



## The mental health sequelae of traumatic head injury in South Vietnamese ex-political detainees who survived torture

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### Abstract

Little is known about the relationship between traumatic head injury (THI) and psychiatric morbidity in torture survivors. We examine the relationship between THI and depression, PTSD, post-concussive syndrome (PCS), disability and poor health status in Vietnamese ex-political detainees who survived incarceration in Vietnamese re-education camps. A community sample of ex-political detainees ( $n = 337$ ) and a non-THI, non-ex-detainee comparison group ( $n = 82$ ) were surveyed. Seventy-eight percent of the ex-political detainees had experienced THI; 90.6% of the ex-political detainees and 3.6% of the comparison group had experienced 7 or more trauma events. Depression and PTSD were greater in ex-detainees than in the comparison group (40.9% vs 23.2% and 13.4% vs 0%). Dose–effect relationships for THI and trauma/torture in the ex-political detainee group were significant. Logistic regression in the pooled sample of ex-detainees and the comparison group confirmed the independent impact of THI from trauma/torture on psychiatric morbidity (OR for PTSD = 22.4; 95% CI: 3.0–165.8). These results demonstrate important effects of THI on depression and PTSD in Vietnamese ex-detainees who have survived torture.

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Traumatic head injury (THI) is a common form of torture and human degradation that occurs during war and other forms of mass violence. Thygesen et al. [1] demonstrated significant neurological and psychiatric morbidity in concentration camp survivors associated with the most commonly reported torture, blows and kicks to the head. Clinical studies have documented chronic neuropsychiatric findings in torture survivors including cerebral atrophy [2]. Rasmussen [3] found that 64% ( $N = 200$ ) of torture survivors revealed neurological impairments (2/3 with head injury). Other studies

of torture survivors and survivors of mass violence have linked psychiatric symptoms, neurological impairment, and traumatic brain injury (TBI) [4–8].

Very little research has been conducted that establishes the relationship between THI and psychiatric disorders such as depression and posttraumatic stress disorder (PTSD) and related physical disability and health status in tortured persons [9]. A study of refugee survivors of torture with self-reported head injury found an increased risk of negative physical consequences among those with possible TBI [10]. A recent review of the literature in non-torture survivors concluded that there is a significant overlap between TBI and PTSD, mild TBI may increase a person's risk for PTSD, and stress reactions following mild TBI rather than any neurological damage itself might be a key contributor to impairment [11]. In a random sample of U.S. Vietnam-era veterans in the community, mild TBI sustained after military discharge was associated with higher rates of headaches,

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## Definitions of Key Terms

Traumatic Head Injury (THI) <sup>a</sup>	Concussion-associated THI, with 1 or more occasions during which all 3 postconcussive symptoms (loss of consciousness, posttraumatic transient amnesia, and any neurologic deficits) occurred.
Traumatic Brain Injury (TBI) <sup>b</sup>	TBI entails damage to the brain resulting from an external force (e.g., brain laceration, intracranial hematoma, intracranial hypertension, hypoxia, anemia, contusion, metabolic anomalies, shearing of the fibers of nerves, and contrecoup injuries). It is not due to a degenerative or congenital insult to the brain. It may lead to temporary or permanent impairment of cognitive, physical, and psychosocial functions, with associated altered or reduced state of consciousness.
Post Concussive Syndrome (PCS) <sup>b</sup>	A syndrome that includes fatigue, sensitivity to light or sound, headache, dizziness, sleep disturbance, and concentration problems. The symptoms of PCS overlap with some of the symptoms of PTSD.

Definitions vary from source to source.

<sup>a</sup> Definition is from Mollica RF, Lyoo IK, Chernoff MC, Bui HX, Lavelle J, Yoon SJ, et al. Brain structural abnormalities and mental health sequelae in South Vietnamese ex-political detainees who survived traumatic head injury and torture. *Arch Gen Psychiatry*. 2009;66(11):1221-1232.

<sup>b</sup> Definition is from Bryant R. Posttraumatic stress disorder vs. traumatic brain injury. *Dialogues in Clinical Neuroscience*. 2011;13(3):251-262.

memory and sleep problems and was found to prolong or complicate recovery from pre-existing PTSD [12]. Depression was found to be common in TBI rehabilitation patients aged 16 or older, and to be associated with worsening of quality of life and participation in society [13]. Mild TBI and ongoing stressors increased the risk of developing delayed symptoms of PTSD in a hospitalized sample [14].

Systematic, well-designed studies of the impact of THI on the physical and mental health of traumatized persons who have experienced extreme violence are urgently needed so that affected individuals can be appropriately identified and treated [15,16]. Manley and Mass [17] call for a broad-based multidisciplinary effort focused on longitudinal investigations of TBI's natural history, the underlying TBI biology and mechanisms, risk factors, and developing effective treatment approaches.

Our group was in an ideal situation to conduct a community study of torture survivors exposed to THI. The Harvard Program in Refugee Trauma (HPRT) has worked with Indochinese survivors of torture and mass violence since

Source: Farlex (2012). Farlex Partner Medical Dictionary. Retrieved from <http://medical-dictionary.thefreedictionary.com/dose-response+relationship>

**What is a dose-effect relationship?** A **dose-effect relationship** is “a relationship in which a change in the amount, intensity, or duration of exposure is associated with a change in risk of a specified outcome” (Farlex, 2012). In the present study, we tested our hypothesis that effects of THI in Vietnamese torture survivors would be independent of non-THI trauma/torture events in their relationship to depression and PTSD.

1981 [18]. Between July 1990 and 1992, HPRT with its Vietnamese community partner, the Vietnamese American Civic Association (VACA), conducted the first study of Vietnamese ex-political detainees resettled in the United States [19]. These political prisoners had been severely tortured in Vietnamese re-education camps and subjected to THI [20,21].

In our present large-scale community study, we describe the prevalence of THI, the relationship between THI and other related forms of psychiatric morbidity, PCS, functional disability, and poor health status in a population that has experienced extreme violence. A dose-effect relationship between THI and trauma/torture events was also examined. We tested our hypothesis that effects of THI in Vietnamese torture survivors would be independent of non-THI trauma/torture events in their relationship to depression and PTSD. We have already reported on the brain structural abnormalities found in a subsample of this study associated with THI [22]. The study conducted by Hoge et al. [23] on the relationship between mild THI to PTSD and depression in Iraqi veterans returning home further supports our tentative hypotheses related to the mental health impact of THI in Vietnamese ex-political detainees.

## 1. Methods

### 1.1. Study population and procedures

The study population included a sample of Vietnamese ex-political detainees resettled in the greater Boston area and a comparison group. We conducted a complete census of 419 ex-political detainees and comparison participants who had received services at VACA. Ex-political detainees were only recruited if they came into the United States under the U.S. Department of State's Humanitarian Operations program for resettling Vietnamese ex-political detainees. Participants were randomly ordered prior to being contacted to avoid selection bias.

Additional recruitment procedures included: (1) a “snow-ball” approach in which current ex-political detainees were asked to pass on recruitment information to friends and acquaintances, (2) VACA counselors contacted past ex-political detainee clients, (3) a public announcement in Vietnamese in the

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