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Promising Evidence-Based Interventions for those with TBI

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VA Webinar 10/24/16





Disclaimer

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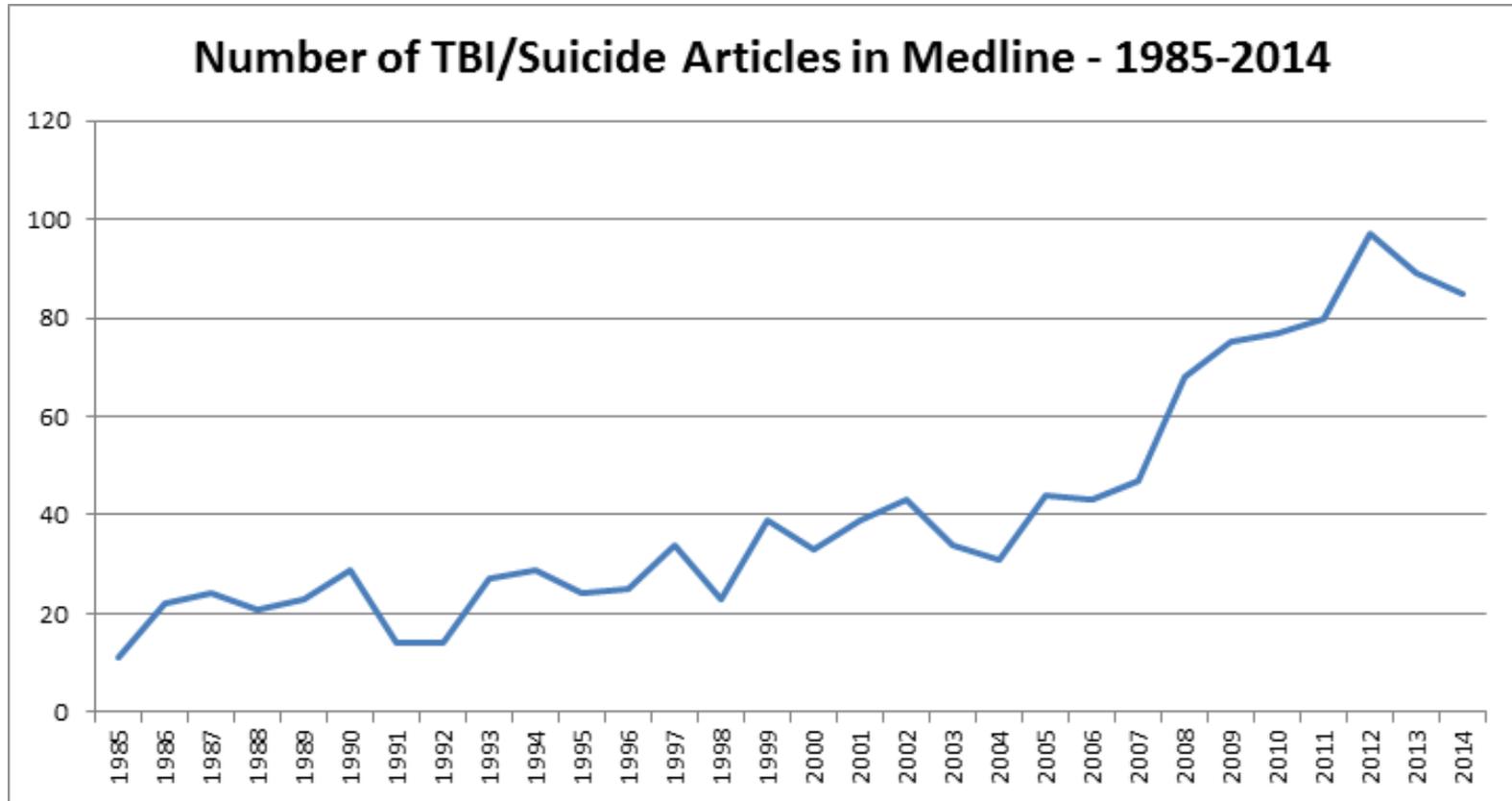


“I think it took awhile before I realized and then when I started thinking about things and realizing that I was going to be like this for the rest of my life, it gives me a really down feeling and it makes me think like—why should I be around like this for the rest of my life?”

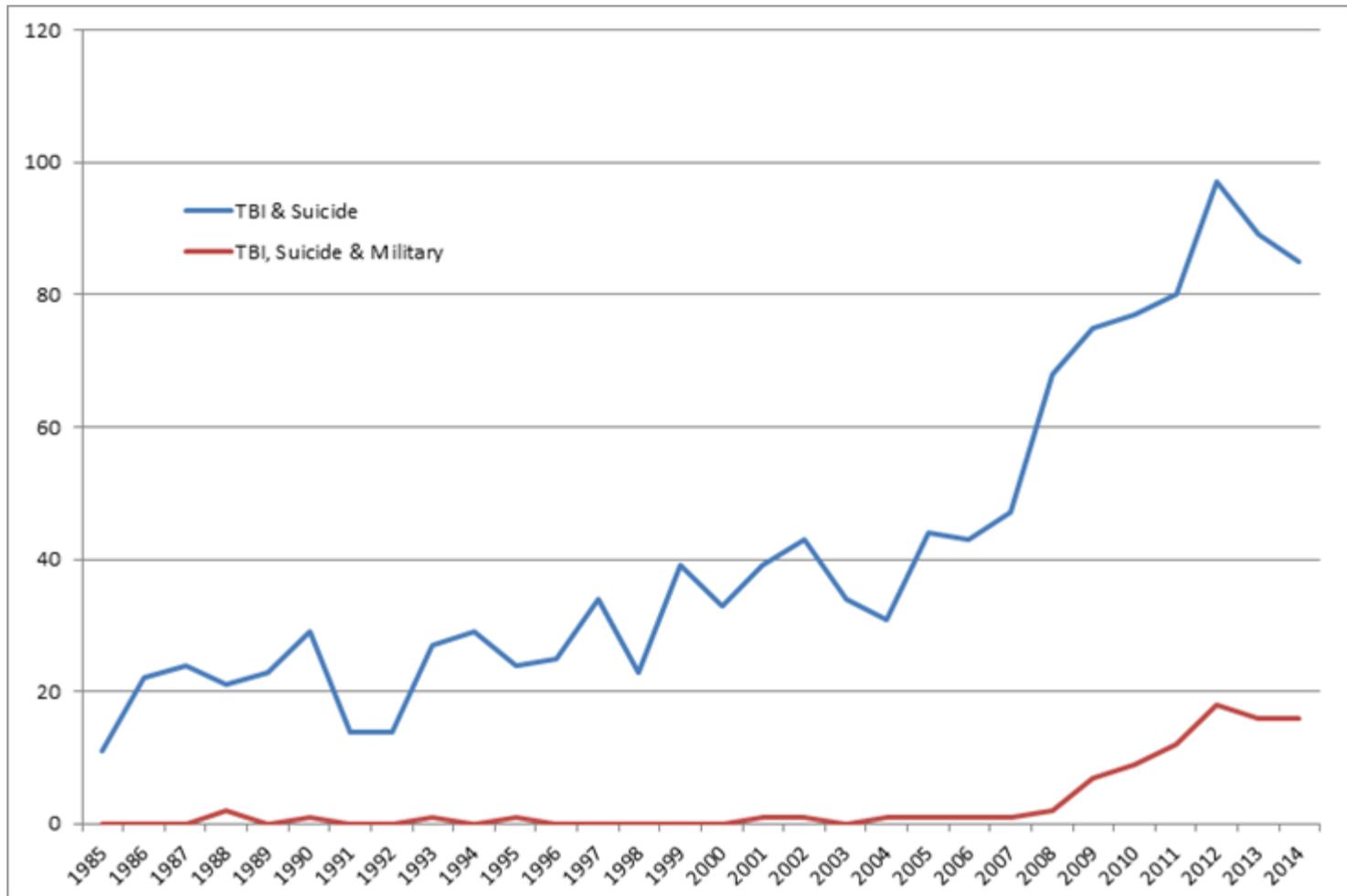
Traumatic Brain Injury - A bolt or jolt to the head or a penetrating head injury that disrupts the function of the brain. Not all blows or jolts to the head result in a TBI. The severity of such an injury may range from “mild” (a brief change in mental status or consciousness) to “severe” (an extended period of unconsciousness or amnesia) after the injury.

