88% of women living with more than one brain injury, with 80% of those women experiencing a loss of consciousness with the injury. However, only 21% sought medical care for those injuries (Zieman, Bridwell, & Cardenas, 2017).

Head Injury and IPV

Recent literature reviews (St. Ivany & Schminkey, 2016; Murray, Lundgren, Olson, & Hunnicutt, 2015) report 35% to 92% of women in shelters experienced at least one head injury during an episode of IPV. Both head injuries and IPV are underreported because of hesitancy to seek medical care after experiencing a head injury and not all women report incidents of IPV (Corrigan, Wolfe, Mysiw, Jackson, & Bogner, 2001; Davis, 2014; St. Ivany & Schminkey, 2016). Other challenges to understanding true incidence and prevalence of head injury from IPV include lack of a specific screening tool and difficulties with classification and diagnosis of mild TBI when women do seek medical care (for greater discussion on TBI screening difficulties see Goldin, Haag, & Trott, 2016 and Saatman et al., 2008).

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Survivors of IPV have adverse physical health outcomes that lead to chronic conditions: decreased immune function, anxiety, asthma, depression, gastrointestinal disorders, stroke, sexually transmitted diseases, and hypertension (Campbell, 2002; Ford-Gilboe, Varcoe, Wuest, & Merritt-Gray, 2011; Iverson, & Pogoda, 2015; Kwako et al., 2011; Rich, 2014). Recent studies on head injuries from IPV found women living with additional mental health and neurological symptoms: headaches, memory loss, problems sleeping, pain, tiredness, sadness, post-traumatic stress disorder, and poor perceptions of physical health (Iverson et al., 2017; Zieman et al., 2017). If women do seek medical treatment for a head injury from IPV, rehabilitation strategies used for mild TBI can be used such as interventions to help with memory problems, cognitive problem solving, and emotional regulation (Banks, 2007).

With many unknowns in the relationship between head injuries and IPV, it is important to explore individual and systems factors that can make women more prone to experiencing this severe form of violence. The aim of this study was to gain a better understanding of the social context of the lives of women who experienced a head injury from IPV, and the reasons why they were unable to seek medical treatment.

Method

Parent Study Description

The study was conducted as a secondary data analysis from an existing data set and IRB approval was obtained for the original study and the secondary data analysis. The parent study for the secondary data analysis was the Domestic Violence Home Visitation (DOVE) study; a large, multi-state, mixed methods randomized controlled trial (RCT; R01 NR009093) that evaluated the effectiveness of an empowerment protocol (DOVE) within home visit programs with low-income women who were victims of IPV during pregnancy and postpartum (Sharps et al., 2016). Low-income women who were eligible to participate in a perinatal home visiting program were recruited from health departments' perinatal home visiting programs from 2006–2012. To be eligible for the DOVE study women had to be in a current abusive relationship or had been in an abusive relationship within the past year. Quantitative data were collected up to seven times ranging from pregnancy through two-years post-delivery. A subset of women agreed to participate in up to five qualitative interviews over the course of the study. It should be noted that not all women consistently participated in all possible interviews due to scheduling conflicts, missed appointments, and loss to follow-up. Research nurses conducted all interviews at times and locations that were convenient for the women. During the qualitative interviews open-ended questions were asked leading up to the question “tell me about your worst instance of abuse.” (See Sharps et al., 2013 for full description of DOVE study.)

It is very difficult to interview and reach out to women during episodes of extreme violence. Because of the retrospective nature of the question “tell me about your worst episode of abuse,” women were able to describe events when they were not able to seek medical help. This insight is something very rarely seen in research, especially in women living in the community and not in a shelter. During the final two-year interview many women said they had shared experiences and information with the interviewer that had never been shared before. This demonstrates a large amount of trust that was developed over time.

