



Langone Medical Center

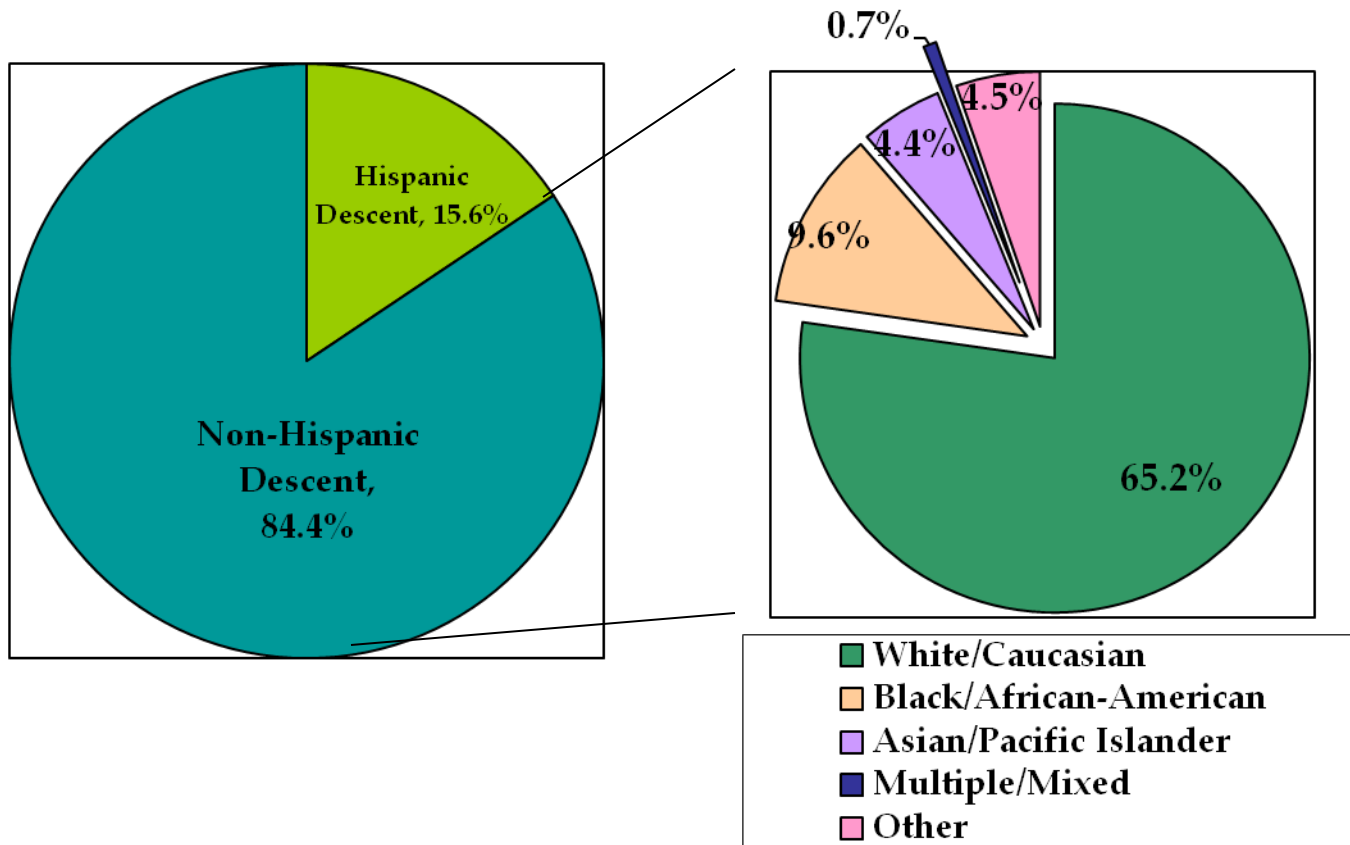
WTC Health Program
NYUSOM Clinical Center of Excellence
at Bellevue Hospital Center