A TBI can result in short- or long-term problems with independent function.

TBI and Suicide



TBI: Suicide & Military



Traumatic Brain Injury - Severity

Table 1. Classification of TBI Severity [3]

(If a patient meets criteria in more than one category of severity, the higher severity level is assigned)			
Criteria	Mild	Moderate	Severe
Structural imaging	Normal	Normal or abnormal	Normal or abnormal
Loss of Consciousness (LOC)	0-30 min	>30 min and <24 hours	>24 hours
Alteration of consciousness/ mental state (AOC)*	up to 24 hours	>24 hours; severity based on other criteria	
Posttraumatic amnesia (PTA)	0-1 day	>1 and <7 days	>7 days
Glasgow Coma Scale (GCS) (best available score in first 24 hours)**	13-15	9-12	<9

*Alteration of mental status must be immediately related to the trauma to the head. Typical symptoms would be looking and feeling dazed and uncertain of what is happening, confusion, and difficulty thinking clearly or responding appropriately to mental status questions, and being unable to describe events immediately before or after the trauma event.

**In April 2015, the DoD released a memorandum recommending against the use of GCS scores to diagnose TBI. See the memorandum for additional information.[3]

SYSTEMATIC REVIEW

Suicidal Ideation and Behaviours after Traumatic Brain Injury: A Systematic Review

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Traumatic brain injury (TBI) is prevalent among many populations and existing data suggest that those with TBI are at increased risk for death by suicide. This systematic review serves as an update to a previous review, with the aim of evaluating the current state of evidence regarding prevalence and risk of suicide deaths, post-TBI suicidal ideation and suicide attempts, and treatments to reduce suicide-related outcomes among TBI survivors. Review procedures followed the PRISMA statement guidelines. In all, 1014 abstracts and 83 full-text articles were reviewed to identify 16 studies meeting inclusion criteria. Risk of bias for individual studies ranged from low to high, and very few studies were designed to examine a priori hypotheses related to suicide outcomes of interest. Overall, findings from this systematic review supported an increased risk of suicide among TBI survivors compared to those with no history of TBI. Evidence pertaining to suicidal thoughts and attempts was less clear, mainly due to heterogeneity of methodological quality across studies. One small randomised controlled trial was identified that targeted suicide prevention in TBI survivors. Further research is needed to identify the prevalence of post-TBI ideation and attempts, and to establish evidence-based suicide prevention practices among TBI survivors.

Keywords: suicide, suicide attempt, suicide ideation, traumatic brain injury, systematic review

Suicide is a rare but devastating outcome post traumatic brain injury (TBI). However, death by suicide is only the tip of the iceberg, as much larger numbers of people with TBI make suicide attempts or report suicidal ideation. Historically, suicides after TBI were first documented among brain-injured Veterans from the First and Second World Wars (e.g., Russell, 1951). Early reports of civilian suicides were contained in broader TBI

outcome studies conducted in the United Kingdom and Europe (e.g., Hestikaten & Siipponen, 1970; Lewin, Marshall, & Roberts, 1979). Since then, continued efforts to empirically investigate the prevalence of suicide and the impact of TBI on suicide risk have contributed to a growing body of literature on suicide-related outcomes among TBI survivors. Although studies examining prevalence of suicidal ideation, behaviour and death by

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Disclaimer: This article is based on work supported, in part, by the Department of Veterans Affairs, but does not necessarily represent the views of the Department of Veterans Affairs or the United States Government. Drs Brenner and Simpson would also like to acknowledge that they are authors on 6 of the 16 papers reviewed. Efforts were made to reduce conflicts (i.e., other members of the team reviewed their articles in terms of risk of bias).

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Peer reviewed articles published in English February 2007 to October 2012

Systematic Review on Suicide after TBI - 5

TABLE 2

Prevalence and Risk of Suicide After TBI

Source	Design ^a	Population/ sample	Study admission	TBI		Reference population	Prevalence of suicides	SMR or OR (95% CI)	Risk of bias (category of bias) ^b
Brenner et al., 2011 ^c Veteran, United States	Retrospective cohort	N = 49,626 All VHA users with TBI	2001–2006, 6 years	Concussion Contusion/ TIH	12,159 39,623	5% random sample of VHA users without TBI N = 389,583	105 observed	All* 1.55 (1.24, 1.92) Mild** 1.98 (1.39, 2.82) Mod–Sev† 1.34 (1.09, 1.64)	Rating: low risk of bias Outcome assessors not blinded to exposure (DB) Use of ICD-10 less accurate for injuries in which medical attention was not sought (DB)
Harrison-Felix et al., 2009 Civilian, United States	Retrospective cohort	N = 1678 Persons with TBI admitted to an adult rehabilitation hospital and survived >1 year	1961–2003, 40 years	Loss of conscious- ness None 1 day 2–7 days 8–129 days	129 495 360 568	Federal US mortality rates by age, sex and race	10 observed, 3.39 expected	All ^c 2.95 (1.42, 5.43)	Rating: moderate risk of bias External comparison group not selected based on TBI status (SB & CON) Outcome assessors not blinded to exposure (DB) Cause of death unknown or missing for 12 cases (AB) Presence of TBI in reference group (CON)
Himanen et al., 2011 Civilian, Finland	Retrospective cohort	N = 192 All referrals for neurological or NP A'x at a university hospital	1950–1971, 24–30 years	Mild Moderate Severe Very severe	65 68 53 5	General population	3/75 deaths, 4.2%	NR	Rating: moderate risk of bias External comparison group not selected based on TBI status (SB and CON) Outcome assessors not blinded to exposure (DB) TBI severity not based on standard criteria (DB) Validity and reliability of data source for suicide is unclear (DB) Presence of TBI in reference group (CON)

Systematic Review on Suicide after TBI

TABLE 2

Continued

Source	Design ^a	Population/ sample	Study admission	TBI		Reference population	Prevalence of suicides	SMR or OR (95% CI)	Risk of bias (category of bias) ^b
Mainio et al., 2007 Civilian, Finland	Cross- sectional	N = 1877 All general population suicides in single province	1988–2004, 16 years	Concussion Lesion ^d	83 20	Subset of 1877 suicides with no identified TBI	103/1877 5.5%	NA	Rating: moderate risk of bias Assessors of TBI exposure not blinded to suicide (DB) TBI status was based on ICD-9 codes for inpatient treatment or hospitalisation only (DB) mTBIs likely underrepresented or misclassified (CON)
Skopp et al., 2012 Military personnel, United States	Case control	N = 1764 All general population suicides in US military active service	2001–2009	Mild Moderate Severe Unclassified	97 25 5 2	Random selection, matched 4:1 ratio to cases by service, gender, race, age, date of entry active service, length of military service	129/1764 7.3%	Mild (OR) 1.1 (0.88, 1.42)	Rating: moderate risk of bias Assessors of TBI exposure not blinded to case/ control status (DB) Use of ICD-10 less accurate for injuries in which medical attention was not sought (DB) Risk for moderate to severe TBI not reported due to limited cases; only mTBI analysed and reported (RB and PRE) Differences in length of time from injury to death not addressed (CON)

SMR, Standardized Mortality Ratio; OR, Odds Ratio; CI, Confidence Interval; VHA, Veterans Health Administration; TBI, Traumatic Brain Injury; TIH, Traumatic Intracranial Haemorrhage; Mod, Moderate; Sev, Severe; ICD-10, International Statistical Classification of Diseases-10; NP A'x, Neuropsychological Assessment; NR, Not Reported; NA, Not Applicable.