Sample

The sub-sample for this secondary analysis of qualitative interviews included all women who answered yes to question 23 on the Conflict Tactics Scale 2 (CTS), “Have you ever passed out from being hit in the head by your partner?” (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Self-reporting of a loss of consciousness is indicative of a TBI (Ruff et al., 2009), however, because no medical diagnosis was confirmed in the study, labeling the event as a TBI was problematic. To operationalize the event of “passing out from being hit in the head by a partner,” the term head injury is being used instead of TBI for purposes of analysis and discussion.

Of the 239 women in the parent study, 21 answered yes to CTS 23 at some point during the study (8.8% of total sample). Sixteen women answered yes at baseline and five answered yes during the two-year timeframe of the study, meaning that 16 women entered the study with a prior history of head injury from IPV and five women experienced a head injury from IPV during the post-partum follow up period. Of these 21 women in the sub-sample, nine women agreed to participate in qualitative interviews, and engaged in one to five interviews, for a total of 21 interviews included in this qualitative analysis. Electronic copies of these 21 de-identified interviews were transferred to the first author for coding and analysis. The average age of women included in the sub-sample was 23 years (SD 4.3 years), 5 were Black and 4 were White; none of the women in this sub-sample were able to receive medical treatment after receiving a head injury during IPV.

Analysis

Thematic analysis (Braun & Clarke, 2006) was used to analyze interview data from the interviews selected for this study. Six phases of analysis were used to code and categorize the data. First, a deep read of the interviews was conducted to become familiar with the data. Second, interviews were coded using line-by-line coding and a code list was created. Third, codes were categorized into preliminary themes that characterized the context of IPV and women’s experiences with head injury. In vivo coding (coding in a participant’s own words) was also used to capture evocative descriptions of women’s experiences. Fourth, preliminary themes were reviewed with substantive (IPV) and methodological (qualitative research) experts. Fifth, final labels were given to the refined themes and each was conceptually defined and discussed in a thematic memo. Final themes were of two major types: themes about the social context and themes about receiving a head injury. In the sixth, and final phase, the themes were integrated into a report to communicate study findings.

The first author was the primary coder at each phase of analysis, but an analysis team of three doctoral students who were trained in qualitative methods reviewed all products of analysis at each phase. This included initial code lists, categories, preliminary themes and the final integration of themes. Further, conceptual memos were written at each phase to define and describe codes and their relationships, to provide data illustrations, and to merge codes into categories and eventually, themes. Memo writing was an iterative process that allowed transparency into the evolution of the thematic analysis and the ability to track analytic decisions, thus establishing rigor. Memos were read by members of the research team to verify the developing conceptualizations and as a means to come to consensus on the

final thematic integration. Memos were also used for reflexivity to identify and check potential areas of researcher bias that could influence findings.

Findings

Analysis of nine women living with head injury from IPV revealed themes around the instability of their social context and extreme control of the abusers. The interactions of instability and extreme control created an environment that made these women prone to vulnerability and extreme abuse.

Instability

The overarching contextual theme was instability, defined as living with a lack of permanence and safety. Several conditions contributed to instability: incarceration, intergenerational substance use, low employment or unemployment, and varied police response to episodes of IPV. This environment of instability allowed the abusers to maintain an element of control because they were often the only thing in the women's lives that were constant. Facets of instability ranged from not having control and agency over basic needs such as housing to experiencing cycles of incarceration and drug use. The women discussed many elements encompassing instability: uncertain housing situations (living with family members, transitional housing, unable to make rent and being evicted, multiple people living in the same house), having multiple partners during the course of the study (the father of the baby was often not her current partner during the study), and multiple children from multiple partners.

There was an element of fear of having children taken away or having social services called, which added an additional level of instability. All the women expressed fear of losing their children because they did not have a stable place to live or the space was full of other people who might put their children at risk. Some women were not even sure they would be able to bring their babies home once they were born.

Incarceration.—The persistent threat of incarceration was a common experience that contributed to a feeling of instability and vulnerability for the women in the study. The cyclical nature of incarceration and probation made women feel they could never be sure of the threat of danger from the abusers due to the uncertainty of when they might be released. The women had been incarcerated themselves or their partners and family members were incarcerated or on probation. Some women had been incarcerated for charges related to self-defense against abusive partners or drug related charges. Current partners and/or abusers were in and out of incarceration and some of the women experienced parental incarceration during their childhood. Having parents and family members incarcerated took away the feeling of stability from social and family support, making it harder for the women to leave abusers to go to a safe place.