Denise Harrison M.D.
11-9-2011

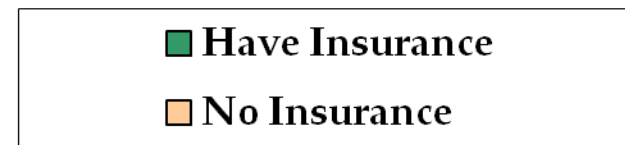
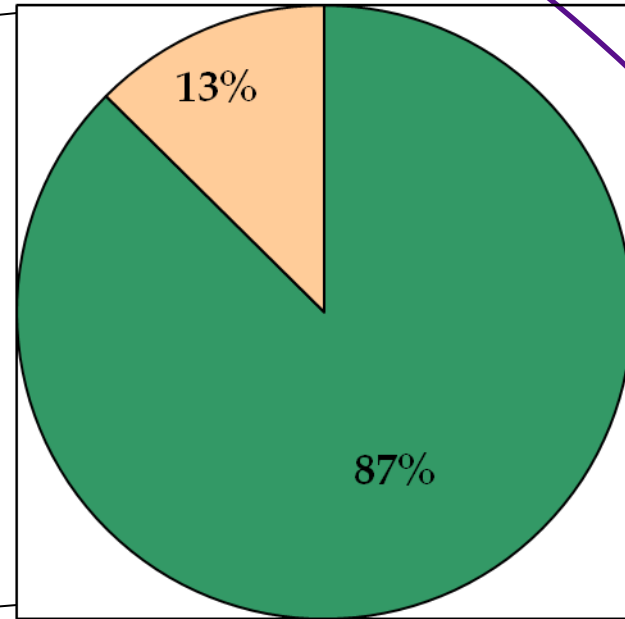
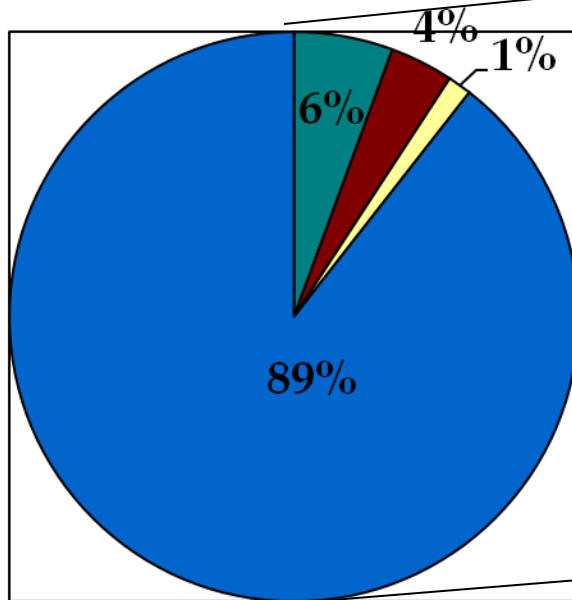
General Demographics

Gender	Male = 81.2% Female = 18.8%
Age Range	28-86
Mean Age	48.9
Language Spoken	English = 92.2% Spanish = 7.8%
Percentage of Mental Health Referrals	30.2%
Percentage Referred to Treatment Program	33.1%
Total Cohort	2232
Total Unique Patients in Treatment	635

