



Defense and Veterans Brain Injury Center
“Clinical Updates in Brain Injury Science Today [CUBIST]”
“Characterizing symptoms of traumatic brain injury in survivors of intimate partner violence”
TRT: 12:30 min
Host: Dr. Donald Marion

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Dr. Marion: Hi. Welcome to Clinical Updates in Brain Injury Science Today, or “CUBIST,” a podcast for health care providers about current research on traumatic brain injury, also known as TBI. This program is produced by the Defense and Veterans Brain Injury Center, otherwise known as DVBIC. I’m your host today, Dr. Donald Marion. I’m a neurosurgeon here at DVBIC.

In today’s episode, I’ll be talking to Ms. Betsy Myhre a nurse practitioner at DVBIC. Betsy and I will discuss a study entitled: Characterizing symptoms of traumatic brain injury in survivors of intimate partner violence, by Jonathon Smirl and colleagues, and published in *Brain Injury*, August of 2019.

Dr. Marion: Betsy welcome, before we discuss the study, can you tell me a little about intimate partner violence and why you were interested in this particular study?

Myhre: Thanks Don. Intimate partner violence (IPV) is one of the most under reported public health problems in North America. It is estimated that 29% of women and 10% of men will experience some form of intimate partner violence in their life time. This study interested me because we focus a lot on sports, training or operational causes of traumatic brain injury in the military and veterans, yet we know that the head, face and neck are the most common targets of physical assault in intimate partner violence. So it is likely that victims of IPV are experiencing undiagnosed or unreported TBIs.

Dr. Marion: Betsy, is IPV or Intimate partner violence, is that more common among spouses of Service Members than in the public as a whole?

Myhre: No, a combined study done by the CDC, Department of Defense and the Department of Justice in 2010 showed that incidents of domestic violence reported in the military population mirrored those in the civilian population.

Dr. Marion: That's interesting to me in particular, I guess I know that PTSD is thought to be more common in the military. So I would have thought that they would have been attached or one would lead to the other and more common but so that's nice to know. And that's good to hear.

Myhre: Right. I think you're making an assumption maybe that all survivors of intimate partner violence are somehow related to people that have PTSD. And I don't believe and I'm not an expert on domestic violence, but I don't believe that's always the case.

Dr. Marion: Sure. So getting back to the study, what were the objectives of this study Betsy?

Myhre: This study was conducted to examine the extent that symptoms associated with potential TBI in survivors of IPV overlap with symptoms of sports-related concussions (SRC). The researchers wanted to determine the extent to which commonly used brain injury assessment tools, such as the Brain Injury Severity Assessment (BISA) tool and the Sport Concussion Assessment Tool – SCAT-5, capture overlapping aspects of TBI symptomology in survivors of IPV. The hypothesis of the researchers was that “there would be comparable number of TBI incidences reported using both assessment tools and the symptoms typically associated with SRC, such as headache, irritability, balance problems, would be positively correlated with the increased TBI severity for the IPV survivors as indexed by the BISA.

Dr. Marion: So in short, I guess they were trying to compare these two different studies. Is that fair?

Myhre: I think they were trying to compare the two different tools in a group of survivors of intimate partner violence.

Dr. Marion: So what then were the key findings, Betsy?

Myhre: The investigators administered the BISA, the SCAT-5 and then they did some other tools such as the Beck Depression Scale to 18 female IPV survivors and found that the BISA was more sensitive than the two other tests for identifying TBIs. Additionally, they looked at specific symptoms that were observed on the SCAT-5 which were significantly associated with those same symptom scores identified on the BISA and though the highest correlation was fatigue, anxiety, drowsiness and memory or cognition symptoms they had a ‘p’ value < .05% significance level.

Dr. Marion: So, how exactly was the study done Betsy?

Myhre: The study was done on 18 women who were self-identified victims of IPV who were recruited into this study from community shelters if they were recruited if they had experienced any form of abuse by an intimate partner, irrespective of having a previously reported or diagnosed with a head trauma. The participants were tested using self-reported and semi-structured interviews by trained clinicians. The BISA is a semi-structured interview about incidents occurring explicitly in the context of TBI and was modified for this study to include an additional prompt regarding the incidents of strangulation or asphyxiation. The BISA produces three scores based on reported frequency. So its reported frequency, recency of the event, and then severity levels of traumatic brain injury. The cohort was also administered the SCAT-5, a tool most often used for evaluating sport-related concussions and intended for use by physicians or advanced practice providers. It includes separate screenings: a 22 question symptom evaluation, cognitive screening, neurologic screen, a balance test, and test of delayed recall. The researchers compared the number of subjects who met the BISA criteria for a TBI against the number of those who met the SCAT-5 definition of a TBI. And the SCAT-5 is actually intended for mild TBI (mTBI), it's a concussion tool. Additional psychopathological assessments were given to the cohort to look at post-traumatic stress disorder, depression, and anxiety these were completed to account for any confounding influence on the results of the BISA or the SCAT-5.