^aDetermined using the Taxonomy of Study Design Tool (Hartling et al., 2010).

^bRTI Risk of Bias tool (Viswanathan & Berkman, 2012); potential sources of bias include selection bias (SB), detection bias (DB), performance bias (PB), reporting bias (RB), attrition bias (AB), confounding (CON) and precision (PRE).

^cSMR reported as statistically significant but *p* value not provided.

^dInjuries classified as lesions included cerebral contusion and intracranial haemorrhage.

p* < .0001, adjusted model. *p* = .0002, adjusted model. †*p* = .006, adjusted model.

Suicide and TBI in Veterans

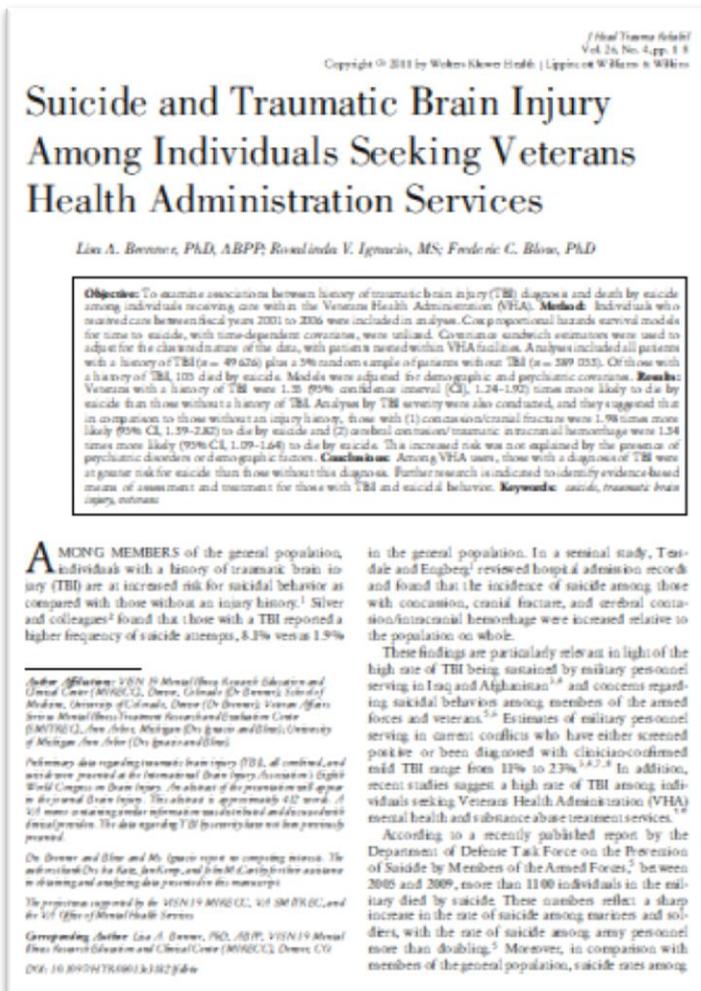
Individuals who received care
between FY 01 and 06

Analyses included all patients
with a history of TBI (n = 49, 626)
plus a 5% random sample of patients
without TBI

(n = 389,053)

Suicide - National Death Index (NDI)
compiles death record data for all US
residents from state vital statistics
offices

TBI diagnoses of interest were similar
to those used by Teasdale and
Engberg



Challenges associated with this type of research and need for
collaboration (~8 million records reviewed)

Suicide and TBI in Veterans

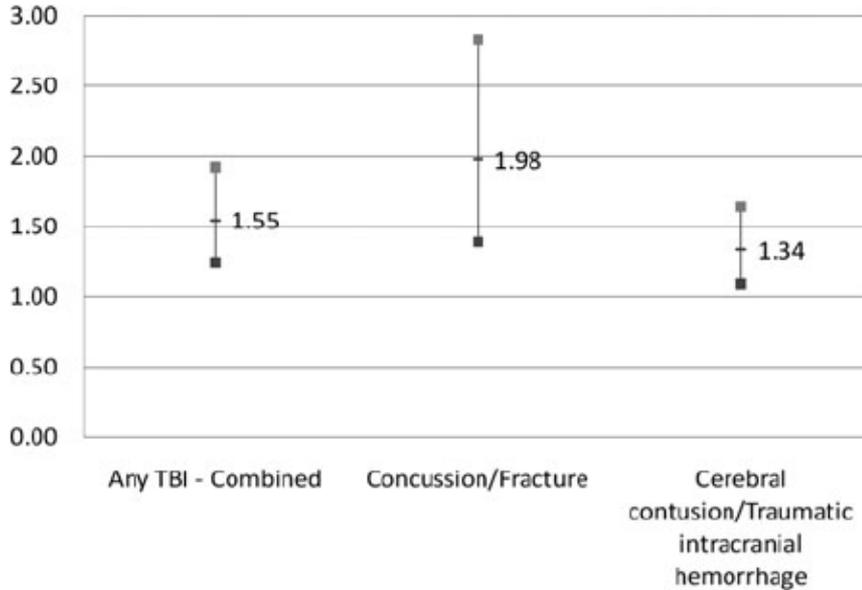


Figure 2. Hazard ratios for suicide by traumatic brain injury severity adjusted for sex, age, and psychiatric conditions.



Cox proportional hazards survival models for time to suicide, with time-dependent covariates, were utilized. Covariance sandwich estimators were used to adjust for the clustered nature of the data, with patients nested within VHA facilities.

ICD-9 codes:

1) concussion (850), cranial fracture—fracture of vault of skull (800), fracture of base of skull (801), and other and unqualified skull fractures (803)

(2) cerebral laceration and contusion (851); subarachnoid, subdural, and extradural hemorrhage after injury (852); other and unspecified intracranial hemorrhage after injury (853); and intracranial injury of other and unspecified nature (854).



Diagnosis	All		Those who died by suicide		Those who did not die by suicide		P
	N	Col%	N	Col%	N	Col%	
VHA users with any TBI (combined)							
All	49 626	100	105	100	49 521	100	
Substance abuse	8368	16.86	32	30.48	8336	16.83	.0002
Bipolar I/II	2265	4.56	10	9.52	2255	4.55	.0292
MDD	4,464	9	24	22.86	4440	8.97	<.0001
Other depression, no MDD	7616	15.35	23	21.9	7593	15.33	.062
Other anxiety	4326	8.72	16	15.24	4310	8.7	.0177
PTSD	4880	9.83	23	21.9	4857	9.81	<.0001
Schizophrenia/schizoaffective disorder	2287	4.61	6	5.71	2281	4.61	.4875
<u>VHA users with concussion/fracture</u>							
All	12 159	100	33	100	12 126	100	
Substance abuse	2087	17.16	9	27.27	2078	17.14	.123
Bipolar I/II	588	4.84	2	6.06	586	4.83	.6731
MDD	1198	9.85	10	30.3	1188	9.8	.00092
Other depression, no MDD	1831	15.06	7	21.21	1824	15.04	.3271
Other anxiety	1148	9.44	7	21.21	1141	9.41	.0316
PTSD	1376	11.32	7	21.21	1369	11.29	.0912
Schizophrenia/schizoaffective disorder	519	4.27	1	3.03	518	4.27	.9999
<u>VHA users with cerebral contusion/traumatic intracranial hemorrhage</u>							
All	39 545	100	78	100	39 467	100	
Substance abuse	6728	17.01	25	32.05	6703	16.98	.0004
Bipolar I/II	1802	4.56	8	10.26	1794	4.55	.0256
MDD	3490	8.83	17	21.79	3473	8.8	<.0001
Other depression, no MDD	6142	15.53	17	21.79	6125	15.52	.1263
Other anxiety	3377	8.54	11	14.1	3366	8.53	.0785
PTSD	3757	9.5	17	21.79	3740	9.48	.0002
Schizophrenia/schizoaffective disorder	1869	4.73	5	6.41	1864	4.72	.4199