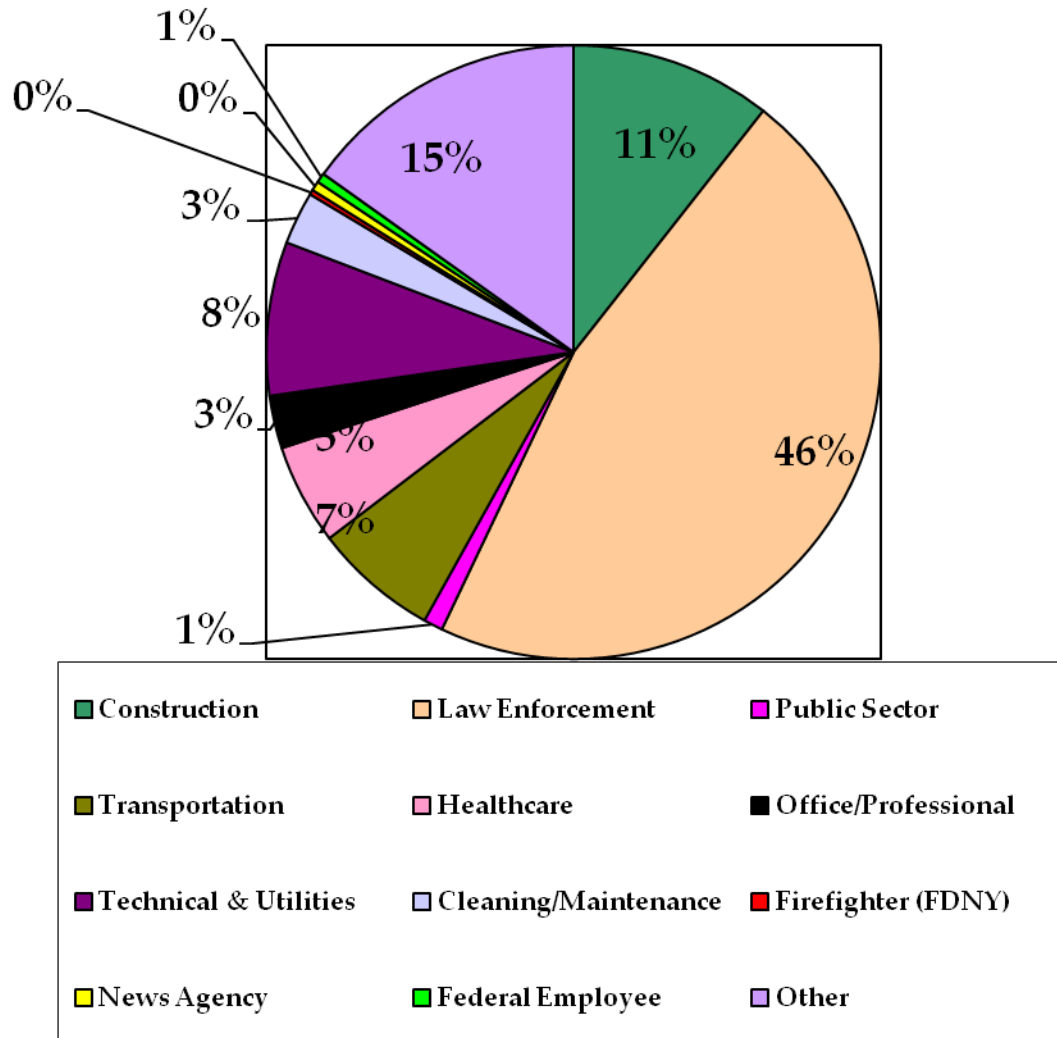
Race/Ethnicity (N=2232)



