

## **Annotated Bibliography - Suicide and Traumatic Brain Injury (TBI)**

### **Post-Injury Predictors of Suicidal Behavior in TBI Patients**

Simpson, G. & Tate, R. (2002). Suicidality after traumatic brain injury: Demographic, injury, and clinical correlates. *Psychological Medicine*, 32, 687–697.

This study examined the prevalence of hopelessness, suicide ideation and suicide attempts after TBI as well as pre-morbid and post-injury predictors of suicide ideation and suicide attempts in a sample of 172 outpatients with TBI. A substantial proportion of participants had clinically significant levels of hopelessness (35%) and suicidal ideation (23%), and 18% had made a suicide attempt post-injury. Compared to pre-injury vulnerabilities or injury variables, post-injury psychosocial factors, namely hopelessness and psychiatric disturbance, had far greater significance in predicting post-injury suicidal ideation and suicide attempts, respectively. Results suggest that assessment of post-injury adjustment to TBI, and close monitoring of hopelessness and suicidal ideation are important features of managing suicidality in patients who have sustained a TBI.

Simpson, G. & Tate, R. (2005). Clinical features of suicide attempts after traumatic brain injury. *Journal of Nervous & Mental Disease*, 193, 680– 685.

Discusses the clinical features of suicide attempts made among individuals with a history of TBI. Results showed that individuals with a co-morbid psychiatric disorder and substance abuse post-injury were 21 times more likely to have made an attempt post-TBI compared with individuals with no such history. Approximately half of the patients with a post-injury suicide attempt made a repeat attempt, and 26% of those who made a repeat attempted did so within a year of their initial post-injury attempt.

### **Prevalence of Suicide in TBI Patients**

Teasdale, T.W., & Engberg, A.W. (2001). Suicide after traumatic brain injury: A population study. *Journal of Neurology, Neurosurgery, and Psychiatry, 71*, 436-440.

In this archival study, the authors examined the prevalence of suicide that occurred among all patients diagnosed with TBIs in Denmark over a 15-year span, consisting of over 145,000 persons. Statistical analyses revealed that those with traumatic brain injuries had anywhere from 2.7 to 4.1 times a higher rate of completed suicide than did the general population, largely depending on the type of TBI incurred. Teasdale and Engberg importantly concluded that “awareness of a suicide risk should be present in the assessment of any traumatic brain injury” (p. 440).

### **Psychiatric Hospitalization in Veterans with TBI**

Brenner, L.A., Harwood, J.E.F., Homaifar, B.Y., Cawthra, E., Waldman, J., & Adler, L.E. (2008).

Psychiatric hospitalization and veterans with traumatic brain injury: A retrospective study. *Journal of Head Trauma Rehabilitation, 23*, 401-406.

The authors procured medical records of veteran TBI-sufferers in an effort to observe for risk factors leading to psychiatric hospitalizations among this group. Findings provided noteworthy lifetime rates for psychiatric symptoms (95%), problematic alcohol use (34%), and polysubstance use (30%). Results also indicated that those with lifetime histories of problematic polysubstance use were significantly more likely to be hospitalized for psychiatric reasons post-TBI as opposed to those without said use.

Gutierrez, P.M., Brenner, L.A., & Huggins, J.A. (2008). A preliminary investigation of suicidality in psychiatrically hospitalized veterans with traumatic brain injury. *Archives of Suicide Research, 12*, 336-343.

In this archival study, inpatient psychiatric records of 22 veterans with a history of traumatic brain injury were examined over a fifteen-year span. Over that timeframe,

this group was hospitalized 114 times for psychiatric reasons alone. Active suicidal ideation during acute psychiatric admission occurred over 50% of the time. Over one-fourth also had engaged in some sort of non-lethal self-harming behavior. The authors encouraged both researchers and clinicians alike to make suicide prevention an increased focus when working with those with histories of TBI.

