

Background

- PTSD has demonstrated the most serious outcomes among civilian^{1,2} and military populations²
- In 2016, 15.5% of all active duty service members were diagnosed with a mental health condition, and 2.2% were diagnosed with PTSD³
- However, when active duty service members transitioned to the VA (N = 140), their self-reported symptoms of PTSD increased dramatically, from 156 symptoms to 466, an increase of almost 200%; resulting in approximately 75% endorsing all 4 PTSD screening symptoms⁴
- Most studies exploring the relationship between psychological health and physical disorders have relied on survey data, vulnerable to bias
- We were able to leverage population data to examine the association between psychological health conditions and multiple co-morbidities, physical health disorders, and social/occupational impairment¹

Methods

- Multiple Military Health System administrative datasets (health services utilization, behavior assessment, deployment, and personnel data)
- Cross-sectional study, random sample N = 5000 from all Army active duty with at least 2 years service, snapshot in time 30 June 2010, followed 5 years forward, to 30 June 2015
- Compared 3 groups:
 - PTSD Diagnosis (includes co-occurring mental health diagnoses)
 - Other Mental Health Diagnoses (not co-occurring with PTSD)
 - No Mental Health Diagnoses
- Outcomes: Physical health diagnoses, explored in two stages
 - Comprehensive analysis of ICD-9 diagnostic categories (excluding congenital anomalies and perinatal conditions)
 - Further exploration of 3 most prevalent medical conditions within each statistically significant ICD-9 category
- Analyses: Odds ratios and adjusted odds ratios calculated for physical health diagnoses in PTSD Diagnosis and Other Mental Health Diagnoses groups, with No Mental Health Diagnosis group as reference

Table 1. Demographic and Military Characteristics on Groups with PTSD Diagnosis, Other Mental Health Diagnoses, and No Mental Health Diagnosis

Variables	PTSD Group (N = 625)	Other Mental Health Dx Group (N = 2200)	No Mental Health Dx Group (N = 2062)	p < .01
Age (Mean, SD)	30.1 (7.3)	28.5 (7.2)	29.4 (7.6)	
Gender (%)				
Men	86.6%	85.5%	88.2%	
Race (%)				
White	69.5%	73.0%	73.2%	
Marital Status (%)				
Single	26.9%	35.1%	35.7%	*
Occupation (%)				
Combat	26.1	19.3	19.1	
Healthcare	12.2	11.2	10.1	*
Other	61.8	69.5	70.8	
Time in Service (Mean, SD)	8.0 (6.3)	6.7 (6.1)	7.4 (6.6)	
Rank (%)				
Enlisted	91.0%	86.4%	71.5%	*
OIF/OEF deployment (%)	92.6%	81.5%	83.7%	*
No. of OIF/OEF deployments (Mean, SD)	1.8 (1.0)	1.5 (1.2)	1.7 (1.5)	

References

- ¹Scott, K. M., Lim, C., Al-Hamzawi, A., Alonso, J., Bruffaerts, R., Caldas-de-Almeida, J. M., Florescu, S., de Girolamo, G., Hu, C., de Jonge, P., Kawakami, N., Medina-Mora, M. E., Moskalewicz, J., Navarro-Mateu, F., O’Neill, S., Piazza, M., Posada-Villa, J., Torres, Y., & Kessler, R. C. (2016). Association of Mental Disorders With Subsequent Chronic Physical Conditions World Mental Health Surveys From 17 Countries. *JAMA Psychiatry*. 2016;73(2):150-158. doi:10.1001/jamapsychiatry.2015.2688
- ²Ramchand, R., Rudavsky, R., Grant, S., Tanielian, T., & Jaycox, L. (2015). Prevalence of, risk factors for, and consequences of posttraumatic stress disorder and other mental health problems in military populations deployed to Iraq and Afghanistan. *Curr Psychiatry Rep*, 17(5), 37. doi: 10.1007/s11920-015-0575-z
- ³Psychological Health Center of Excellence. (2017) Mental Health Disorder Prevalence among Active Duty Service Members, 2005–2016. Report retrieved from <http://www.pdhealth.mil/research-analytics/psychological-health-numbers/mental-health-disorder-prevalence>
- ⁴Russo, A. C., & Fingerhut, E. C. (2017). Consistency of self-reported neurocognitive symptoms, post-traumatic stress disorder symptoms, and concussive events from end of first deployment to Veteran Health Administration Comprehensive Traumatic Brain Injury Evaluation by Operations Enduring Freedom/Iraqi Freedom/New Dawn veterans. *Archives of Clinical Neuropsychology*, 32, 184-197.

