May 4th, 12:00 PM - 2:00 PM

Combat Experiences, Personality, Iso-Strain, and Sleep Quality Affect Posttraumatic Stress Among Working Post-9/11 Veterans

Gilbert Patrick Brady Jr.
Portland State University

Leslie B. Hammer
Portland State University

Olivia C. Preston
Portland State University

Anna K. Nishen
Portland State University

Combat Experiences, Personality, Iso-strain and Sleep Quality affect Posttraumatic Stress Among Working post-9/11 Veterans

Gil P. Brady, B.Sc., Leslie B. Hammer, Ph.D , Olivia C. Preston, Anna K. Nishen, Portland State University

Department of Defense,
PI Hammer: #W81XWH-13-2-0020

Introduction

- By 2019, 1 million post-9/11 veterans are expected to enter the U.S. workforce (DoD, 2015). Greater workplace resources (e.g., supervisor and coworker support, schedule control) may decrease risk of post-traumatic stress disorder (PTSD) and associated symptoms (PTSS).
- Prior research into the "stressor-strain" link has emphasized such factors as education and SES while neglecting the role of personality (Zapf et al., 1996). For example, 'hardiness' (e.g., "dispositional optimism") among military personnel may buffer against severity of PTSD (Bartone, 1992). Moreover, higher levels of hardiness have been associated with lower levels of depression and PTSD (Maddi, 1999).
- However, Erbes et al., (2011) found that hardiness was a related but distinct construct from positive and negative emotionality (i.e., "PEM" and "NEM"). NEM and neuroticism appear positively related to PTSD while PEM and conscientiousness appear negatively related to PTSD (Jakšić et al., 2012). Therefore, hardiness, PEM, and NEM may have differential effects on PTSD.
- Using baseline data drawn from Dr. Leslie Hammer and colleagues' five-year, Department of Defense-funded, randomized control "Study for Employment Retention of Veterans" (SERVe), the present thesis study investigated the influence of two of the Big Five personality traits (i.e., "Conscientiousness" and "Neuroticism") on symptoms of PTSD.

Research Questions

What is the influence of personality, Iso-strain, and Sleep Quality on symptoms of PTSS following Combat Experiences (CEs)?

- Do **Conscientiousness** and **Neuroticism** predict PTSS consistent with research on the Big Five traits and Tellegan's (1982) 3-factor model?
- Do "**Iso-strain**" (i.e., high job demands, low job control, & low social support at work) and **Sleep Quality** moderate PTSS after experiencing combat?
- How do veteran-relevant control variables such as (1) **SES**, (2) **Time Since Deployment (TSD)**, and (3) **Risk of Homelessness** influence PTSS?
- Do distributional assumptions (i.e, **normal** vs. **log normal**) about PTSS change the significance of main and simple effects of CEs on PTSS in the presence of **Conscientiousness** and **Neuroticism** after controlling for **SES**, **TSD** and **Risk of Homelessness**?

Methods and Measures

Sample

- Baseline self-reported survey data on 382 veteran participants.
- 89.3% male, average age of 38.3 (*SD* = 8.9), 81% Caucasian.

Procedure

- Surveys were distributed electronically (2013-2016).
- Stepwise regressions were conducted to test the effects of personality traits, Iso-strain, Sleep Quality and control variables on PTSS as a function of combat experiences.

Measures

- PSQI: Pittsburgh Sleep Quality Index, (Buysse et al., 1989), 4 items, α = .68
- CEs: Combat Experiences Scale, (WRAIR, 2008), 27 items, α = .95
- ISO: Iso-Strain (i.e., job demands, job control, support), (Rugulies et al., 2005), α = .76
- PTSS: Primary Care PTSD Screen (Bliese et al., 2008), 4 items, α = .92

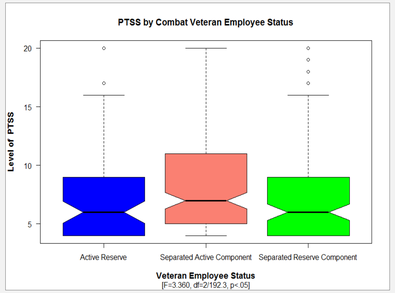

Figure 1.

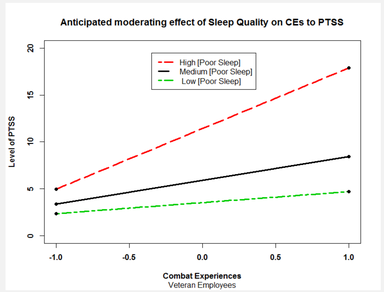

Figure 2.