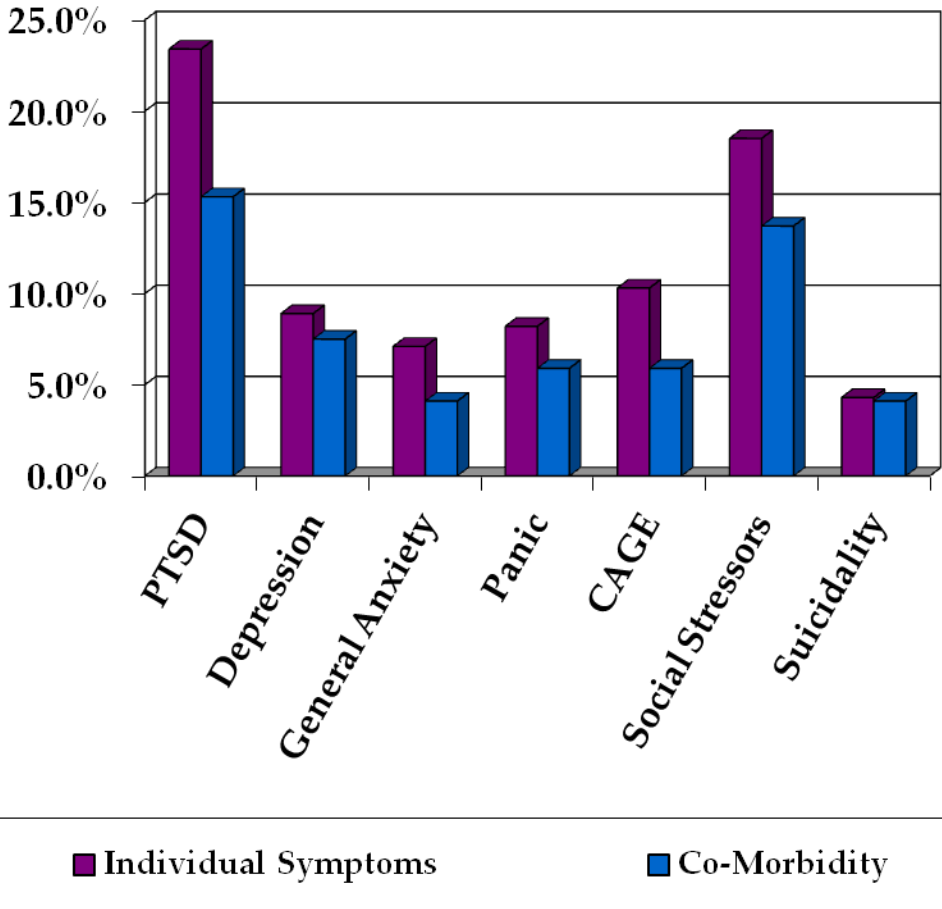
Work Status (N=2232)



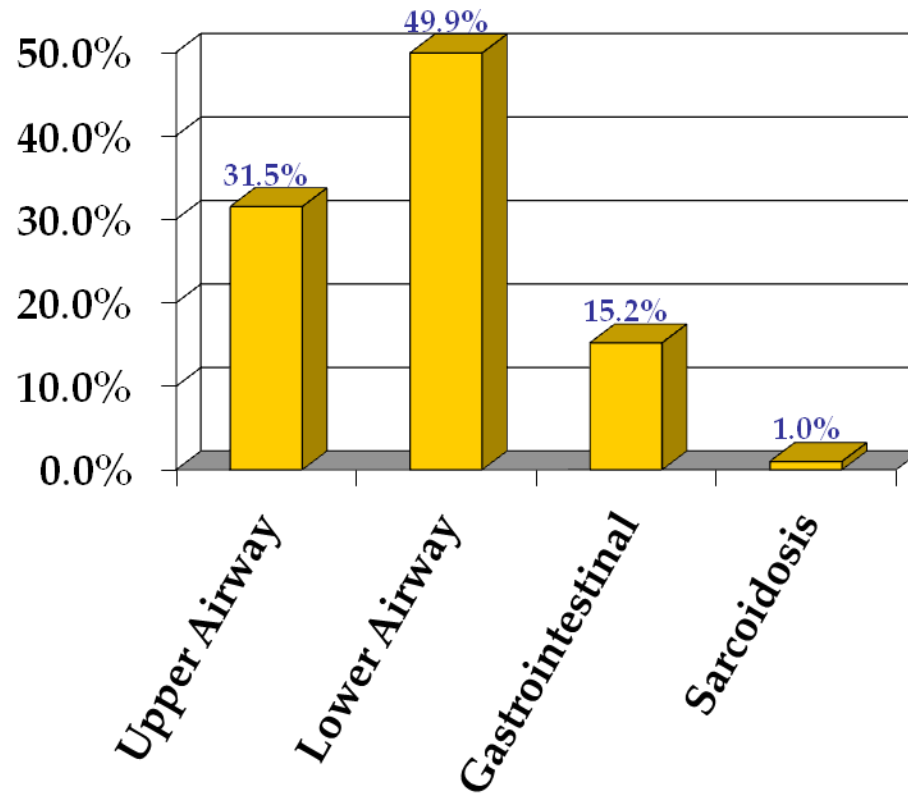
Occupations (N=2232)