Some women were on probation, which provided their abusers with a potential way to threaten and control them. Abusers would also use the threat of incarceration to increase their feelings of vulnerability. One of the participants ran away from a halfway house, and subsequently met her abuser through a friend. He offered her a place to stay to hide from the

authorities. He then proceeded to lock her up in a small apartment and forbid her from leaving, or seeing anyone, claiming that if she disobeyed him, he would turn her in and tell stories about how she had been stealing from him. She lived as a captive in an abusive relationship in this apartment for almost three years because she was afraid of being reincarcerated.

Substance use.—Drug and alcohol use was a common theme in the lives of all the women, whether used by themselves or others. The women revealed the most commonly used drugs were heroin, cocaine, prescription painkillers and crystal methamphetamine. One woman described her abusive partner forcing her to do methamphetamine with him.

“He went over [for drugs and] came back extremely, extremely messed up off of methamphetamine, came back home, had some, got mad cause I wouldn’t do it [use meth with him], started hitting me for not wanting to do it, yelling at me... He ended up basically telling me do it or, you know, “I hurt you.” Despite, despite me not wanting to I ended up having to do some with him...”

Alcohol was a constant presence in the lives of women even though many of them did not drink. While women were not specifically asked for reasons why they used drugs or alcohol several discussed living with chronic pain and a need to escape the reality of their lives.

Money spent on drugs by abusers was a common element of the substance use. Paychecks for the entire month were spent in an afternoon on drugs, which added to the element of instability for women and their children. In addition to the financial instability, there was an element of emotional instability that comes with substance use and cycles of IPV were linked with cycles of drug use.

Low employment or unemployment.—A common experience shared by the women in the study was the difficulty they experienced in finding a job because of their incarceration record, lack of transportation, abusers being unwilling to allow women to work outside of the home, lack of childcare, and fear for the safety of children. Only one woman in the sub-sample was working full time and she owned her own business. Several women had part time jobs, but most were unemployed or underemployed. The abusers used extreme control, physical violence, and threats to instill a strong sense of fear that harm would come to their children if the women left them in childcare, thereby limiting their ability to become financially independent.

Police response.—Almost all the women in this sample had called the police related to IPV and the police response was varied. Some officers would show up, listen to a lie from the abusers about what was really happening, judge the situation as inconsequential, and leave. Other officers would respond in a more helpful manner, including encouraging the women to keep calling to report each episode to build a file on the abusers for future use. One participant who was raped by her abuser at age 12 described a police officer taking her away from the chaotic situation to talk to her about what had happened, which made her feel comfortable disclosing the abuse. These mixed police responses added an element of instability because the women were not sure if calling the police would add protection but it almost always placed them at greater risk for violence and retaliation from their abusers.

Extreme Control

All women described the abusers who inflicted the head injury (called the primary abusers for the purposes of analysis) as very dangerous and it was not uncommon for women to be in new relationships (often also abusive) to serve as protection from the primary abusers. The primary abusers were frequently in and out of incarceration and exhibited threatening behaviors such as stalking, rape, and arson. Themes of extreme control from the primary abusers, historical control from incarceration and/or foster care, and fear of losing children emerged. The episodes of physical violence when head injuries were inflicted were often followed by forced sex, which women described as the lowest form of denigration.

The primary abusers were described as exhibiting multiple, overlapping dimensions of control that would culminate in episodes of physical abuse where women were hit in the head and forced to have sex. The two major dimensions to the theme of extreme control were mental/emotional control and physical control, which overlapped to keep the women from seeking medical care. As each dimension grew more complex it overlapped with the other dimensions of control. For example, forms of mental control such as threatening children and stalking could eventually lead to physical violence and control.