Dr. Marion: So I guess a big question I have is, are we talking about mTBI here or did they also include women who had a more moderate to severe brain injury from their intimate partner violence?

Myhre: That's a great question, Don and I had that question as I read the article also. You know, for the article, the inclusion criteria for the study was a history of a TBI and as I explained the BISA looks at the severity of the TBI. So I had to infer that if they had any TBI they were included in this study, whereas we know the SCAT-5 is specifically written for people that have a concussion or that you're working on an incident that can cause a concussion. So you wonder if there were people that had had especially like a severe TBI, you would have thought that would have been previously identified, and maybe that would have been pulled out of this cohort. But from reading the article, I can interpret that.

Dr. Marion: That's fair. So why do you think the BISA was better at identifying TBI in these women?

Myhre: Well since the BISA, specifically designed to identify survivors of IPV with TBI, and the SCAT-5, as I said, is a concussion assessment tool, I think that that contributed to BISA identifying TBI more in these women. The addition of a prompt about asphyxiation to the BISA, help differentiate between the two main mechanisms of injury that can result with an alteration in consciousness in a survivor of IPV also. All the participants reported experience at least one episode of TBI, and then 56% reported experiencing one episode of asphyxiation. So I also thought it was interesting that although headache is the most common symptom reported in sports related concussions, only 67% of the cohort reported headaches, and the headaches showed the lowest level of correlation with the BISA scores, as mentioned by the researchers, the timing the assessment may have impacted this finding.

Dr. Marion: So all right, Betsy then what are the limitations of this study? And let me just say this, that as a male and a little disappointed that didn't include men in this study, because as you pointed out, and it was somewhat shocking to me, frankly, that is quite a substantial proportion of men that are involved in intimate partner violence, victims of intimate partner violence. I would not have guessed that.

Myhre: That's a great, that's a great point that you make there that this cohort was only females, and I think that's due to the shelter that they did the studies in.

Dr. Marion: 10% versus 29%, yeah.

Myhre: Yeah, so great point, so great point, certainly a limitation of the study. Additionally, you know, as previously mentioned, the SCAT- 5 is a sideline, sports related concussion screening tool, and it was designed for use soon after the injury. And the head injury that was reported in our cohorts occurred on average between 27 and 52 weeks prior to the study. So I felt like that was a limitation of the study also.

Dr. Marion: Sure. Alright, so a little bit more of a complicated kind of podcast than we usually do on CUBIST. But can you kind of boil down the key takeaway points for us, Betsy?

Myhre: Sure, and I thought this was just a really interesting study. And as we're looking at, you know, publishing this during Women's Health Month, that was one of the reasons why I looked at this study, and I thought, and it's certainly a study where we don't talk a lot about intimate partner violence and TBI. This study emphasizes the importance of using clinical tools that screen for fatigue, low energy, anxiety, dizziness, and concentration or memory issues, as these may be residual effects of a TBI and look at those in somebody as you're screening for IPV or you know that they may be a survivor of IPV. Additionally, the early recognition of a TBI could lead to the more effective use of advanced screening studies such as directed interventions in a survivor of IPV. So the bottom line is the study stresses the importance of screening for symptoms of a TBI and survivors of IPV months if not years after the incidents.

Dr. Marion: Right, so if I can just paraphrase a little bit so what you're suggesting is it that if you can tease out the fact that this woman in this case or person who may have thought just had intimate partner violence may also have had a TBI then perhaps you can do a more directed treatment that would be more likely to help that person recover.

Myhre: Right, exactly, more thorough assessment and directed treatment for recovery.

Dr. Marion: That's great, Betsy. Unfortunately, that's all we have time for today. We hope you enjoyed this quick literature update. You can stay up to date on future episodes by subscribing to CUBIST on iTunes, Sound Cloud, Stitcher or wherever you listen to podcasts, where you can also find links to the articles we discuss and other relevant resources.

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Cubist is edited by Vinnie White and was hosted today by me Donald Marion. It is produced by the Defense and Veterans Brain Injury Center, led by Division Chief CAPT Scott Pyne, Medical Corps, United States Navy. Thank you for listening to this episode. Next time we will discuss TBI research getting attention in the mainstream press.