Key Findings: TBI & Suicide Attempts/Suicidal Ideation

Systematic Review on Suicide Attempts after TBI - 2

TABLE 3

Prevalence of Suicide Attempts (SA) After TBI

Source	Design ^a	Sample/setting	Sample sex/ age	TBI severity	SA source/time frame	Time-post injury	Prevalence of SA	Risk of bias (category of bias) ^b	
Breshears et al., 2010 Veteran, United States	Retrospective cross-sectional	N = 154 Archival data of interdisciplinary TBI team evaluations, recruit NA	149M, 5F Age M (SD) = 30.30 (11.57)	Mild 42 Mod 44 Sev 68	27.3% 28.6% 62.4%	Medical record review, clinical determination of presence of SA, post-TBI	14 yrs post	7.1%	Rating: moderate risk of bias Outcome assessors not blinded to exposure (DB) Use of keyword searches instead of diagnostic codes to classify SA (DB) Limited to SA that occurred within 2 years post diagnostic evaluation (DB)
Gutierrez et al., 2008 Veteran, United States	Retrospective case-series	N = 22 Attended TBI interdisciplinary team, archival data of all with H'x of IP psychiatric admission, recruit NA	21M, 1F Mdn = 51 yrs (range 38–65 yrs)	Mild 1 Mod 11 Sev 10	4.5% 50.0% 45.5%	SA documented in psychiatric discharge summaries, post-TBI	Mdn = 15 yrs	27.3%	Rating: moderate risk of bias Those whose hospitalisations occurred prior to computerised records were not included (SB) Outcome assessors not blinded to exposure (DB) Validated measure of SI not used (DB) Data regarding SI limited to hospital discharge records (DB)

TBI, Traumatic Brain Injury; Mod, Moderate; Sev, Severe; M, Male; F, Female; H'x, History; IP, Inpatient; M, Mean; Mdn, Median; NA, Not Applicable; SD, Standard deviation; yrs, years.

^aDetermined using the Taxonomy of Study Design Tool (Hartling et al., 2010).

^b RTI Risk of Bias tool (Viswanathan & Berkman, 2012); potential sources of bias include selection bias (SB), detection bias (DB), performance bias (PB), reporting bias (RB), attrition bias (AB), confounding (CON), and precision (PRE).

Systematic Review on Suicidal Ideation after TBI - 2

TABLE 4

Prevalence of Suicidal Ideation (SI) After TBI

Source	Design ^a	Sample/setting	Sample sex/ age	Injury severity	SI source/ time frame	Time-post injury	Prevalence of SI	Risk of bias (category of bias) ^b
Tsaousides et al., 2011 Civilian, United States	Retrospective cross-sectional	N = 356 Community-dwelling, diverse sources	186M, 170F Age M (SD) = 44.5 (15.2) yrs	Mild Mod-Sev	37.6% 62.4%	Score ≥ 1 on SI item on BDI-II last 2 weeks	M (SD) = 5.9 (9.2) yrs	28.3% Rating: low risk of bias Outcome assessors not blinded to exposure (DB) Single-item measure of SI not validated (DB)
Gutierrez et al., 2008 Veteran, United States	Retrospective case series	N = 22 Attended TBI interdisciplinary team, archival data of all with H'x of IP psychiatric admission, recruit NA	21M, 1F Age Mdn = 51 yrs (range 38–65 yrs)	Mild 1 Mod 11 Sev 10	4.5% 50.0% 45.5%	Reference to suicide ideation in psychiatric discharge summaries, post-TBI	Mdn = 15 yrs	72.7% Rating: moderate risk of bias Those whose hospitalisations occurred prior to computerised records were not included (SB) Outcome assessors not blinded to exposure (DB) Validated measure of SI not used (DB) Data regarding SI limited to hospital discharge records (DB)

TBI, Traumatic Brain Injury; Mod, Moderate; Sev, Severe; M, Male; F, Female; BDI-II, Beck Depression Inventory-II; M, Mean; SD, Standard deviation; Mdn, Median; H'x History; IP, Inpatient; NA, Not Applicable; yrs, years.

^aDetermined using the Taxonomy of Study Design Tool (Hartling et al., 2010).

^bRTI Risk of Bias tool (Viswanathan & Berkman, 2012); potential sources of bias include selection bias (SB), detection bias (DB), performance bias (PB), reporting bias (RB), attrition bias (AB), confounding (CON), and precision (PRE).



Systematic Review on Suicide after TBI

- **Strong support for the association between TBI and elevated risk for suicide**
 - Increased risk of death by suicide for individuals with TBI supported by 2 retrospective cohort studies (Brenner et al., 2011c; Harrison-Felix et al., 2009)
 - High rates of SA post-injury
 - 7.1% of sample had a post-injury history of a SA within a 2 year period and almost half of these individuals had more than one event (Breshears et al., 2010)
 - 27.3% had a history of SA among a sample of individuals with TBI and a history of post-injury psychiatric admission (Gutierrez et al., 2008)
- **Still lacking quality research examining prevalence of SI and SA among individuals with TBI**



Original Investigation

Suicide, Fatal Injuries, and Other Causes of Premature Mortality in Patients With Traumatic Brain Injury: A 41-Year Swedish Population Study

Seena Fazel, MD; Achim Wolf, MSc; Demetris Pfilos, PhD; Paul Lichterstein, PhD; Niklas Långström, PhD

JAMA Psychiatry. 2014;71(3):326-333. doi:10.1001/jamapsychiatry.2013.2925
Published online January 15, 2014.

RESULTS Among those who survived 6 months after TBI, we found a 3-fold increased odds of mortality (AOR, 3.2; 95% CI, 3.0-3.4) compared with general population controls and an adjusted increased odds of mortality of 2.6 (95% CI, 2.3-2.8) compared with unaffected siblings. Risks of mortality from external causes were elevated, including for suicide (AOR, 3.3; 95% CI, 2.9-3.7), injuries (AOR, 4.3; 95% CI, 3.8-4.8), and assault (AOR, 3.9; 95% CI, 2.7-5.7). Among those with TBI, absolute rates of death were high in those with any psychiatric or substance abuse comorbidity (3.8% died prematurely) and those with solely substance abuse (6.2%) compared with those without comorbidity (0.5%).

“We found a 3-fold increased odds of mortality...”

Rates and Predictors of Suicidal Ideation During the First Year After Traumatic Brain Injury

Jessica L. Mackelprang, PhD, Charles H. Bombardier, PhD, Jesse R. Fann, MD, MPH, Nancy R. Temkin, PhD, Jason K. Barber, MS, and Sureyya S. Dikmen, PhD

American Journal of Public Health | July 2014, Vol 104, No. 7

“Twenty-five percent of the sample reported SI...”

Objectives. We examined rates of suicidal ideation (SI) after traumatic brain injury (TBI) and investigated whether demographic characteristics, preinjury psychiatric history, or injury-related factors predicted SI during the first year after injury.

Methods. We followed a cohort of 559 adult patients who were admitted to Harborview Medical Center in Seattle, Washington, with a complicated mild to severe TBI between June 2001 and March 2005. Participants completed structured telephone interviews during months 1 through 6, 8, 10, and 12 after injury. We assessed SI using item 9 of the Patient Health Questionnaire (PHQ-9).