Mental/emotional control.—Mental and emotional control can be defined as the myriad of ways the primary abusers controlled the women that do not involve physical abuse. Primary abusers would use physical abuse to reinforce mental and emotional control, such as inflicting violence and then using the threat of violence and coercion to control the women's behavior. Women described classic signs of emotional abuse: name calling, creating a feeling worthlessness, and being cut off from friends and family. One participant described living with low self-esteem: "The only way I felt normal [was when] he would bring me down so much and that's where I was used to being, and that was normal for me."

The primary abusers also exhibited signs of subterfuge to control women, even after they left the abusive relationships. These abuser behaviors included stalking, lying, and cheating. Primary abusers would call the women's therapists, social workers, doctors, and hospitals and pretend to be someone else and ask for information such as medical condition or phone number. One urban woman describes how the primary abuser would threaten to come to the hospital and take the baby, or would lie to the hospital staff and say they were together and come threaten the woman in the hospital.

"He would call my prenatal clinic, lie and say he was a homicide detective from downtown. He called my therapist, told her the same lie...because he wanted to know where I was because he didn't know where I was and nobody would tell him."

When women tried to leave the primary abusers, the abusers would express extreme feelings of ownership and refuse to accept that the women were ending the relationship. Women reported abusers saying things like, "If I can't have you no one can have you" and "I've got papers on you [meaning a marriage certificate]," even if they had never been married or had been divorced for several years. One woman said even though she was now married, and

her primary abuser was dating other people, he would stalk her, find her and abuse her, because they had been together for seven years and he could not let go.

This subterfuge created a form of extreme control because it made women feel that they could not trust anyone or ever truly feel safe from the primary abuser, especially when the abusers were using forms of subterfuge to find them. Women expressed the sentiment that it only took one friend to give away a new telephone number or one naïve receptionist. A commonly expressed feeling was to completely cut off all friendships in order to completely escape the abusers. “He’s the type of person who watches everything everybody, someone does, and then he’ll use it against you. He’s very conniving...he can manipulate his way into anything.”

Physical control.—The primary abusers used physical violence and subsequent denial of medical attention to inculcate fear as a way to get the women to do what they wanted. Some women reported only being hit in the head once, while others reported passing out after multiple blows to the head (i.e. from hitting her head after being shoved down the stairs, having her head slammed into a piece of furniture, or being punched multiple times in the head and face).

Episodes of IPV that included being hit in the head were described as the most severe forms of abuse and control were often accompanied by forced sex and denying medical treatment. “He like to hit me in the head...he was forceful if I didn’t want to have sex.” One woman describes being hit so hard in the head that she passed out and when she regained consciousness her primary abuser was raping her.

“He proceeded to get angry again, smacked me around. I do believe that for a moment I ended up blacking out ‘cause there is just so much of an area that I don’t remember, and I woke up to him going ahead and just doing what he pleased with me as I was not awake.”

Another woman described being hit in the head as the most threatening way to force her into sex, which all women described as the worst kind of abuse. Their ability to consent to sex was described as so precious, and the one thing that they should be able to control, but it was taken from them. One woman described the emotional impact of being raped by her abuser:

“Him actually being able to do it [sex] and him supposed to be the person that’s supposed to be protecting me now, and then him being the one to do it always hit me really hard...it’s just kind of difficult to say, you know, I was raped this many times by this man that I loved and lived with, you know... it made me fear him even more from taking that, that power, the authority from me to actually give permission for that and basically be, you know, told ‘I don’t need it. It’s mine anyways. I’ll just take it.’”

After one of the women left her primary abuser, she was confronted by him in her new place of residence. She answered the door because she thought it was a friend and was frightened to see that it was her abuser. This abuser was still able to exert control over her, and she allowed him to have sex with her because he said he would take it either way and she did not

want her face and head to be bloodied and have to explain the injuries to her friends, family, and current partner.