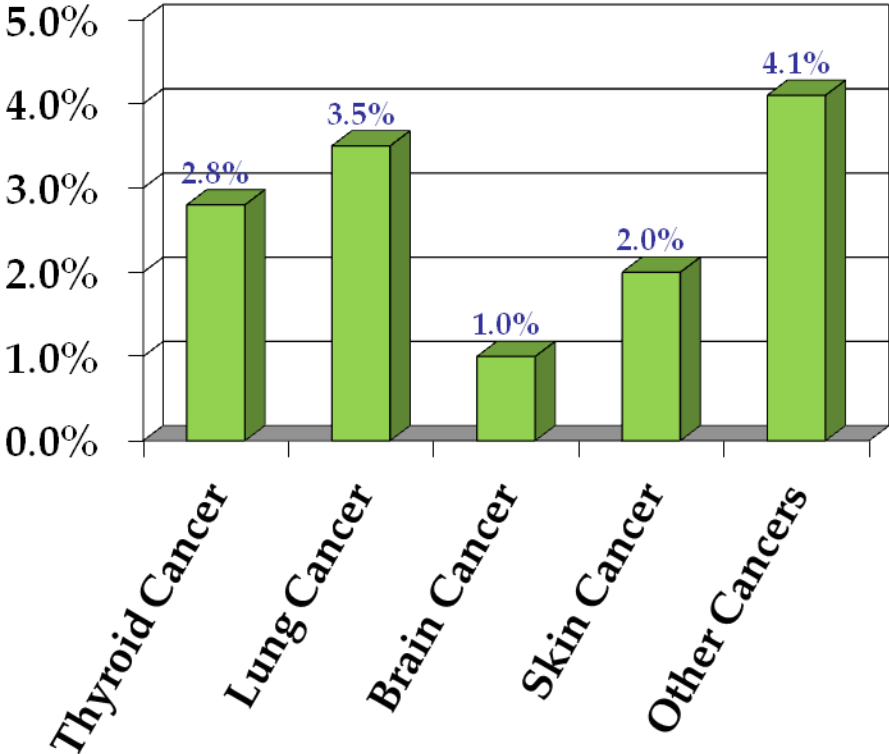
Percentages of Mental Health Symptoms (N=635)



Percentages of Patients with Diagnoses (N=635)



Percentages of Patients with Cancer Diagnoses



Treating Posttraumatic Stress Disorder in First Responders: A Systematic Review

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Background

First responders:

- Paid professionals and volunteers responding to emergencies
- High levels of work demands
- Routine exposure to both physical and psychological stressors
- Unique exposure recognized in revision to PTSD in upcoming DSM-5
 - A4: “Experiencing repeated or extreme exposure to aversive details of the events...e.g., *first responders collecting body parts.* [italics added]”

Psychiatric outcomes in first responders

- **Depression** (e.g., Tak et al. 2007)
- **Somatic or psychosomatic complaints** (e.g., Witteveen et al., 2006)
- **Chronic fatigue** (e.g., Spinhoven & Verschuur, 2006)
- **Difficulties with alcohol** (e.g., Stewart et al. 2004)
- **Posttraumatic stress disorder**

Prevalence of PTSD in first responders

- No nationally representative, large scale studies
- Variable rates:
 - 7-19% in active duty police officers (Maia et al. 2007)
 - 46% in volunteer disaster workers responding to a disaster (Mitchell et al. 2004)

Estimating prevalence of PTSD in first responders

- Military population as comparison group
- National Vietnam Veterans' Readjustment Survey (Kulka et al. 1990)
 - Nationally representative
 - Years post-exposure
- ~15% full PTSD (Kulka et al. 1990)
- ~11% partial PTSD (Weiss et al. 1992)