Results. Twenty-five percent of the sample reported SI during 1 or more assessment points. The strongest predictor of SI was the first PHQ-8 score (i.e., PHQ-9 with item 9 excluded) after injury. Other significant multivariate predictors included a history of a prior suicide attempt, a history of bipolar disorder, and having less than a high school education.

Conclusions. Rates of SI among individuals who have sustained a TBI exceed those found among the general population. Increased knowledge of risk factors for SI may assist health care providers in identifying patients who may be vulnerable to SI after TBI. (*Am J Public Health.* 2014;104:e100–e107. doi:10.2105/AJPH.2013.301794)



Key Findings: Strategies for Intervention

At time of review – 1 RCT



TBI

Hopelessness

SI

SA



J Head Trauma Rehabil
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Suicide Prevention After Traumatic Brain Injury: A Randomized Controlled Trial of a Program for the Psychological Treatment of Hopelessness

*Grahame K. Simpson, PhD; Robyn L. Tate, PhD; Diane L. Whiting MPsychol (Clinical);
Rachel E. Cotter, BA (Hons) (Psychol)*

10 Session

Small group
intervention

Primary outcome measure: ↓ Hopelessness

Secondary outcome measures: ↓ Suicidal ideation and depression

↑ Hope, self-esteem, problem solving

Participants who completed the WtoH program would report a significant reduction in their levels of hopelessness compared to waitlist controls

Treatment group would demonstrate significant reductions in suicidal ideation and depression, and increased social problem-solving, self-esteem and hopefulness in comparison to the waitlist controls



Session	Therapeutic Principle	Goals
1. Getting started	Group formation	Group participants meet, introduce program theme
2. Living a positive lifestyle	Behavioral activation	Examine relationship between affect and lifestyle factors
3. Thoughts and feelings	Socialization to CBT	Learn about the relationship between thoughts and feelings
4,5. Take another look	Cognitive restructuring	How cognitive restructuring can ameliorate distress
6,7. Problem-solving	Problem-solving	To develop a systematic approach to solving problems
8. Problem-solving and recovery	Compensatory techniques	To develop skills to facilitate adjustment to the extent of post-injury recovery
9. Building hope	Relapse prevention: Post Traumatic Growth	To identify means of building hope after TBI, self-esteem
10. Building hope	Relapse prevention: Post Traumatic Growth	Making meaning of TBI, positive expectancy, and building connections

Positive Lifestyle – EASE

Eating
Activity
Sleep
Exercise

Take Another Look

Cognitive Restructuring

Stop
Drop
Roll



How to be a STAR

Problem Solving

Spot the problem
Think of options
Act on best option
Review how it went

Building Hope

Post Traumatic Growth

Self-esteem/ value
Finding connection
Sense of purpose
Expect good things



Aims of the program

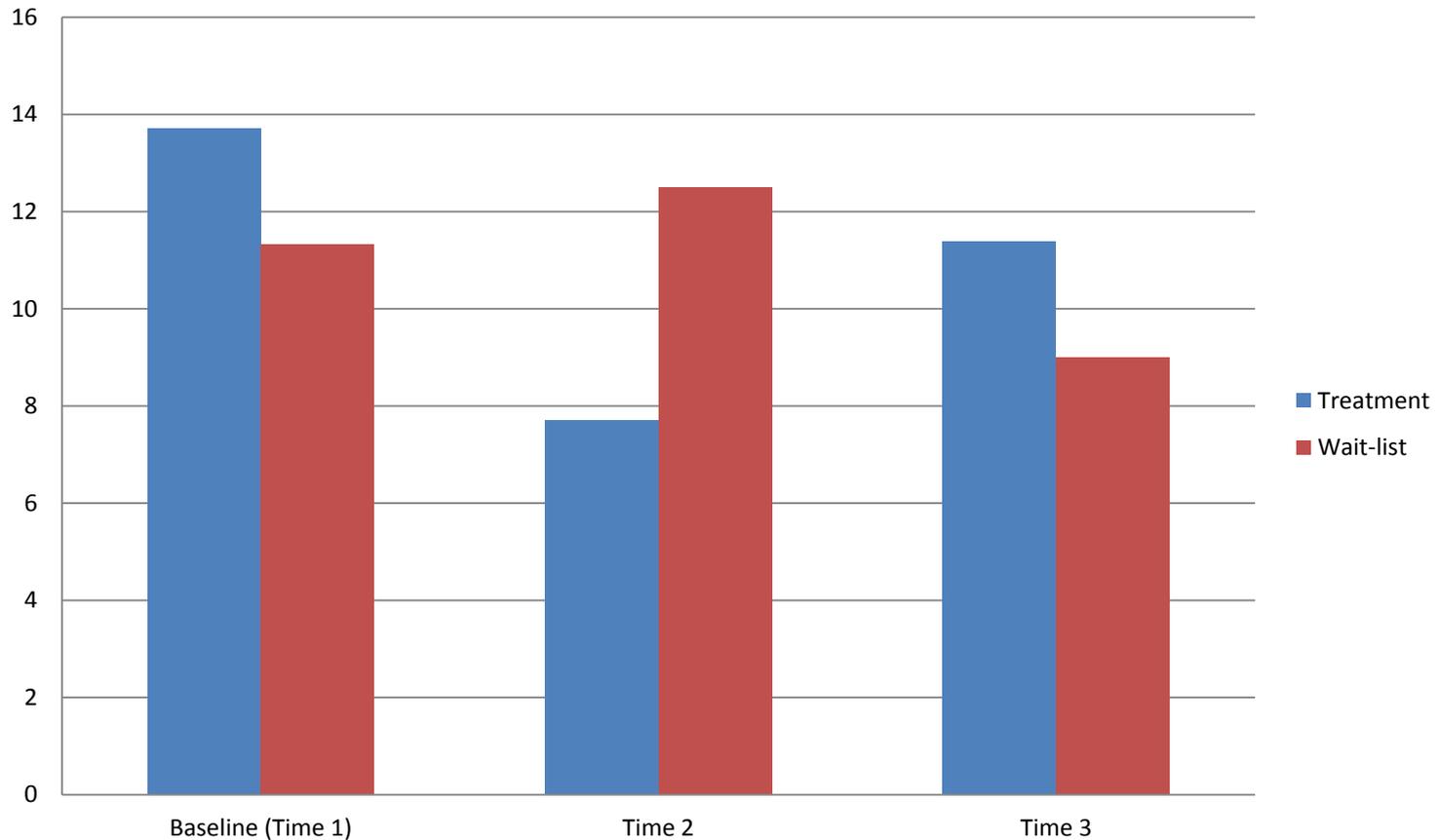


The program aims to strengthen hope by:

1. Exploring ways of building and maintaining a sense of hopefulness after a brain injury
2. Addressing negative feelings
 - Learning how some thinking styles can trap people into feeling bad
 - Learning how to break out of this trap
3. Learning ways of dealing with life's problems
4. Looking at ways of rebuilding our lives after a traumatic brain injury.