Denying medical attention needed for head injuries and other injuries was also an extreme form of control because it showed that the abusers were in charge of how much pain they would suffer, and whether or not the women lived or died. Women were not allowed to call 911, because the primary abusers said that any medical attention would discover the violence. One woman revealed that during one episode of extreme IPV, the primary abuser was threatening to kill her. To show that she was not afraid of dying, she grabbed what she thought was a dull knife and held it to her wrist, but it was a hunting knife and she cut herself deeply. She was forbidden from going to the hospital and ended up giving herself four stitches using outdoor equipment. This same woman described a different morning, where after throwing her down the stairs and out a window, the primary abuser brought her first aid items. These actions made the woman feel more confused and question her judgment and her perception of reality.

“I didn’t understand how he could be so kind but then so evil at the same time, and how I could still love him regardless, so. It was just very confusing for me; I didn’t really, I didn’t get it for a very long time that it wasn’t, it just wasn’t love. It just flat out wasn’t love. And I, I think the reason why I didn’t realize it was because I think that I actually had to stop loving him for me to actually realize that he really didn’t love me.”

Discussion

This study provides an understanding that hitting women in the head is not just about physical abuse; it is about exerting dominance and creating an environment of extreme control. Women in the study had common experiences of drug use, alcohol use, history of sexual abuse in childhood, institutionalization (foster care, incarceration, or both), housing instability, and low employment; which made them more vulnerable and susceptible to extreme abuse. Traditional avenues for protection, such as police involvement or incarceration of abusers, sometimes provided protection and safety for the women but often introduced an element of danger and uncertainty. These factors combine to create fluctuating vulnerability that allowed the primary abusers to enter the women’s lives and begin to manipulate the situations with extreme control to create dangerous situations that impeded help seeking behaviors.

This study is one of the first to explore the lives of women who self-report passing out from being hit in the head during IPV, and barriers to receiving medical treatment. The finding of the main reason women were not able to receive medical treatment after being hit in the head because they were being raped is a new and unique finding that adds to the growing evidence of the relationship between sexual violence and head injury. Recent studies with female veterans screening positive for TBI from IPV showed an increase in sexual abuse in the past year compared to women without a history of TBI from IPV (46.4% compared to 13.0%, $p < 0.001$, Iverson et al., 2017). Future research should focus on interventions based on rape survivorship and sexual assault as well as head injury. Additional findings around

the relationship between police involvement after IPV and increased sexual abuse are supported by Messing et al.'s (2014) study describing characteristics of women experiencing IPV with police involvement: increased sexual abuse, physical abuse, miscarriages related to abuse, increased rates of stalking and strangulation.

The findings of increased mental and emotional control by the primary abuser expand and challenge existing knowledge. In the study of female veterans, Iverson & Pogoda (2015) found no statistically significant difference in past year severe psychological IPV between women with IPV related TBI and women without TBI from IPV. This study is one of the first to explore the role of mental and emotional control from abusers who inflict a head injury during IPV. Future research should focus on the relationship between TBI and psychological abuse.

Extreme control and instability overlapped with an increased risk of danger when women tried to get help during episodes of IPV. Using a head injury or threat of a head injury became a way to exhibit extreme forms of control including removing a woman's ability to consent for sexual intercourse and seek help from outside sources to address her dangerous situation. Thinking about head injuries from IPV on a community level means thinking about ways that populations of women are kept from accessing the care they need to improve their health.

Syndemics is the concept that diseases and health conditions interact and overlap in social conditions and are sustained at a community level because of harmful social conditions (Singer & Clair, 2003). This concept can be used to guide future research on the overlap of IPV, head injury, and rape and the social context and identities that perpetuate these conditions. Most research on outcomes after TBI has been conducted on males and more research on the differences in recovery by sex is needed, including expanding studies to include people with more severe TBIs to fully understand the experiences of living with TBI (Ponsford, 2013; Cancelliere, Donovan, & Cassidy, 2016; Paterson & Scott-Findlay, 2002). Our findings suggest that future research should take into consideration the neurobiological changes that occur with head injuries in women and TBIs as a health condition that might be influencing other social conditions.