Prevalence of PTSD in first responders

- 225,465 first responders with full PTSD
 - 15% x 1,503,100
- 165,341 first responders with partial PTSD
 - 11% x 1,503,100
- ~390,806 first responders nationally with full or partial PTSD

Goals of current systematic review

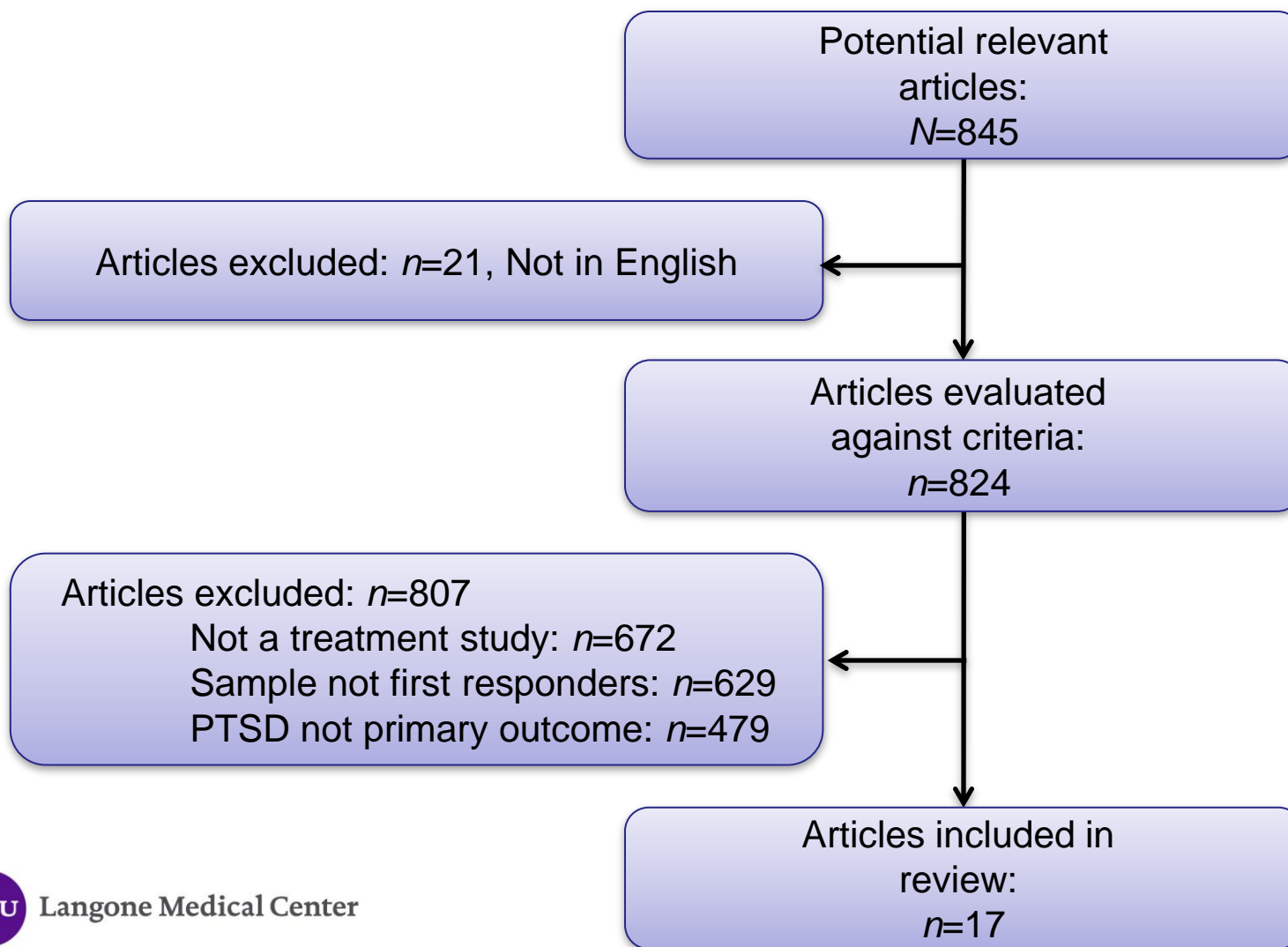
- Conduct literature review of status of treatment outcome studies for PTSD in first responders
 - Psychosocial treatment
 - Pharmacological treatment
 - Combined psychosocial and pharmacological treatments

