The Ohio State University Traumatic Brain Injury Identification Method

The Ohio State University (OSU) Traumatic Brain Injury (TBI) Identification Method (OSU TBI-ID) is a standardized procedure for eliciting a person's lifetime history of TBI via a 3-5 minute structured interview. While not ideal for determining lifetime exposure to potentially damaging brain injury, self-report remains the gold standard for research and clinical use. The OSU TBI-ID has proven useful in many settings, including medical, mental health, substance abuse, domestic violence, corrections and aging. Health care and social service professionals need this tool to elicit a person's history of TBI.

Why is it important to know lifetime history of TBI? Research indicates that a person's lifetime history of TBI is useful for judging current cognitive and emotional states, particularly behavior associated with the executive functioning of the frontal parts of the brain (e.g., planning, impulsivity, addiction, interpersonal abilities). Due to how TBI damages the brain, more exposure (i.e., a worse history of lifetime TBI) increases the likelihood that an individual will struggle with current life stressors, whatever they are. A person who has compromised functioning in the frontal areas of the brain:

- adapts less well in new or stressful situations
- has greater problems following through on recommendations from professionals
- has more difficulty making lifestyle changes, particularly when rewards are in the future.

How is the design of the OSU TBI-ID different from other TBI screening tools? Self-report of prior medical history is highly vulnerable to under-reporting. Previous studies have observed that the words used to elicit self-report of TBI (e.g., "head injury," "traumatic brain injury," "concussion," "knocked out," "loss of consciousness") are interpreted differently by respondents, which can affect recall of an injury (National Center for Injury Prevention and Control, 2003; Warner et al., 2005). To avoid biases created by differences in terminology, the OSU TBI-ID first elicits recall of all injuries requiring medical attention, or that should have been treated. Previous studies of the validity of injury recall methods (Warner, et al., 2005; Warner, Barnes & Fingerhut, 2000) were utilized to optimize personal recall of injuries experienced. The elicitation method subsequently concentrates on those injuries involving a blow to the head or neck, or high velocity forces capable of causing shear injury in the brain. For these injuries, the occurrence of loss of consciousness, its duration and age at injury are determined. In a final step the interviewer inquires further about periods of a person's life when they may have experienced multiple blows to the head.

How was the OSU TBI-ID validated? The validity of the OSU TBI-ID is not based on elicitation of a veridical accounting of a person's lifetime history of TBI. Instead, the OSU TBI-ID provides data for calculating summary indices reflecting the likelihood that consequences have resulted from lifetime exposure to TBI. Initial validation research has supported the psychometric qualities of these summary indices. Reliability has been demonstrated by both inter-rater and test/re-test reliability (Corrigan & Bogner, 2007; Bogner & Corrigan, 2009). Predictive validity has been shown by the relationship between indices of lifetime history and measures of cognitive performance, affective status, interpersonal functioning and aggression (Corrigan & Bogner, 2007; Bogner & Corrigan, 2009; Corrigan, Bogner & Holloman, 2012; Corrigan et al., in press; Dams-O'Conner, in press).

How is the OSU TBI-ID scored? Research to date has indicated that an adult will continue to experience consequences of TBI when any of the following is identified.

- WORST — there has been one moderate or severe TBI (i.e., any TBI with 30 minutes or more loss of consciousness)
- FIRST — TBI with any loss of consciousness before age 15
- MULTIPLE — had 2 or more TBIs close together, including a period of time when they experienced multiple blows to the head even if apparently without effect
- RECENT — a mild TBI in recent weeks or a more severe TBI in recent months
- OTHER SOURCES — any TBI combined with another way that their brain has been impaired.

The following summary indices have been found to be both reliable and valid:

 # TBI-LOC (number of TBI's with loss of consciousness from STEP 2 + number of periods of multiple injuries from STEP 3 in which the most severe injury resulted in loss of consciousness)

 # TBI-LOC ≥ 30 (number of TBI's with loss of consciousness ≥ 30 minutes from STEP 2 + number of periods of multiple injuries from STEP 3 in which the most severe injury resulted in loss of consciousness ≥ 30 minutes)

# of periods in life with multiple or repeated injuries to the head (from STEP 3)

age at first TBI-LOC (youngest age from STEP 2 or STEP 3 where most severe injury resulted in loss of consciousness)

TBI-LOC before age 15 (if age at first TBI-LOC < 15 then =1, if ≥ 15 then = 0)

Worst Injury (1-5):
1 = no history of TBI if responses to #1-5 are "no"; OR in STEP 2 and STEP 3 reports never being dazed, not having memory lapses and never losing consciousness
2 = mild TBI without loss of consciousness If in responses in STEP 2 and STEP 3 the most severe injury reported involved being dazed or having a memory lapse but no loss of consciousness.
3 = mild TBI with loss of consciousness if in responses in STEP 2 and STEP 3 the most severe injury reported involved loss of consciousness but never equaled or exceeded 30 minutes.
4 = moderate TBI if in responses in STEP 2 and STEP 3 the most severe injury reported involved loss of consciousness between 30 minutes and 24 hours, inclusive.
5 = severe TBI if in responses in STEP 2 and STEP 3 the most severe injury reported involved loss of consciousness exceeded 24 hours.

For more information on the OSU TBI-ID visit <www.ohiovalley.org/tbi-id-method>.

References

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