Goldin et al. (2016) discuss the need for a theoretically based framework to create or modify a screening tool for TBI from IPV including the need to routinely screen for TBI in IPV related settings, and syndemics should be included in this conceptual framework. Findings from our study suggest that a screening tool should also ask about increased sexual abuse, stalking, police involvement, and increased emotional abuse and isolation. (See Figure 1 for a theoretical depiction of cycles of instability). Future research could focus on creating a screening tool for the prevention of TBI by assessing risk of receiving a head injury from IPV as based upon other elements of abuse as discussed in this study. Embracing the concept of syndemics, future research should also include other marginalized groups such as transgender women, women in relationships with women, and women who are incarcerated. In doing so, the ways that other forms of social oppression overlap to prevent women from receiving the medical treatment they need can be explored.

Limitations/Strengths

Because of the nature of a secondary data analysis, no follow up questions or theoretical sampling were completed around head injury and IPV. During the interviews, none of the women reported receiving medical treatment for the head injury, however this was not specifically asked. Also, it is unknown if the women had more than one head injury or a previous head injury unrelated to IPV from car accident, trauma, or child abuse. Future research should focus on the way woman's health, or perceptions of health, change after receiving a head injury (including lifetime accumulation of head injuries). Another limitation to this study is that all the women were pregnant, and many had other children. The study cannot be generalized to women without children whose responses to getting health care after a head injury due to IPV may be different.

Only a small number of the DOVE sample reported passing out from being hit in the head by a partner. This is higher than the national average of people living with head injuries but lower than other reports of IPV survivors. Possible reasons for lower prevalence include: the women in the DOVE study were living in the community and not in a shelter so it was not a concentrated sample of women experiencing more severe forms of IPV, women misunderstanding the meaning of "hit in the head by someone" and answering "no" if they had head trauma from being hit by objects or being kicked or thrown down. Current head injury screening tools should be expanded to account for the variety of ways women might experience any form of trauma to the head that could cause disruption in brain functioning, such as choking, kicking, or having heads slammed into a wall.

An important strength of the study was that despite the instability found in the lives of these women, they were able to build trust with the research team during the 24-month course of the study. This model of building trust and demonstrating stability can be used as an example of a way to counter instability and to guide future long-term studies with women experiencing violence.

Implications for Clinical Forensic Nursing Practice

Forensic nurses working in a clinical environment with survivors of IPV are uniquely positioned to screen for head injuries during initial patient assessment and follow ups. Adding questions about repeated concussions or history of passing out after being hit in the head to the medical history will help increase understanding of the prevalence of head injuries in women experiencing violence, even if the source of the head injury is not from abuse. Forensic nurses working with sexual assault, IPV, corrections, and with other members of the healthcare team should be aware of the relationship between forced sex and head injury and the dangerous and controlling nature of abusers who inflict a head injury. If a survivor discloses a history of head injury from IPV it could be important to give the brief 5 item Danger Assessment-5 (Campbell, 2015) to assess for high risk of homicide or physical injury.

Building relationships with neuropsychiatry departments, physical therapists, concussion clinics, and psychologists can help take referrals for women who screen positive for TBI related symptoms using specific screenings tools such as the HELPS Brain Injury Screening

tool (Picard et al., 1991) to identify women who could benefit from neurology and brain injury rehabilitation programs to address symptoms of head injuries (Campbell et al., 2017). Nurses are frequently in a professional role where they build long term relationships with patients and forensic nurses are no exception. Through repeated interactions, forensic nurses can begin to build trusting relationships to counteract the instability in women's lives and help connect women to resources that they need to improve their health and well-being.

Conclusion

While it is known that not all people receive medical treatment after TBI, it is surprising that none of the women in this study were able to get medical care for their head trauma. Forensic nurses and community health workers who work with survivors of IPV can make a difference in women's health by asking focused questions during a trauma history about times that women might have been hit in the head during abuse, sexual abuse and rape, and connect women to resources for head injuries, particularly if they have symptoms of a head injury. Beginning to identify and address symptoms of head injury in women could contribute to the improved health and safety of women.

