

PTSD and TBI among OIF/OEF Veterans

Lori Phelps, PhD

Wm S Middleton Memorial Veterans Hospital

Madison, WI

Outline

- Discuss PTSD and TBI
 - Signature wounds of the wars in Iraq and Afghanistan
(House Committee on Veterans Affairs Congressional hearing, 2006)
- Symptoms, Presentation, Etiology, and Treatment
- Show examples from youtube and discuss case examples to illustrate experiences that can lead to PTSD and TBI

Youtube examples

- <http://www.youtube.com/watch?v=cR8wV6Pyy8A&feature=related>
- <http://www.youtube.com/watch?v=bTH-nVYdVXo&feature=related>
- <http://www.youtube.com/watch?v=ldsPav3JUKM&feature=related>

Example

- OIF veteran, served as gunner
 - Unit providing back-up
 - Insurgents escape, veteran later observes truck speeding directly at the unit
 - Veteran follows ROE – and then fires into the vehicle; all occupants are killed
 - Learns identity of occupants
- Since return: much anger, hypervigilance, and isolation from his own family

Example

- OEF veteran, served as firefighter
 - Witnesses young boy in struggle w/ 2 men; cannot reach him
 - Observe medics loading boy onto helicopter
 - Boy is eventually thrown from helicopter and blown up w/ C₄
 - Veteran later learns of mortar round
- Since return: much depression, emotional numbing, hypervigilance

Example

- OIF veteran, mechanic
 - Called as part of QRF
 - Witnesses body of best friend in vehicle, skull smashed, has to place in body bag
 - Upon return to base, sits on bunk and cries; feels guilty he is not “strong enough”
 - Sent out on patrol next day
- Since return: heavy alcohol use, DUI, great isolation

What is PTSD?

- A particular presentation following a traumatic experience
 - Combat, MVA, assault, childhood abuse
- Symptoms = natural response to trauma
 - Three symptom clusters = re-experiencing, arousal, avoidance
 - Symptoms cause significant impairment
 - Diagnose PTSD if symptoms don't remit after 1 mo
 - Different therapies hypothesize different reasons as to why symptoms don't remit

Re-experiencing

- Unpleasant and unwanted images, thoughts, and memories about traumatic experience
 - Includes intrusive thoughts, nightmares, flashbacks
 - Intrusive thoughts have a ruminative quality
 - Often easy to identify triggers but not always
 - Can exacerbate anxiety
 - Can lead to avoidance coping strategies

Arousal/anxiety

- Individuals with PTSD are in perpetual “fight or flight” mode; persistent anxiety
 - Sympathetic vs parasympathetic nervous system
 - Easily aroused, difficult to calm down
 - Hypervigilant
 - Running through scenarios
 - Interpret ambiguous situations as threatening
 - Easily irritated/frustrated
 - Difficulty sleeping and concentrating
 - Physical and mental strain

Avoidance

- In an attempt to cope, avoid thinking about incident and/or having feelings about it
 - This does not really work and yet...
- Avoid reminders of the incident and/or situations that are anxiety-provoking
 - This is easier to do...
 - Avoidance strategies include substance abuse, isolation, keeping busy, distraction, emotional numbing
 - Can engender depression, loss of social support, and maintenance of PTSD

Presentation of symptoms in everyday life

- Anger is biggest concern of combat vets and wives
 - Leads to relationship and occupational difficulties, and avoidance to “manage” concern that s/he can’t control themselves
- Disrupted sleep
 - Which exacerbates other symptoms
- Overly vigilant all the time
- Difficulty concentrating, poor memory
- Substance abuse

Rates of PTSD

- Among the general public
 - 10.4% among women, 5.0% among men
- Among OIF/OEF servicemen
 - 12%
- Among VN veterans
 - 20% within 20 yrs of their military service
- Take home message:
 - Combat-related PTSD can be chronic

Longitudinal assessment of PTSD post-deployment

- OIF combat veterans completed PTSD screen immediately following deployment and then 6 mo later
 - Department of Defense study; N = 88,235
 - 12% have + PTSD screen at Time¹, 16-24% have + screen at Time²
 - 50% of + screen at Time¹ improve but more than 2x new positive screens reported
 - Surveys immediately post-deployment “substantially underestimate the MH burden”

Risk factors

- Not everyone who experiences a trauma develops PTSD
- Risk factors for PTSD involve:
 - Sex
 - Severity of trauma
 - Prior traumatic experiences
 - Importance of prior deployments
 - Previous MH concerns
 - Family history of psychiatric illness
 - Limited social support

Comorbid conditions

- >3/4 of individuals w/ PTSD have another MH diagnosis
 - Most likely substance abuse or depression, ramifications of avoidance
- Relationship and occupational difficulties
- Increases risk for suicide
- Increases risk for some medical conditions (cardiac)

“Battlemind”

- Some symptoms of PTSD are learned behavior from military training
 - Survival depended on this so difficult to let go
 - Change in training after WW2 to ensure higher firing % among servicemen
- Vigilance
- Interrupted sleep
- Emotional numbing
 - Anger acceptable
 - Gallows humor

What maintains PTSD?