Hopelessness



<u>Score</u>	<u>Range</u>
0-3	Minimal
4-8	Mild
9-14	Moderate
15-20	Severe

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VA Window to Hope



Lisa A. Brenner, Ph.D., Jeri E. Forster, Ph.D.,
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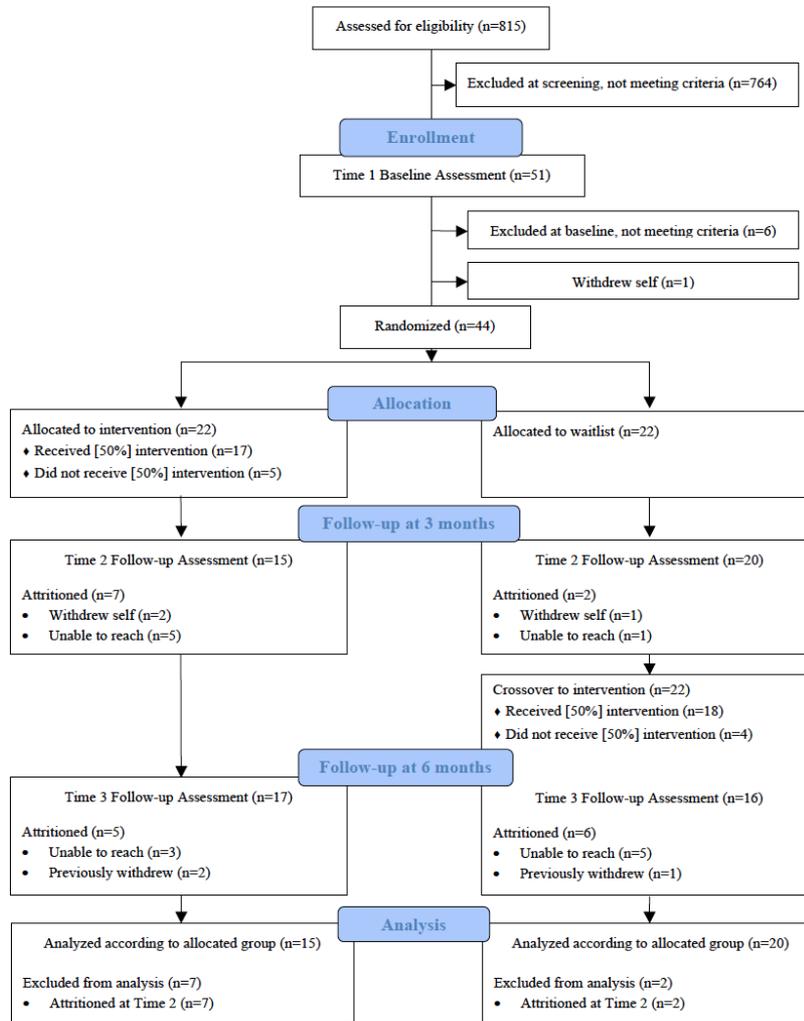
MILITARY
SUICIDE RESEARCH
CONSORTIUM

ROCKY MOUNTAIN
MIRECC



VA Window to Hope - Study Approach

- A cross-cultural adaptation of the WtoH intervention for US Veterans with moderate to severe TBI - **completed**
- WtoH pilot groups to examine the implementation (acceptability, feasibility, and fidelity) of the revised WtoH treatment manual - **completed**
- Phase II RCT to test efficacy of the revised WtoH program in a waitlist crossover design - **completed**
- **Additional MSRC funding** - Problem Solving Therapy for Suicide Prevention to pilot feasibility trial to test implementation as a possible active control *and* potential stand-alone intervention - **under review**





VA Window to Hope – Limitations & Next Steps

- **Limitations**
 - “Messy” - variability in reported symptoms
 - Small sample size
- **Additional support for the efficacy of the intervention or effectiveness?**



International Collaboration





Archives of Physical Medicine and Rehabilitation

Journal homepage: www.archives-ptm.org

Archives of Physical Medicine and Rehabilitation 2015;96:1411-8



ORIGINAL RESEARCH

Executive Functioning and Suicidal Behavior Among Veterans With and Without a History of Traumatic Brain Injury



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Lindsey L. Monteith, PhD,^{a,b} Herbert Nagamoto, MD,^{b,e} Brooke Dorsey-Holliman, PhD,^a
Jeri E. Forster, PhD^{b,d}

From the ^aRocky Mountain Mental Illness: Research, Education, and Clinical Center (MIRECC), Denver, CO; Departments of ^bPsychiatry, ^cNeurology, and ^dPhysical Medicine and Rehabilitation, University of Colorado Denver, Anschutz Medical Campus, Aurora, CO; and ^eVeterans Health Administration, Eastern Colorado Health Care System, Denver, CO.

Abstract

Objective: To examine the relationship between executive dysfunction, as a multidimensional construct (ie, decision-making, impulsivity, aggression, concept formation), and suicide attempt (SA) history in a high-risk sample of veterans with moderate to severe traumatic brain injury (TBI).

Design: Observational, 2 × 2 factorial design. To estimate group differences, linear regression was used to model the primary and secondary outcomes of interest as a function of history of SA, TBI, and the interaction between the 2 variables. Additionally, to determine the pattern of performance over the course of the Iowa Gambling Test (IGT), scores were modeled across the 5 IGT blocks by using a varying-coefficient model.

Settings: Veterans Health Administration.

Participants: Veterans (N = 133; no SA/no TBI, n = 48; no SA/yes TBI, n = 51; yes SA/no TBI, n = 12; yes SA/yes TBI, n = 22) completed the study measures.

Interventions: Not applicable.

Main Outcome Measures: IGT, Immediate and Delayed Memory Test, State-Trait Anger Expression Inventory-2, Wisconsin Card Sorting Test.

Results: All groups demonstrated learning over the course of the IGT, except for veterans with a history of both SA and TBI. No group differences were identified on other measures of executive functioning.

Conclusions: These findings highlight the potential, unique decision-making challenges faced by veterans with a history of TBI and SA. Specialized interventions focused on overall distress reduction and means restriction may be required to prevent future self-directed violence.

Archives of Physical Medicine and Rehabilitation 2015;96:1411-8

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Individuals with a history of traumatic brain injury (TBI) have higher rates of suicide attempts (SA) and death than members of the general population.^{1,2} In a recent systematic review, Bahraini et al³ identified 16 studies on the prevalence of suicidal ideation (SI), SA, and suicide death among those with TBI. Despite robust evidence supporting the link between TBI and suicide death,³ findings highlighted the continued dearth of evidence regarding SI and SA. Less rigorous reviews suggest that existing evidence regarding risk factors is also sparse, particularly in regard to SA.⁴ In a recent study⁵ of adults admitted to the hospital after mild to severe TBI, 25% reported SI in the year postinjury. Predictors of SI included having Medicaid insurance, a higher self-reported postinjury depression,⁶ a history of psychiatric disorders, and prior SA or

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Objective: To examine the relationship between **executive dysfunction**, as a multidimensional construct (i.e., **decision making, impulsivity, aggression, and concept formation**) and **suicide attempts**

Design: Observational, 2x2 factorial design

Setting: Veterans Health Administration

Participants: 133 (No SA No TBI: n=48, No SA Yes TBI: n=51, Yes SA No TBI: n = 12, Yes SA Yes TBI: n = 22).