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References

- Anderson JC, Stockman JK, Sabri B, Campbell DW, & Campbell JC (2015). Injury outcomes in african american and african caribbean women: The role of intimate partner violence. *Journal of Emergency Nursing*, 41(1), 36–42. doi:10.1016/j.jen.2014.01.015 [PubMed: 24768096]
- Banks M (2007). Overlooked but critical: Traumatic brain injury as a consequence of interpersonal violence. *Trauma Violence & Abuse*, 8, 290. doi:10.1177/1524838007303503
- Braun V, & Clarke V (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. doi:10.1191/1478088706qp063oa
- Campbell JC (2015). Danger assessment-5. Retrieved from https://www.dangerassessment.org/uploads/DA-5_2.26.15.pdf
- Campbell JC, Anderson JC, McFadigon A, Gill J, Zink E, Patch M, Callwood G, & Campbell D (2017). The effects of intimate partner violence and probable traumatic brain injury on central nervous system symptoms. *Journal of Women's Health*. doi: 10.1089/jwh.2016.6311
- Cancelliere C, Donovan J, & Cassidy JD (2016). Is sex an indicator of prognosis after mild traumatic brain injury: A systematic analysis of the findings of the World Health Organization collaborating centre task force on mild traumatic brain injury and the international collaboration on mild traumatic brain injury prognosis. *Archives of Physical Medicine and Rehabilitation*, 97(2, Supplement), S5–S18. doi:10.1016/j.apmr.2014.11.028 [PubMed: 25666784]
- Centers for Disease Control and Prevention. (2015). Report to Congress on Traumatic Brain Injury in the United States: Epidemiology and Rehabilitation. National Center for Injury Prevention and Control; Division of Unintentional Injury Prevention Atlanta, GA.
- Corrigan JD, Wolfe M, Mysiw WJ, Jackson RD, & Bogner JA (2001). Early identification of mild traumatic brain injury in female victims of domestic violence. *Clinical Journal of Women's Health*, 1, 184–90. doi:10.1067/mob.2003.404
- Ford-Gilboe M, Varcoe C, Wuest J, Merritt-Gray M (2011). Intimate partner violence and nursing practice In Humphreys J, Campbell J (Ed.), *Family violence and nursing practice* (pp. 115–153)