Results

Figure 1. Percent diagnosed and Adjusted Odds Ratios (AORs) within ICD-9 categories by mental health status groups, N = 4887

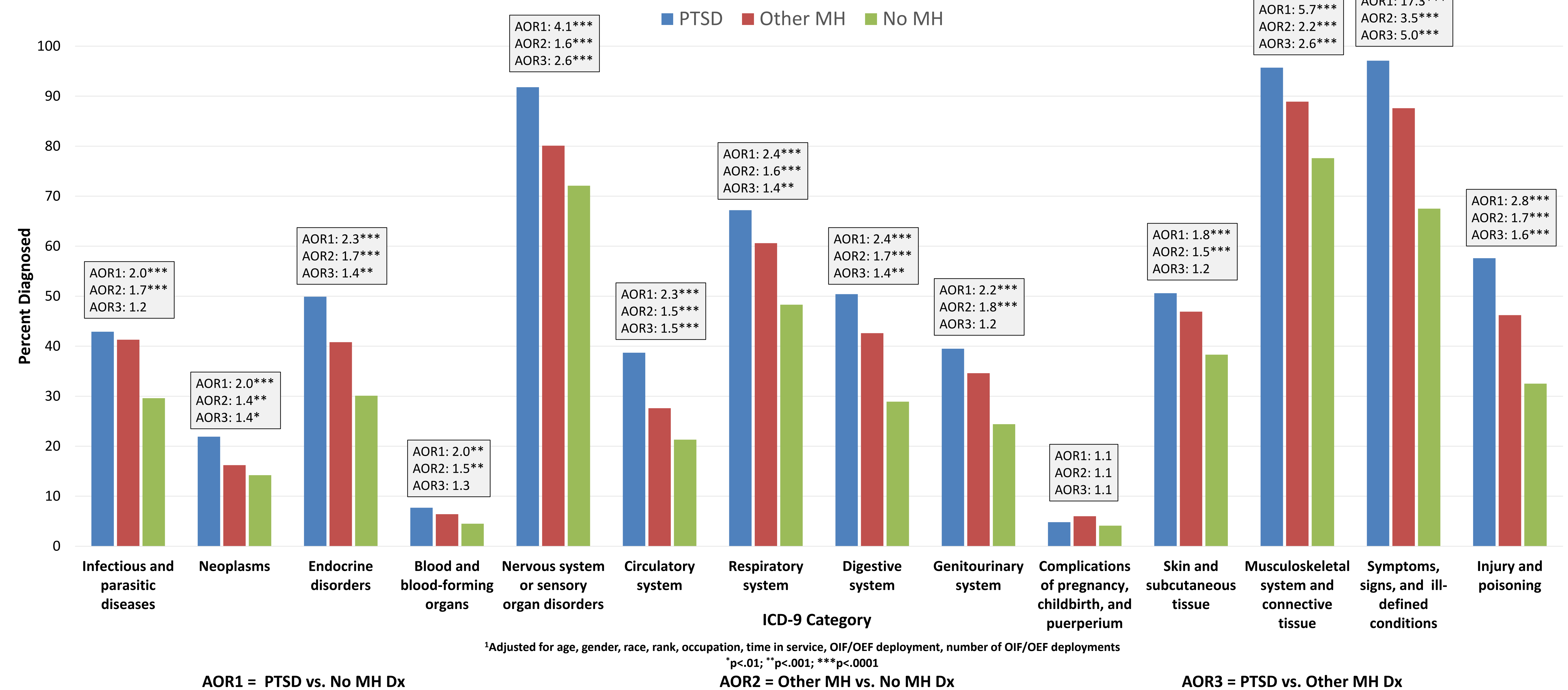


Table 2. Percent diagnosed and adjusted odds ratios (AOR) for most prevalent medical conditions with greatest significant difference within ICD-9 categories, by mental health status group

