

## **Brain Injury Severity Assessment (BISA) Interview**

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Brain injury. When developing this interview, in order to distinguish mild from moderate-severe TBIs, we used the definition of an MTBI according to the Mild Traumatic Brain Injury Committee of the American Congress of Rehabilitation Medicine (Committee on Mild Traumatic Brain Injury, 1993) as follows: “A patient with mild traumatic brain injury is a person who has had a traumatically induced physiological disruption of brain function, as manifested by at least one of the following: 1. Any period of loss of consciousness; 2. Any loss of memory for events immediately before or after the accident; 3. Any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented, or confused); and 4. Focal neurological deficit(s) that may or may not be transient; but where the severity of the injury does not exceed the following: loss of consciousness of approximately 30 minutes or less; after 30 minutes, an initial Glasgow Coma Scale (GCS) of 13-15; and posttraumatic amnesia (PTA) not greater than 24 hours. This definition includes: 1) the head being struck, 2) the head striking an object, and 3) the brain undergoing an acceleration/deceleration movement (i.e., whiplash) without direct external trauma to the head” (pp. 86-87). In order to determine whether an individual has suffered an MTBI, obtaining medical records or conducting a routine neurological evaluation or obtaining a brain scan would be of limited value because according to this definition: “Computed tomography, magnetic resonance imaging, electroencephalogram, or routine neurological evaluation may be normal. Due to the lack of medical emergency, or the realities of certain medical systems, some patients may not have the above factors medically

documented in the acute stage” (Committee on Mild Traumatic Brain Injury, 1993, p. 87). Therefore, history of brain injury is assessed here using a semi-structured interview in which participants are asked questions in accord with the Committee on Mild Traumatic Brain Injury’s (1993) definition of MTBIs (i.e., participants were asked about alterations in consciousness (AIC) immediately following potential traumas to the brain). More specifically, participants are asked whether they have ever experienced a period of dizziness, feeling stunned or disoriented, "seeing stars or spots," losing consciousness (LOC) or blacking out, or memory loss surrounding a particular incident (posttraumatic amnesia, PTA). If a woman reports that she has experienced any of these conditions, follow-up questions are asked to determine whether these AICs occurred as a result of something her partner did to her and as a result of the head hitting an object, an object (e.g., fist, bat) hitting the head, the head being violently shaken, or being strangled. If an LOC or PTA is reported, follow-up questions regarding the duration of the LOC or PTA are used to determine whether the brain injury is 'mild' or 'moderate to severe.' A brain injury is considered to be 'mild' if the LOC is 30 minutes or less and the PTA is 24 hours or less. Any LOC or PTA greater than that is considered to be 'moderate to severe.' Though most brain injuries in this population can be expected to be MTBIs, using this interview, we also assess for the presence of moderate to severe brain injuries. Questions are asked to determine when the first and last AIC occurred and the total number of times an AIC has occurred. Questions to ascertain whether anoxia or hypoxia occurred from strangulation are also asked. A woman was considered to have sustained a hypoxic or anoxic insult to the brain if she reported an AIC (as defined above) following an incident in which she was strangled by her partner. We realize that, in general, medical records or neurological exam results can be useful in determining severity of brain injuries and realize that there are cases of MTBIs (or moderate to severe brain injuries) for which medical records and neurological results do identify fractures or focal cerebral damage. However, this can only occur if the woman goes to a hospital and/or is examined for such

an injury. In our sample of 99 women, only 25% of women with an inferred brain injury based on the above definition reported going to the hospital to have a suspected head/brain related trauma evaluated, some of which were moderate to severe. These statistics underscore the importance of such research in that there does not appear to be an awareness of the significance of brain injuries (particularly mild traumatic brain injuries) in battered women. Furthermore, as stated earlier in the definition of MTBI, brain injuries can still be present without any imaging or neurological evidence. Thus, although having additional evidence of brain injury would be ideal, relying on such information would lead to a very high false negative rate, and even when available, would represent a very small and most likely a non-representative subset of the this population (e.g., most severely abused and/or women most likely to seek medical attention independent of severity of abuse).

Rationale for the composite brain injury score. Research has shown that the sequelae of brain injuries tend to resolve over time (e.g., McLean, Temkin, Dikmen, & Wyler, 1983) and that having more than one brain injury results in both a longer time to recover and more severe deficits than having only one brain injury (e.g., Gronwall & Wrightson, 1975). Therefore, we computed a brain injury severity score based on the recency and number of inferred brain injuries using the definition provided by the Committee on Mild Traumatic Brain Injury. As described above, a brain injury is defined as a loss or an alteration in consciousness following: some type of blow to the head, head striking another object, being violently shaken, or being strangled. The frequency score was the number of brain injuries inferred based on the woman's report of AICs. The recency score was defined as the number of weeks since the most recent brain injury inferred. Each woman was assigned a score for each of these criteria as follows: Frequency: 1-5 brain injuries (BI) = 1; 6-10 BI = 2; 11-15 BI = 3; 16 or more BI = 4; Recency: More than 52 weeks ago = 0; 27-52 weeks ago = 1; 14 to 26 weeks ago = 2; 0 to 13 weeks ago = 3. The two scores were then added to create the composite brain injury score. Higher

scores represent a combination of a greater number of and/or more recent brain injuries. In our sample of 99 women (Valera & Berenbaum, 2003), this composite brain injury score was strongly correlated with both the number of brain injuries ( $r_s = .90$ ) and the recency of brain injuries among those who had brain injuries ( $r_s = .69$ ). Thus, not surprisingly, the pattern of results of separate analyses examining the number and recency of inferred brain injuries was quite similar to that obtained using the composite brain injury score (Valera & Berenbaum, 2003). (NOTE: Based on the intended use for this interview, a different brain injury score may be more appropriate. Please contact Dr. Valera for more details.)