- Goldin Y, Haag HL, & Trott CT (2016). Screening for history of traumatic brain injury among women exposed to intimate partner violence. *PM&R*, 8(11), 1104–1110. doi:10.1016/j.pmrj.2016.05.006 [PubMed: 27208397]
- Iverson KM, & Pogoda TK (2015). Traumatic brain injury among women veterans: An invisible wound of intimate partner violence. *Medical Care*, 53(4 Suppl 1), S112–9. doi:10.1097/MLR.0000000000000263 [PubMed: 25767964]
- Iverson KM, Dardis CM, & Pogoda TK (2017). Traumatic brain injury and PTSD symptoms as a consequence of intimate partner violence. *Comprehensive Psychiatry*, 74, 80–87. doi:10.1016/j.comppsy.2017.01.007 [PubMed: 28126481]
- Jackson H, Philp E, Nuttall RL, & Diller L (2002). Traumatic brain injury: A hidden consequence for battered women. *Professional Psychology: Research and Practice*, 33(1), 39–45. doi: 10.1037//0735-7028.33.1.39
- Kwako LE, Glass N, Campbell J, Melvin KC, Barr T, & Gill JM (2011). Traumatic brain injury in intimate partner violence: A critical review of outcomes and mechanisms. *Trauma Violence & Abuse*, 12(3), 115–126. doi:10.1177/1524838011404251
- Mechanic MB, Weaver TL, & Resick PA (2008). Risk factors for physical injury among help-seeking battered women: An exploration of multiple abuse dimensions. *Violence Against Women*, 14(10), 1148–1165. doi:10.1177/1077801208323792 [PubMed: 18757347]
- Messing JT, Thaller J, & Bagwell M (2014). Factors related to sexual abuse and forced sex in a sample of women experiencing police-involved intimate partner violence. *Health & Social Work*, 39(3), 181–194. doi:10.1093/hsw/hlu026 [PubMed: 25095631]
- Monahan K, & O’Leary KD (1999). Head injury and battered women: An initial inquiry. *Health & Social Work*, 24(4), 269. [PubMed: 10605632]
- Murray CE, Lundgren K, Olson LN, & Hunnicutt G (2015). Practice update: What professionals who are not brain injury specialists need to know about intimate partner Violence–Related traumatic brain injury. *Trauma, Violence, & Abuse*, doi:10.1177/1524838015584364
- Paterson B, & Scott-Findlay S (2002). Critical issues in interviewing people with traumatic brain injury. *Qualitative Health Research*, 12(3), 399–409. doi:10.1177/104973202129119973 [PubMed: 11918104]
- Picard M, Scarisbrick D, & Paluck R (1991) HELPS brain injury screening tool New York: International Center for the Disabled, TBI-NET, US Department of Education, Rehabilitation Services Administration.
- Ponsford J (2013). Factors contributing to outcome following traumatic brain injury. *NeuroRehabilitation*, 32(4), 803–815. doi:10.3233/NRE-130904 [PubMed: 23867406]
- Rich K (2014). “My body came between us”: Accounts of partner-abused women with physical disabilities. *Affilia*, 29(4), 418–493. doi:10.1177/0886109914522626
- Roberts AR, & Kim JH (2008). Exploring the effects of head injuries among battered women. *Journal of Social Service Research*, 32(1), 33–47. doi:10.1300/J079v32n01_03
- Ruff RM, Iverson GL, Barth JT, Bush SS, Broshek DK, & NAN Policy and Planning Committee. (2009). Recommendations for diagnosing a mild traumatic brain injury: A national academy of neuropsychology education paper. *Archives of Clinical Neuropsychology*, 24, 3–10. doi:10.1093/arclin/acp006 [PubMed: 19395352]
- Saatman KE, Duhaime A, Bullock R, Maas AI, Valadka A, Manley G, & and Workshop Scientific Team Advisory Panel Members. (2008). Classification of traumatic brain injury for target therapies. *Journal of Neurotrauma*, 25(7), 719–738. doi:10.1089/neu.2008.0586 [PubMed: 18627252]
- Sharps P, Alhusen JL, Bullock L, Bhandari S, Ghazarian S, Udo IE, & Campbell J (2013). Engaging and retaining abused women in perinatal home visitation programs. *Pediatrics*, 132(Supplement 2), S134–S139. doi:10.1542/peds.2013-1021L [PubMed: 24187115]
- Sharps PW, Bullock L, Campbell J, Alhusen J, Ghazarian S, Bhandari S, Schminkey D (2016). Domestic Violence Enhanced Perinatal Home Visits: The DOVE Randomized Clinical Trial. *Journal of Women’s Health*, 25(11), 1129–1138. doi: 10.1089/jwh.2015.5547.
- Singer M, & Clair S (2003). Syndemics and Public Health: Reconceptualizing Disease in Bio-Social Context. *Medical Anthropology Quarterly*. 17(4):423–441.

- St. Ivany A, & Schminkey D (2016). Intimate partner violence and traumatic brain injury: State of the science and next steps. *Family & Community Health*, 39(2) doi:10.1097/FCH.0000000000000094
- Straus MA, Hamby SL, Boney-McCoy SB, & Sugarman DB (1996). The revised conflict tactics scale (CTS2): Development and preliminary psychometric data. *Journal of Family Issues*, 17, 283. doi: 10.1177/019251396017003001
- Valera EM, & Berenbaum H (2003). Brain injury in battered women. *Journal of Consulting and Clinical Psychology*, 71(4), 797–804. doi:10.1037/0022-006X.71.4.797 [PubMed: 12924684]
- Zieman G, Bridwell A, & Cardenas JF (2017). Traumatic brain injury in domestic violence victims: A retrospective study at the Barrow neurological institute. *Journal of Neurotrauma*, 34(4), 876–880. doi:10.1089/neu.2016.4579 [PubMed: 27312572]

Figure 1.
Theoretical Depiction of Cycles of Instability