### **Risk Factors for Suicide among TBI Patients**

Simpson, G., & Tate, R. (2007). Suicidality in people surviving a traumatic brain injury:

Prevalence, risk factors, and implications for clinical management. *Brain Injury, 21*, 1335-1551.

This literature review details much of the recent research to date on suicidality among those with a history of TBI. Strong attention is paid toward the identification of specific risk factors for suicidal behaviors among this population. Such risk factors discussed include demographic and injury-related characteristics (e.g., initial injury severity), pre-morbid variables (e.g., prior mental health issues), post-injury neuropathology and neuropsychological impairments (e.g., patterns of lesion location), post-injury psychiatric disorders (e.g., depression or substance abuse), and post-injury psychosocial functioning (e.g., degree of social isolation). Among other recommendations, the authors call for additional population-based studies to be done that could take into account the various regional and national disparities in suicide rates.

### ***Psychiatric Risk Factors***

Silver, J. M., Kramer, R., Greenwald, S., et al. (2001). The association between head injuries and psychiatric disorders: Findings from the New Haven NIMH Epidemiological Catchment Area Study. *Brain Injury, 15*, 935–945.

This study examined lifetime prevalence of psychiatric disorders and suicide attempts in individuals with and without a history of traumatic brain injury. Results

showed a higher prevalence of psychiatric diagnoses, except bipolar disorder and schizophrenia, in those with a history of brain injury compared to those with no history of a brain injury after adjusting for age, sex, race, socio-economic status, and quality of life. In addition, those with a TBI were significantly more likely to have had a lifetime history of a suicide attempt. This risk remained significant after adjusting for demographics, quality of life variables, and alcohol abuse, and also after controlling for the presence of psychiatric co-morbidity.

### ***Psychosocial Risk Factors***

Brenner, L.A., Carlson, N.E., Harrison-Felix, C., Ashman, T., Hammond, F.M., & Hirschberg, R.E. (In press). Self-inflicted traumatic brain injury: Characteristics and outcomes. *Brain Injury*.

This retrospective study compared persons who sustained TBIs from suicide attempts to persons who sustained TBIs through unintentional means. Findings suggest that those who sustained self-inflicted TBIs are more likely to (a) have had psychiatric and psychosocial difficulties pre-TBI, (b) cost more to treat, and (c) demonstrate a greater degree of disability upon discharge. The authors provide assessment and treatment strategies aimed at reducing suicide risk in this population.

Brenner, L.A., Homaifar, B.Y., Adler, L.E., Wolfman, J.H., & Kemp, J. (In press). Suicidality and veterans with a history of traumatic brain injury: Precipitating events, protective factors, and prevention strategies. *Rehabilitation Psychology*.

Prior research has exposed both veterans and those with a history of TBI as two distinct groups to be at risk for increased suicidal behavior. In response, Brenner and colleagues gathered qualitative information from veterans with a history of TBI who had previously reported suicidality. Veterans identified numerous common precipitating events for suicidality, including feelings of loss due to role changes,

difficulties in cognitive functioning, and emotional and psychiatric difficulties.

Commonly mentioned preventative factors for suicide included mental health care, religion or spirituality, the recognition of social support, and having a sense of purpose and hope for the future. The veterans also provided many recommendations for how suicide prevention services could be enhanced for their specific population.

### ***Substance Abuse and Other Clinical Correlates***

Corrigan JD. (1995). Substance abuse as a mediating factor in outcome from traumatic brain injury. *Arch Phys Med Rehabil*, 76(4):302-9.

A review of the literature examining the extent to which substance abuse (SA) impacts outcome in TBI. History of SA was associated with more severe injuries, higher mortality rates, poorer neuropsychological outcomes, increased likelihood of multiple TBIs and greater deterioration following rehabilitation. Based on these findings, it can be expected that individuals with a history of SA and TBI, particularly those who continue to abuse substances post-injury will have greater cognitive and functional impairment.