Results

- A one-way ANOVA (Figure 1.) of PTSS by **Veteran Employee Status** [Active Reservists (*N*=68), Separated Active Component (*N*=185), Separated Reserve Component (*N*=129)] was significant ($F_{2/192}$ = 3.36, $p<.05$).
- In Model 1. (Table 2.), all focal variables (i.e., **Combat Experiences**, **Veteran Work Category**, **Sleep Quality**, and **Iso-strain**) were entered simultaneously. The main effects of **Combat Experiences (CEs)** (β =.38, $p<.05$), **Iso-strain (ISO)** (β = -.11, p<.05) and **Sleep Quality** (β =0.41, $p<.001$) were all significant with **ISO** (β = -.07, $p<.10$) and **Sleep Quality** (β =.08, $p<.10$) marginally moderating CEs on PTSS.
- In the second step (Model 2./Table 2.), all control variables were entered simultaneously. **SES** (β =.30, $p<.05$) and **TSD** (β = -.08, $p<.05$) were significant; while **Risk of Homelessness** (β =.07, $p<.10$) was marginally predictive of PTSS.
- In the third step (Model 3./Table 2.), the personality variables were entered simultaneously. While **Conscientiousness** (β = -0.05, $p<$ *n.s.*) did not predict PTSS, **Neuroticism** (β =0.29, $p<.001$) was highly significant. Among the remaining predictors, only **CEs** (β = 0.36, $p< .01$), **Work Category** (β = -0.08, $p< .05$) and **Sleep Quality** (β = 0.24, $p< .001$) had main effects on PTSS in the presence of **Conscientiousness** and **Neuroticism** – along with **SES** (β = 0.19, $p<.001$). Lastly, in the full model, only **ISO** (β = -0.001, $p < .10$) reached marginal significance as a moderator of CEs on PTSS.
- Under the assumption of PTSS best fitting a ***log-normal*** distribution in the full model, **Work Category, ISO**, and **Sleep Quality** did not moderate CEs on PTSS. Whereas, **CEs**, **Veteran Work Category** and **Sleep Quality** had main effects on PTSS.

Table 1
Descriptives on Post 9/11 Working Veterans Sample (N = 382)

	Demographics					*Psychological Measures*			
Mean (SD)/%	Age	Male	Caucasian	Only H.S. Degree	College Degree	Combat Experiences	PTSS	PSQI	IPIP: Conscientiousness	IPIP: Neuroticism
	36.5 (8.31)	89.3%	79.8%	28.5%	47.0%	6.47 (6.73)	8.20 (4.33)	7.58 (3.23)	3.68 (.84)	2.79 (.94)

Note: Combat Experience is scaled from 0-27. IPIP subscales are scaled from 0-5. PSQI is scaled from 0-15. PTSS is scaled from 4-20.

Table 2.
Hierarchical Linear Regressions for Predictors of Post-Traumatic Stress in Combat Veterans (n = 382) (Normal Distribution)

Model	1		2		3	
Intercept (b_0)	15.0***	8.520	16.89***	9.446	17.97***	9.45
	t	*β*	*t*	*β*	*t*	*β*
Main Effects						
Combat Experience (CE)	2.52*	0.376	2.73**	0.379	2.7**	0.36
Work Category	-1.212	-0.050	-1.6810×	-0.067	-1.99*	-0.075
Iso-Strain (ISO)	-2.54*	-0.107	-2.2340*	-0.087	-1.057	-0.039
Sleep Quality (PSQI)	9.39***	0.408	6.9***	0.298	5.8***	0.24
Controls						
Socioeconomic Status			7.30***	0.298	4.7***	0.19
Time Since Deployment			-2.07***	-0.082	-1.9160×	-0.071
Risk of Homelessness			1.6655×	0.068	1.4070	0.05
Individual Controls						
Conscientousness					-1.496	-0.054
Neuroticism					6.71***	0.29
Interactions						
CE x Work Category	-0.560	-0.035	-0.694	-0.040	-0.85	-0.046
CE x ISO	-1.66×	-0.001	-2.21*	-0.001	-1.77×	-0.001
CE x PSQI	1.84×	0.033	1.98*	0.033	1.26	0.02
Model Fit Indices						
F	32.66***		33.56***		35.81***	
Adjusted R^2	0.37		0.46		0.52	
R^2 Change	-		.09***		.06***	

Note: $^{\wedge}p < .10$, $^{*}p < .05$, $^{**}p < 0.1$ $^{***}p < .001$. Work Category: (1) Separated Active Component Veteran Employee, (2) Separated Reserve Component Veteran Employee, (3) Active Reserve Component Veteran Employee.

Discussion

To the best of our knowledge, this study is the first to investigate the influence of personality among a working sample of post-9/11 veterans several years post-reintegration.

Overall, higher Neuroticism was predictive of greater severity of PTSS. Conscientiousness, however, was unrelated to PTSS. SES and TSD predicted greater PTSS; whereas, Risk of Homelessness did not.

A test of the multivariate assumption of normality revealed that a *log-normal* distribution best fit the data. As expected, CEs had a consistent main effect on PTSS across both ***normal*** and ***log-normal*** distributions. Additionally, in Model 2. a two-way moderating effect (Table 2.) of **Sleep Quality** on PTSS was found. However, **Sleep Quality** became insignificant after adding **Neuroticism** (Model 3.). This supports the influence of NEM in manifestation of PTSS. By contrast, **Conscientiousness** was unrelated to PTSS. Though consistent with Erbes et al. (2011), in that **Conscientiousness** did not predict PTSS, this finding differed from past research into Big Five personality traits studied in the context of PTSD that found differential effects of traits on PTSS. Also, consistent with theory and prior research, traits of NEM appeared to play a stronger role than PEM traits in predicting PTSS severity.

This study had several limitations. Measures were self-reported and may be subject to social desirability and response bias. Further, as this was a cross-sectional sample, no inferences of causality can be made. Because personality and PTSS were measured contemporaneously, the effects of trauma (e.g., CEs) on personality cannot be eliminated. Also, measures of **Conscientiousness** and **Neuroticism** do not fully reflect the PEM and NEM constructs, which may also explain why **Conscientiousness** was unrelated to PTSS.

Future research should utilize longitudinal designs to better establish whether **Conscientiousness** and **Neuroticism** predict PTSS *prior* to surviving combat. Further, researchers should investigate whether the constructs of **PEM** and **NEM** provide targets to optimize workplace trainings designed to increase supports for reintegrating veterans.