### **References**

- Committee on Mild Traumatic Brain Injury, American Congress of Rehabilitation Medicine. (1993). Definition of mild traumatic brain injury. *Journal of Head Trauma Rehabilitation*, 8, 48–59.
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- McLean, A., Jr., Temkin, N. R., Dikmen, S., & Wyler, A. R. (1983). The behavioral sequelae of head injury. *Journal of Clinical Neuropsychology*, 5, 361–376.
- Valera EM & Berenbaum (2003). Brain injury in battered women. *Journal of Consulting and Clinical Psychology*, 71 (4), 797-804.

## **Brain Injury Severity Assessment (BISA) Interview**

For the following assessment, "yes" responses will require further probing. For each "yes" response, the following information should be obtained for each alteration or loss of consciousness:

- 1) specifics of the incident;
  - 2) how long the alteration or loss of consciousness lasted;
  - 3) how many such incidents have ever occurred;
  - 4) the time frame within which the incidents have occurred including the following: the most recent incident, when the first such incident occurred, approximate times when other incidents in between occurred. Remember that it is important to acquire information on the first, last and time in between incidents.
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**Now I would like to ask you a little more about things that may have happened to you after something that your partner may have done to you after you had an argument or disagreement or something like that. Some of the questions I ask may be difficult to answer or remember, so please just take your time in answering and do your best.**

**After anything that your partner has ever done to you, have you ever lost consciousness or blacked out? (If yes...)**

Could you tell me more about that and about what happened?

When did that happen?

How long did the blackout last?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

[If she says no to the above question or provides no response, consider probing based on abuse severity info (e.g., if it was reported that he punched her in the head repeatedly)]

**After anything that your partner ever did to you, did you ever feel dizzy...? (If yes...)**

Could you tell me more about that and about what happened?

What was that like for you? What does it feel like for you to be dizzy?

When did that happen?

How long did the dizziness last?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**After anything that your partner ever did to you, did you ever feel stunned, really disoriented or have the sense of not knowing where you were or what time it was? (If yes...)**

Could you tell me more about that and about what happened?

What does it feel like for you to be stunned or disoriented?

When did that happen?

How long did this feeling last?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**After anything that your partner ever did to you, did you ever "see stars or spots"...? (If yes...)**

Could you tell me more about that and about what happened?

What was it like seeing stars (or use spots, whichever term she used)? Could you describe that for me?

When did that happen?

How long were you "seeing stars (or spots)"?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**After anything that your partner ever did to you, did you ever have any problems remembering things that happened right before or after that happened? (If yes...)**

Could you tell me more about that and about what happened?

What types of things couldn't you remember?

When did that happen?

For how long were you not able to remember?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**After anything that your partner ever did to you, did you ever have to go to the hospital? Did you ever feel that you should have gone to the hospital even if you didn't go to the hospital? (If yes...)**

What happened? Could you describe that a little for me?

When did that happen?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

### **Other Brain Injury Incidents**

[If previous reports of loss of consciousness] **Other than things that you just told me about, can you remember any times when you lost consciousness or blacked out?**

[If yes, ask...]

What happened? Could you describe that a little for me?

When did that happen?

How long did the blackout last?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

[If the woman has reported no abusive incidents of blacking out at all, ask]

**Can you remember any times when you lost consciousness or blacked out? (If yes...)**

What happened? Could you describe that a little for me?

When did that happen?

How long did the blackout last?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**Can you remember any times that you might have hit your head, had your head hit with something, or were shaken up? [if yes...]**

Could you tell me little about what happened?

When did that happen?

How long [did the alteration in consciousness last]? (if one is revealed)

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**How about times where you felt dizzy? (If yes...)**

What happened then? Could you describe that for me?

When did that happen?

How long were you feeling dizzy?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**How about times where you felt stunned, really disoriented, or had the sense of not knowing where you were or what time it was? (If yes...)**



What happened? Could you describe what happened and what it felt like for you to feel stunned or disoriented?

When did that happen?

How long did you have this feeling?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**How about times where you "saw stars or spots"? (If yes...)**

What happened? What was it like seeing stars (or use spots, whichever term she used)? Could you describe that for me?

When did that happen?

How long were you "seeing stars (or spots)"?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**How about problems remembering things right before or after an accident or specific event? (If yes)**

Could you tell me a little more about that? What types of things couldn't you remember?

When did that happen?

How long were you unable to remember things?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**Have you ever had to go to the hospital after an accident you had? Did you ever feel that you should have gone to the hospital even if maybe you didn't go to the hospital? (If yes...)**

Could you tell what happened?

When did that happen?

How long were you at the hospital?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?

**Was there ever a time as a child, when you felt any of the things I just mentioned such as losing consciousness, feeling dizzy, disoriented, or seeing stars or spots? Were there any times when you had to go to the hospital or thought that you should have gone to the hospital for any reason? (If yes...)**

Could you tell me what happened?

When did that happen?

How long did you have the problem?

Has that ever happened before?

When was the first time that ever happened?

When was the last time that happened?