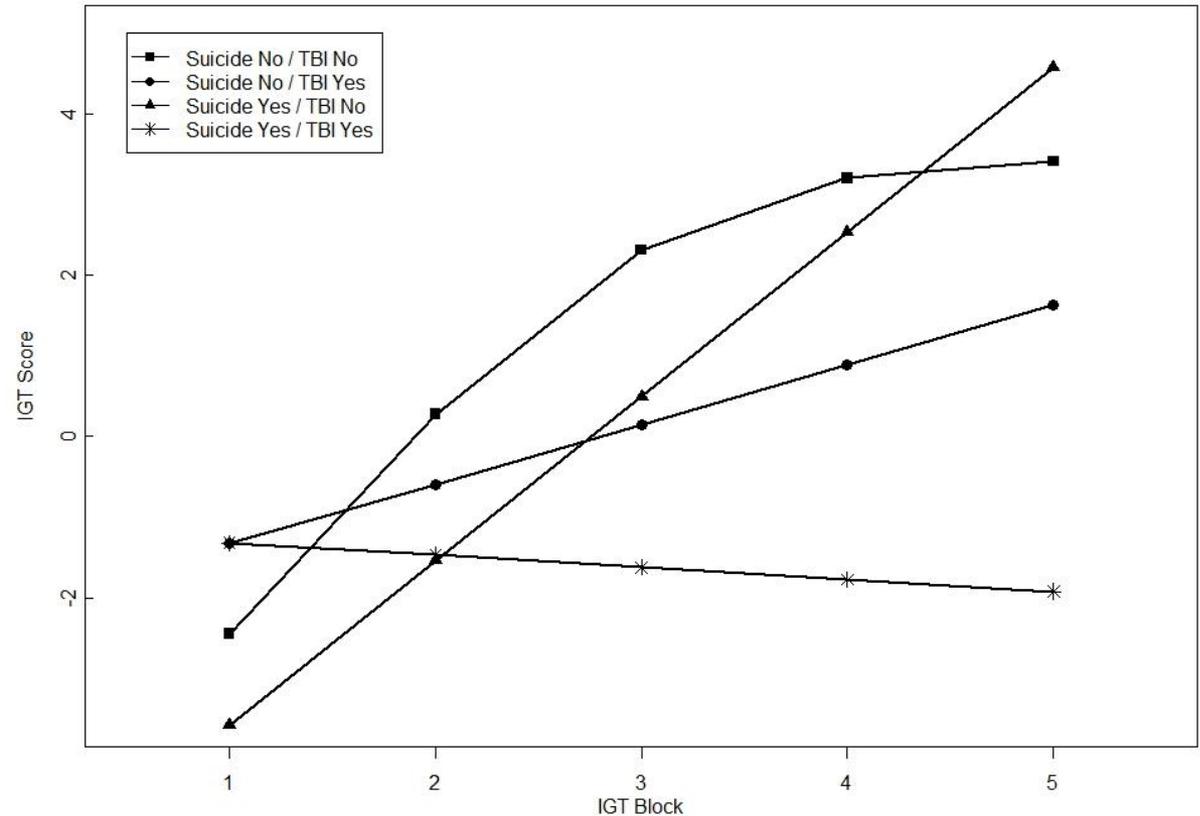
Main Outcome Measures: Iowa Gambling Test (IGT), Immediate and Delayed Memory Test (IMT/DMT), State Trait Anger Expression Inventory (STAXI-2), Wisconsin Card Sorting Test (WCST)

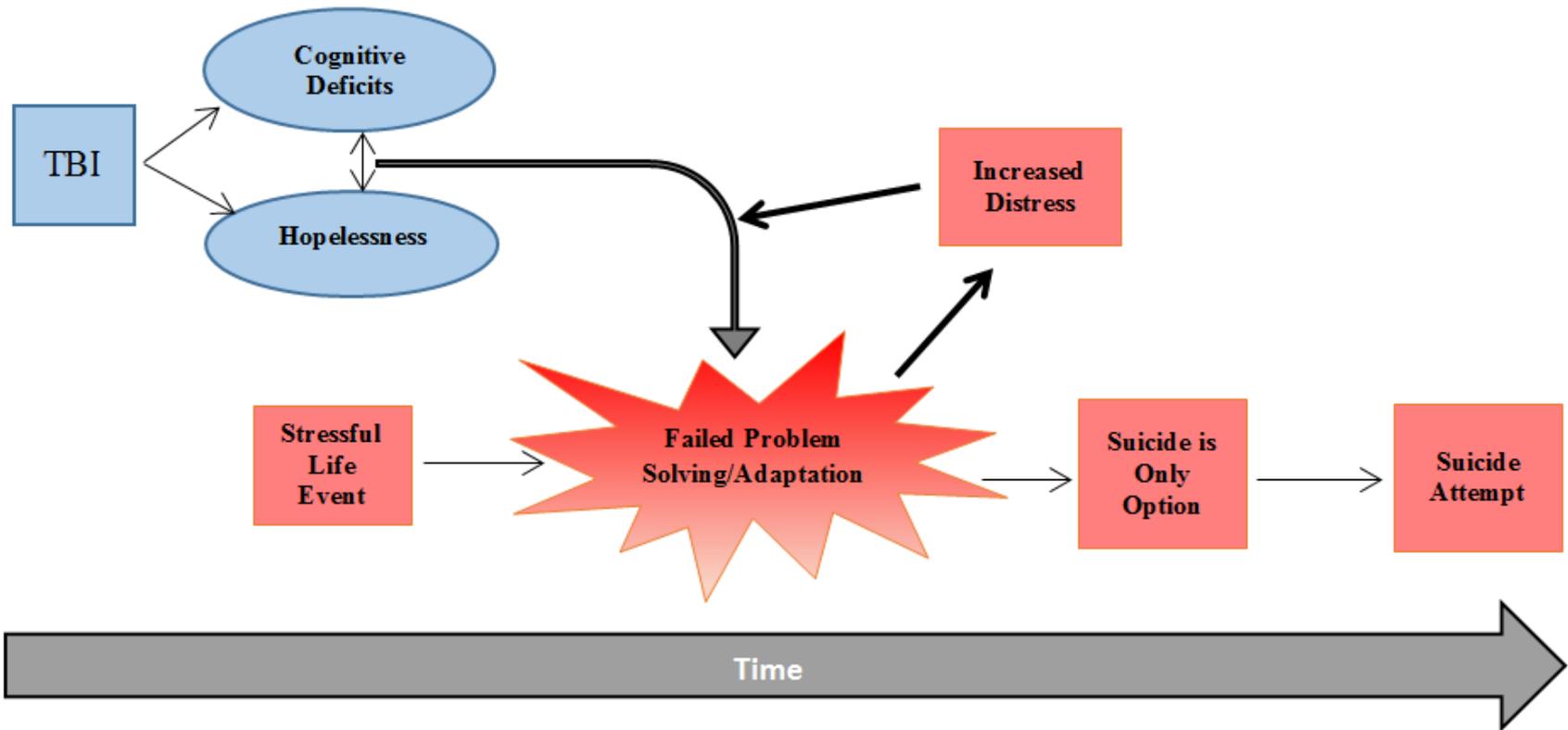
Results

On the IGT, all groups demonstrated learning over the course of the task, except for Veterans with a history of both suicide attempt and TBI. No group differences were identified on other measures of executive functioning

No differences on other measures that were analyzed in more traditional manner

Estimated Mean IGT Scores by Block
Controlling for Current and Lifetime Dx





TBI-related sequela (e.g., cognitive deficits, feelings of hopelessness) may lead to difficulty finding solutions when faced with stressful life events. Resulting distress further impairs problem solving abilities. When successful solutions cannot be found, suicide may appear to be the only option.



PST-SP

Problem Solving:



Creating an Action Plan

Veterans' Version

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Problem
Solving Therapy
Strategies
(Emotional
regulation &
planful problem
solving skills)