- Symptoms are natural response to trauma but usually remit over time
 - Therapeutic approaches stem from hypotheses re what maintains PTSD
 - Behavioral/learning: Avoidance does not allow for disconfirmation of fears
 - Classical conditioning results in fear, operant conditioning maintains it
 - Cognitive: Maladaptive thoughts maintain symptoms
 - Biological: Change in brain structures/physiological components maintain symptoms (or place someone at risk for developing PTSD)

Behavioral/learning model

- Avoidance (of thoughts, situations) maintains anxiety b/c it blocks corrective experiences
 - When an individual avoids a feared thought or situation, s/he never experiences habituation
 - Habituation = anxiety lessens over time
 - When an individual never faces a feared thought or situation (and when anxiety about them never declines), s/he believes s/he is incompetent and that the world is dangerous
 - I can't handle this

Prolonged Exposure Therapy

- An empirically supported treatment for PTSD
 - If avoidance maintains PTSD, engagement will be helpful
 - Exposure to feared situations (in vivo) and distressing memories (imaginal) that are usually avoided
 - Individuals experience habituation (anxiety declines) and change their beliefs about their competence and the world (I guess I can handle this)
 - EMDR is a form of exposure w/ distraction

Cognitive model

- Individual feels anxious about the future even though the trauma lies in the past
 - Pathological response to trauma when traumatic information is processed in a way that produces a current sense of threat
 - Memory of the event is poorly elaborated, context not taken into account, and inadequately integrated into general knowledge
 - Maladaptive thoughts affect how the individual feels and their behavior

Cognitive Processing Therapy

- An empirically supported treatment for PTSD
 - Explore how traumatic experience affects the way in which a person thinks
 - Safety, trust, power/control, esteem, intimacy
 - Identify maladaptive trauma-related thoughts and teach individual to challenge
 - The world is a dangerous place, therefore you have to be on guard all the time
 - Small exposure component in that individual writes about traumatic experience

Biological model

- Studies indicate that PTSD is associated with:
 - Over-activation of amygdala
 - Under-activation of prefrontal cortex & hippocampus
 - Smaller hippocampus
 - Noradrenergic abnormalities
 - Norepinephrine is primary neurotransmitter released by sympathetic NS to mediate fight-or-flight response
 - Over-consolidation of memories at time of trauma

Medication

- Evidence to support using:
 - SSRI's
 - Promote neurogenesis in the hippocampus
 - Often a single anti-depressant is not enough
 - Adrenergic meds
 - Prazosin
 - Atypical antipsychotics
 - Have serotonin-modulating properties
 - May promote hippocampal neurogenesis
 - Anticonvulsants
 - Decrease re-experiencing and arousal

What is TBI?

- TBI = Traumatic Brain Injury = Concussion
 - Closed vs open
 - Severity (mild, moderate, severe) based on LOC
 - Mild TBI
 - LOC < 1 hr
 - No visible abnormalities via brain imaging

How do TBI's occur?

- Blunt force trauma to the head or via explosion
 - Detonation generates a blast wave of high pressure
 - Blast wave spreads out at 1,600 ft/sec
 - Blast wave travels hundreds of mts
 - Initial shock wave = wave of high pressure
 - Secondary wind = huge volume of displaced air flooding back into area
 - These sudden and extreme differences in pressure = 1,000 x atmospheric pressure
 - Deceleration injuries
 - Brain (gelatinous) is slammed against the skull (hard, inflexible)
 - Diffuse axonal shearing can occur
 - Coup and contrecoup contusion

What is Post-concussion Syndrome (PCS)?

- 30-80% of individuals w/ mild-moderate TBI also experience symptoms of PCS
 - These symptoms usually occur w/i 7-10 days of the injury and remit w/i 3 mo
 - As high as 15% of individuals have symptoms that persist a year or more
 - The strongest predictor of PCS symptoms is PTSD
- Symptoms include:
 - Headaches, dizziness, fatigue, irritability, anxiety, insomnia, loss of concentration/memory, noise/light sensitivity



PCS Symptoms

- Wide range of cognitive, affective, and somatic domains
 - Anger is most common reported by individual and family
 - More common following accidents than sports injury
- Explanations for symptoms
 - Organic damage
 - Psychological (response to change in functioning)
 - Initial cognitive deficits may lead to frustration

TBI and the military

- Rates of TBI among servicemen (Warren, 2006)
 - Generally higher than among public
 - 20% of injuries treated in Desert Storm were TBI
 - Rate thought to be higher among OIF/OEF and consisting of high percentage of closed-head, blast-related TBI
 - Vasterling (2006) found that 7.5% of recently deployed OIF/OEF soldiers experienced TBI (vs 3.9% for matched sample of non-deployed soldiers)
 - Likely an underestimate

Treating TBI and PCS

- Little attention paid to developing and evaluating treatments
- Treatments focus on cognitive-behavioral approaches (psycho-education, relaxation, skills training) with good outcomes
- Importance of clinician approach
 - Conveying sense of hopefulness that symptoms will remit
- A few studies examine treatment for both TBI and PTSD
 - Early focus was simply to document they could co-occur