Oquendo, M. A., Friedman, J. H., Grunebaum, M. F., et al. (2004). Suicidal behavior and mild traumatic brain injury in major depression. *Journal of Nervous and Mental Disease*, 192, 430–434.

Authors investigated the relationship between mild TBI (mTBI) and other risk factors for suicidal behavior in a population of patients presenting with a major depressive episode. Results showed that mTBI was associated with increased likelihood of suicidal behavior for males, but not for females. Findings also revealed that among mTBI patients, those with a history of suicidal behavior had higher aggression scores, greater hostility, and were more likely to have a history of substance abuse compared to mTBI patients without a history of suicidal behavior. Findings suggest

that a diagnosis of depression alone may not be the best predictor of increased suicide risk in persons with mTBI, and encourage clinicians to also consider other risk factors, such as aggression (pre-morbid and post-TBI) and substance abuse when assessing suicide risk in patients with a history of mTBI.

### **Screening and Assessment of Suicide Risk Factors in TBI Patients**

Brenner, L.A. (2008). Suicide risk assessment after traumatic brain injury: Application of a novel theoretical model. *Brain Injury Professional*, 5, 26-28.

An initial case illustration highlights many of the struggles and mental health symptoms that our veterans with TBI may face upon returning home from combat, including suicidal ideation. Using Joiner's (2005) interpersonal-psychological theory of attempted and completed suicide, Brenner explains how those with TBI, particularly veterans, may likely become habituated to painful stimuli as well as experience increased senses of burdensomeness and failed belongingness, all of which can place an individual at an increased risk to engage in lethal suicidal behaviors. Assessment strategies and techniques are then outlined in an effort to better determine whether or not psychiatric symptoms including suicidality are being handled sufficiently.

Homaifar, B.Y., Brenner, L.A., Gutierrez, P.M., Harwood, J.E.F., Thompson, C., Filley, C.M., et al. (2009). Sensitivity and specificity of the Beck Depression Inventory-II (BDI-II) in individuals with traumatic brain injury (TBI). *Archives of Physical Medicine and Rehabilitation*, 90, 652-656.

Depression is noted to occur with high frequency among the ever-increasing number of those with a history of TBI. Given this reality, Homaifar and colleagues stress the need for more efficient and less time-intensive mental health diagnostic and screening methods to be used among this population. The authors found that the Beck Depression Inventory–II (BDI-II) to be an appropriately sensitive screening tool

of depressive symptomatology for those with a history of TBI; however, they encouraged that clinicians use a more comprehensive means of assessment when making such a diagnosis in this regard.

Wasserman, L., Shaw, T., Vu, M., Ko, C., Bollegala, D., & Bhalerao, S. (2008). Overview of traumatic brain injury and suicide. *Brain Injury, 22*, 811-819.

This comprehensive summary highlights much of the most current research on the connection between TBI and suicidality. Included as well are sections delineating many of the risk factors for this population, timing matters of suicide in relation to a TBI, guidelines for appropriate assessment of TBI patients, and useful intervention methods geared to reduce suicide risk. Given the complexity of understanding and working with this population, the authors encourage clinicians to undergo further training and education in this arena, particularly with regard to suicide assessment.

### **Treatment of Neuropsychiatric Symptoms Following Mild TBI**

Silver JM, McAllister TW, Arciniegas DB. (2009). Depression and cognitive complaints following mild traumatic brain injury. *Am J Psychiatry. 166*(6):653-61.

Authors discuss pharmacological and behavioral approaches to treating neuropsychiatric symptoms, particularly depression and cognitive complaints following mTBI. They review the literature on pharmacological treatment of depressive symptoms post-TBI, which currently provides the greatest support for sertraline or citalopram. The potential benefits and adverse effects of other SSRI's such as fluoxetine and paroxetine, and atypical antidepressants with this population are also discussed. In addition to pharmacotherapy, authors emphasize that psycho-education and other behavioral interventions to increase compensatory strategies may also reduce complications and facilitate recovery in those sustaining mTBI.

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