Study inclusion criteria

- Inclusion criteria
 - Psychological or pharmacological intervention was delivered
 - Subjects were first responders
 - Subjects had primary diagnosis of PTSD based on DSM or ICD criteria
 - PTSD diagnosis or symptom status was chief study outcome
- Psychosocial treatment studies
 - Compared two active treatment groups or one active group to a nonspecific control or wait-list group
- Pharmacological treatment studies
 - Compared drug treatment to placebo or active comparator

Literature Review Exclusion Flow Chart

Major Exclusion Criteria Were Not Mutually Exclusive



Difede, J., Malta, L. S., Best, S. R., Henn-Haase, C., Metzler, T. J., Bryant, R. A., & Marmar, C. R. (2007). A randomized controlled clinical treatment trial for World Trade Center attack-related PTSD in disaster workers. *Journal of Nervous and Mental Disease*, 195, 861-865.

	Treatment Completers				
	CBT (N = 7) Mean (SD)		TAU (N = 14) Mean (SD)		
	Pre	Post	Pre	Post	ES
CAPS	44.43 (14.82)	19.57 (15.93) ^b	48.50 (10.81)	46.07 (20.77) ^c	1.37
PCL	37.71 (10.70)	23.43 (4.12) ^b	46.69 (12.37)	41.31 (12.99) ^c	1.66
	Intent-to-Treat Sample				
	CBT (N = 15) Mean (SD)		TAU (N = 16) Mean (SD)		
	Pre	Post	Pre	Post	ES ^a
CAPS	51.73 (17.04)	40.13 (25.52) ^b	50.50 (13.30)	48.38 (21.43) ^b	--
PCL	38.31 (14.60)	30.62 (15.14) ^b	47.36 (12.14)	42.36 (13.08) ^b	--
	CBT Group (N = 6) Self-Report Measures at 3-Month Follow Up				
PCL	24.83 (5.91)				

a Posttreatment between-group effect sizes (Cohen's d) (Cohen, 1988) were calculated for significant findings and trends only.
b, c Posttreatment means in the same row with superscripts that differ indicate significant differences.
d Variable was nonnormally distributed.

Gersons, B. P. R., Carlier, I. V. E., Lamberts, R. D., & Van der Kolk, B. A. (2000). Randomized clinical trial of brief eclectic psychotherapy for police officers with posttraumatic stress disorder. Journal of Traumatic Stress, 13, 333-347.

Criterion	Baseline	After 4 Treatment Sessions	Posttest (End of Treatment)	Follow-up 1
No PTSD				
BEP (<i>n</i> = 22)	0	31%	91	96
Wait list (<i>n</i> = 20)	0	35%	50**	35**
<6 PTSD Symptoms				
BEP	0	23%	77	91
Wait list	0	30%	15**	30**
No Reexperiencing Symptoms				
BEP	0	5%	55	68
Wait list	0	20%	15**	20**
<3 Avoidance Symptoms				
BEP	0	32%	82	91
Wait list	0	45%	60	40***
<2 Hyperarousal Symptoms				
BEP	0	14%	68	68
Wait list	0	10%	20**	30*
Resumption of Police Work				
BEP	18	59%	77	86
Wait list	25	60%	70	60*

N = 22 for Brief Eclectic Psychotherapy (BEP) and *n* = 20 for wait list

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** *p* < .01

* *N* = 19 for Wait List Control

Summary

- ~400,000 U.S. first responders with PTSD symptoms
- 845 articles; 17 focus on treatment of first responder PTSD
- 2 RCTs of psychosocial treatment
- 0 RCTs of pharmacotherapy or combined treatment
- CBT and BEP treatments are examined
- Effect sizes are large
- Based on the studies identified, treatment guidelines are questionable