Medical Condition (% Diagnosed of Total, N = 4778)	% Diagnosed			AORs ¹		
	PTSD N=625	Other MH N=2200	No MH N=2062	PTSD vs. No MH	PTSD vs. Other MH	Other MH vs. No MH
079 – viral infection (10.5)	14.2	12.9	7.7	2.0***	1.0	2.0***
238 – neoplasm of uncertain behavior of other and unspecified sites and tissues (3.7)	4.0	3.6	3.6	2.2**	1.7	1.3
276 – disorders of fluid, electrolyte, and acid-base balance (4.7)	7.6	5.4	2.8	3.1***	1.5	2.1***
327 – sleep disorders (18.8)	41.2	20.3	9.6	7.5***	2.8***	2.6***
338 – pain, NEC (17.1)	35.9	18.6	8.7	5.1***	2.4***	2.1***
401 – essential hypertension (14.0)	22.3	13.9	9.7	2.2***	1.3	1.6***
427 – cardiac dysrhythmias (4.4)	6.4	4.3	3.3	2.4***	1.6	1.5
558 – other gastroenteritis, noninfectious, unsp. (14.9)	20.7	17.9	9.5	2.1***	1.2	1.6***
530 – diseases of esophagus (11.3)	19.4	12.2	7.0	2.6***	1.4	1.9***
564 – functional digestive disorders NEC (6.5)	11.3	7.1	3.4	2.9***	1.8**	1.6*
607 – disorders of penis (5.3)	10.5	5.8	2.4	3.2***	1.7*	1.9**
719 – other and unsp disorders of joint (65.6)	78.5	68.3	55.3	2.6***	1.5**	1.7***
724 – other and unsp disorders of back (49.6)	69.2	53.2	38.0	3.8***	1.9***	2.0***
729 – other disorders of soft tissues (35.6)	49.5	38.4	27.2	2.6***	1.5***	1.7***
780 – general symptoms (46.0)	78.7	50.8	24.4	13.3***	3.8***	3.5***
786 – symptoms involving respiratory system and other chest symptoms (35.0)	51.6	38.1	23.5	3.6***	1.7***	2.1***
787 – symptoms involving digestive system (26.9)	38.2	30.4	17.2	2.9***	1.5**	2.0***
847 – sprains and strains of other and unsp parts of back (12.9)	18.4	14.6	8.9	2.0***	1.2	1.6***

¹Adjusted for age, gender, race, rank, occupation, time in service, OIF/OEF deployment, number of OIF/OEF deployments
*p<.01; **p<.001; ***p<.0001

Conclusions

- The prevalence of physical health diagnoses across all ICD-9 categories (except Pregnancy, which was not predicted) followed a hierarchy: PTSD > Other Mental Health > No Mental Health Diagnoses
- The PTSD group had significantly more physical health diagnoses than the Other Mental Health group in 9 of the 14 ICD-9 categories; suggesting that PTSD was associated with more severe physical health outcomes than other mental health disorders
- The ICD-9 Category Symptoms, Signs, and Ill-defined conditions showed the greatest difference between groups, which is consistent with a large body of literature showing PTSD’s strong association with Medically Unexplained Physical Symptoms
- While the association between PTSD, Other Mental Health Diagnoses, and physical health disorders was clearly strong, no assumptions about causality may be made in this exploratory study. Further research is needed to properly explore causality and directionality of the mental and physical health relationship
- A possible third variable contributing to the strong mental/physical health relationship may include higher healthcare seeking or other mediating variables