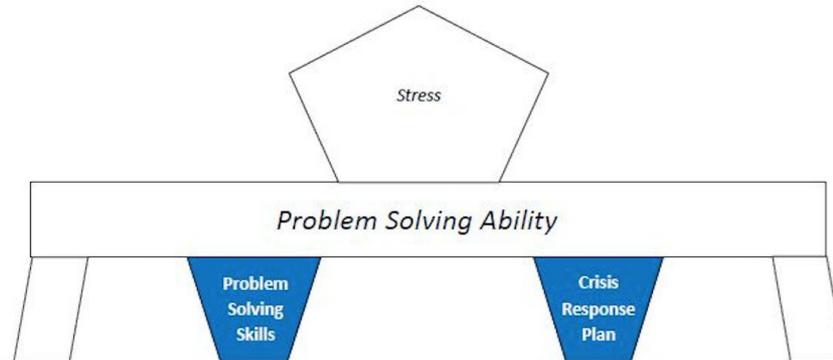
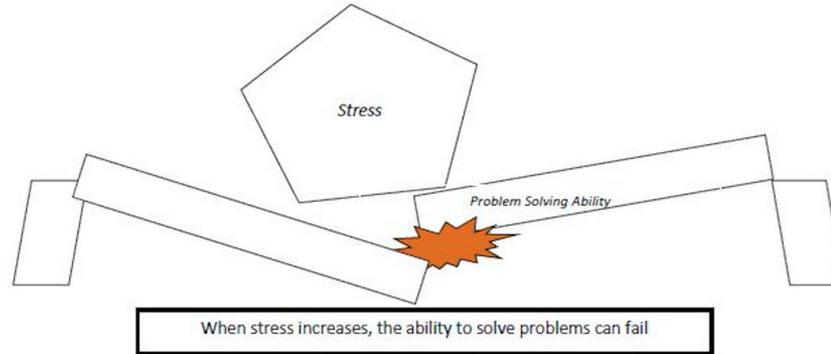
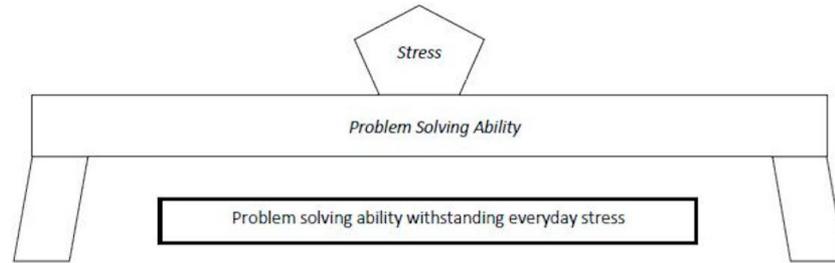
Facilitate Safety
Planning (Action
Plan)



Problem Solving Therapy for Suicide Prevention Session Topics

Session	Goals
1. Introduction to problem solving	Introduce group members, present PST overview
2. Recognizing and identifying triggers, warning signs & crises	Learn about crises and triggers, learn warning signs can lead to a crisis
3. Problem solving steps	Learn specific steps to solving a problem (ABCDEF)
4. PASTA: A strategy to help with triggers & warning signs	Learn techniques to handle stress when feeling triggered
5. Unhelpful thinking & problem solving	Learn to identify unhelpful thoughts that make it hard to problem solve
6. Thoughts are thoughts	Learn strategies to lessen impact of unhelpful thoughts and ways to come up with more helpful thoughts
7. Assessing and brainstorming	Learn to clarify the problem and brainstorm solutions
8. Consider and choose: Pros & cons of each solution	Learn to evaluate pros & cons and choose a solution
9. Developing & evaluating SMART problem solving plans	Learn to develop a SMART plan to understand what is needed to solve the problem
10. Fight on!	Review take-away messages from past classes

Note. PST = problem solving therapy



If you apply the skills you learn in this class – your ability to cope with stress will increase



PST Strategies- Emotional Regulation



PST Strategies- Emotional Regulation

- Discuss importance of understanding warning signs and triggers before learning problem solving steps (can't solve a problem if we don't know that a problem exists)
- Make the connection that triggers can lead to warning signs and that they are connected and can influence each other
- If warning signs are not recognized or ignored, it can “snowball” into a crisis

PASTA

**Pause, Aware,
Slow Down, Think & Act**

A strategy to help with **Triggers** &
Warning Signs





Safety Planning – Creating an “Action Plan”

Action Plan	
Step 1: Warning Signs for a crisis	
1. _____	
2. _____	
3. _____	
4. _____	
5. _____	
6. _____	
7. _____	
8. _____	
Step 2: Coping Strategies that do NOT involve contacting another person	
1. _____	
2. _____	
3. _____	
4. _____	
5. _____	
6. _____	
7. _____	
8. _____	
Step 3: People and social settings that provide distraction	
NAME/PHONE:	SETTING:
1. _____ / _____	Place 1: _____
2. _____ / _____	Place 2: _____
3. _____ / _____	Place 3: _____

Step 4: People whom I can directly ask for help	
1. _____	Phone: _____
2. _____	Phone: _____
3. _____	Phone: _____
Step 5: Professionals or agencies I can contact during a crisis	
Denver VAMC Toll Free Number: 888-336-8262	
1. Clinician Name _____	Phone: _____
Clinician Pager or Emergency Contact #: _____	
2. Clinician Name _____	Phone: _____
Clinician Pager or Emergency Contact #: _____	
3. Local Psychiatric Emergency Services: <u>Denver VA Medical Center</u>	
Psychiatric Emergency Services Address: <u>1055 Clermont St., Denver, CO 80220</u>	
Psychiatric Emergency Services Phone: <u>303-393-2835</u>	
4. VA Suicide Prevention Resource Coordinator Name: _____	
VA Suicide Prevention Resource Coordinator Phone: _____	
5. Veterans Crisis Line: 1-800-273-8255, Press "1" to reach a VA Mental Health Clinician, Text to 838255 or Confidential chat at VeteransCrisisLine.net	
Step 6: Making the environment safe	
1. _____	
2. _____	
3. _____	

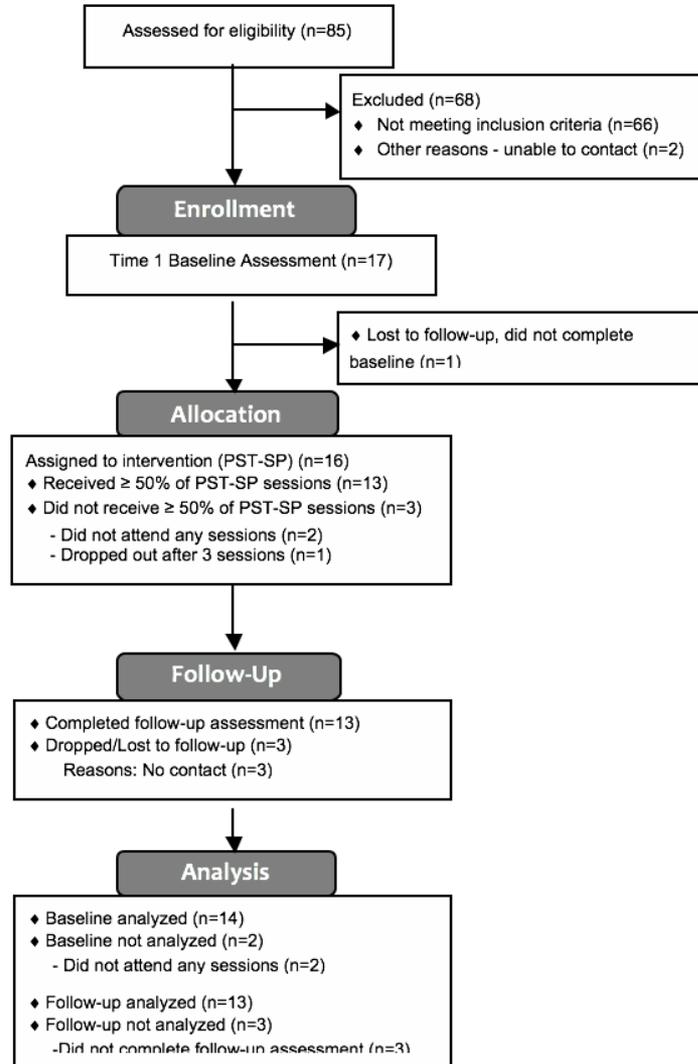


Safety Planning – Creating an “Action Plan”

- Safety planning has become the standard of care within the VHA for Veterans who are at high risk for suicide
- It is incorporated into PST-SP to assist participants with problem solving during a crisis
- Initial safety plan is completed during session 1
- Safety plan is updated during each session to incorporate content that was discussed



PST Strategies- Problem-Solving Steps





Did you benefit from the intervention [WtoH]?

Yes. Yes. Yes, most definitely. I'm not contemplating suicide at this moment. I don't even want to think about it. I want to see tomorrow. And this class has helped me have those thoughts that make me want to keeping living.

Use your smartphone to visit the
Rocky Mountain MIRECC website



@RMIRECC

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