Barriers to treatment research with first responders

- Duty status
 - Active-duty associated with lower levels of treatment referral and engagement
- Stigma concerns
 - Negatively evaluated by peers and/or leadership (Hoge et al., 2004)
- Changes in job status
 - Unsought, negative changes in job duties or reduced pay
- Lack of academic institution affiliation
 - First responder organizations unaffiliated, unlike Veteran Administration Health System

Recommendations

1. Begin with treatments with strongest preliminary evidence for efficacy with first responders: CBT and BEP
2. Psychosocial and pharmacological treatments identified in non-RCTs should be tested in RCTs
3. Psychosocial and pharmacological treatments represented in current treatment guidelines for PTSD need to be studied
 - Especially those validated with active duty military personnel, subject group with many similarities to first responders

Recommendations

- Focus on non-law enforcement populations
 - Majority of studies focus on law enforcement
- Assess duty status as a potential moderator during- and post-treatment
 - Duty status is associated with exposure to traumatic stressors, which may complicate treatment and attenuate outcomes

Evaluation of Respiratory Symptoms In WTC Responders

- Respiratory Symptoms Common Among WTC Responders
- Cough, Dyspnea, Wheezing are common respiratory complaints.
- Two groups : WTC responders with abnormal spirometry and WTC responders with symptoms and normal spirometry

Evaluation of Respiratory Symptoms In WTC Responders

- Over 9000 WTC responders 72% have normal spirometry results despite respiratory symptoms.

(Herbert et al EHP, 2006)

Evaluation of Respiratory Symptoms In WTC Responders

Distal Airway Function in Symptomatic Subjects With Normal
Spirometry Following WTC Dust Exposure.

(Berger et al Chest 2007; 132:1275-1282)

- Evaluated 174 subjects with respiratory symptoms and normal spirometry
- Impedance Oscilometry was performed to determine resistance at 5 Hz, 5-20 Hz and reactance area.
- Forty Three patients were tested for frequency dependence of compliance.
- Testing was repeating after bronchodilation

Evaluation of Respiratory Symptom In WTC Responders

- Despite normal spirometry mean resistance at 5 , 5-20HZ and reactance area were elevated
- Resistance and reactance normalized after bronchodilation.

Evaluation of Respiratory Symptoms In WTC Responders

Conclusions

Symptomatic Individuals with WTC dust exposure and normal spirometry displayed airway dysfunction based on the following.

- Elevated airway resistance and frequency dependence of resistance determined by IOS
- Heterogeneity of distal airway function demonstrated by elevated reactance area on oscilometry and FDC

Evaluation of Respiratory Symptoms In WTC Responders

- Reversibility of these functional abnormalities to or toward normal following administration of bronchodilator.
- Since spirometry results were normal in all subjects these abnormalities likely reflect dysfunction in airways more distal to those evaluated by spirometry
- Evaluation of distal airway when spirometry results are normal is important in evaluating occupational/environmental hazards

Evaluation of Respiratory Symptoms In WTC Responders

Respiratory Symptoms Were associated with Lower Spirometry Results During the first Examinations of WTC Responders.

(Udasin et al JOEM January 2011, Volume 83 Issue 1 p49-54)

- Looked at 18,685 responders with dyspnea wheezing and cough (wet and dry)
- The mean FEV1 and FVC were lower for participants who reported persistent respiratory symptoms

Evaluation of Respiratory Symptoms In WTC Responders

- Responders reporting respiratory symptoms also had larger bronchodilator response.

Conclusion

Responders reporting chronic persistent cough, wheezing or dyspnea at first medical examination were more likely to have lower lung function and bronchodilator responsiveness compared to those without symptoms.

Conclusions

- Similar to most people with Occupational/Environmental Exposures WTC responders present medical conditions which may have diverse etiologies.
- This includes not just respiratory and mental health conditions but other disorders such as GERD and Sleep Apnea.
- This unique population allows for the study of multiple diagnostic and treatment modalities that can be applied to responders in future disasters.