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VA

Leveraging assessments of symptom burden and mindfulness traits to guide interventions for improving post-deployment Veterans' sleep quality.

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Background

Despite specialized care, many Veterans continue to experience symptoms linked to their deployments and occupational exposures. Examining the relationships between perceived sleep quality, health metrics, and symptom burden may display how subjective symptoms contribute to mental health outcomes in this population. This analysis explored the associations between sleep quality, symptom burden, BMI, age, and mindfulness characteristics among Veterans with significant combat exposure and complex military occupational experiences to help shape future clinical treatment recommendations.

Objective

The aim of this analysis was to identify symptom trends and features that may inform clinical decision making and treatment planning for Veterans with sleep concerns related to their time in service. Specifically, to look at the impact of Traumatic Brain Injury (TBI), Post Traumatic Stress Disorder (PTSD), and mindfulness traits on specific sleep concerns.

Methods

Veterans were enrolled (Table 1) in an IRB approved remote observational study examining the long-term health effects of military exposures at the DC WRIISC. Questionnaires assessing symptom burden (Neurobehavioral Symptom Inventory [NSI]), trauma symptoms (PTSD Checklist for DSM-5 [PCL-5]), mindfulness traits (Five Facet Mindfulness Questionnaire), and sleep quality (Pittsburgh Sleep Quality Index [PSQI]) were completed. Linear regressions were conducted on those scores with PTSD and TBI symptom burden, patient information, and mindfulness traits.

	Subsample, (n = 28)	Total, (n = 60)	p
Age (years), M ± SD	49.6 ± 8.6	50.1 ± 8.9	0.61
Male, n (%)	23 (82.1)	52 (86.7)	0.65
EOD, n (%)	18 (64.3)	34 (56.7)	0.64
Time in Service (years), M ± SD	13.6 ± 9.1	13.3 ± 8.3	0.66
Race - White, n (%)	23 (82.1)	51 (85.0)	0.67

Table 1. Demographics of participants enrolled.

Results

Using univariate regressions, participant (n=28 [82.1% male], age=36-69, M_{age}=49.6y) PSQI scores were positively associated with their PCL-5 (t(27)=6.85, p<0.01) (Figure 1), NSI (t(27)=5.95, p<0.001) (Figure 2), and negatively associated with FFMQ scores (t(27)=-2.42, p<0.05). (Figure 3)

Two separate symptom burden multivariate regressions were conducted on PSQI scores to address the connection between PTSD (PCL-5) and TBI (NSI) symptoms and that individual's sleep quality (PSQI). In addition, mindfulness traits (FFMQ) were examined within the relationship between symptom burden and sleep quality to determine its role.

TBI symptom burden (via NSI scores) was assessed with sleep quality (via PSQI scores) and mindfulness traits (via FFMQ scores) to display the following: NSI (t(27=5.79, p<0.001), FFMQ (t(27=0.43, p=0.67), Age (t(27=2.17, p<0.05), and BMI (t(27=2.60, p<0.05). Similarly, PTSD (via PCL-5 scores) was assessed with sleep quality (via PSQI scores) and mindfulness traits (via FFMQ scores) to show the following: PCL (t(27=5.75, p<0.001), FFMQ (t(27=-1.33, p=0.19), Age (t(27=1.08, p=0.29), and BMI (t(27=1.38, p=0.18).
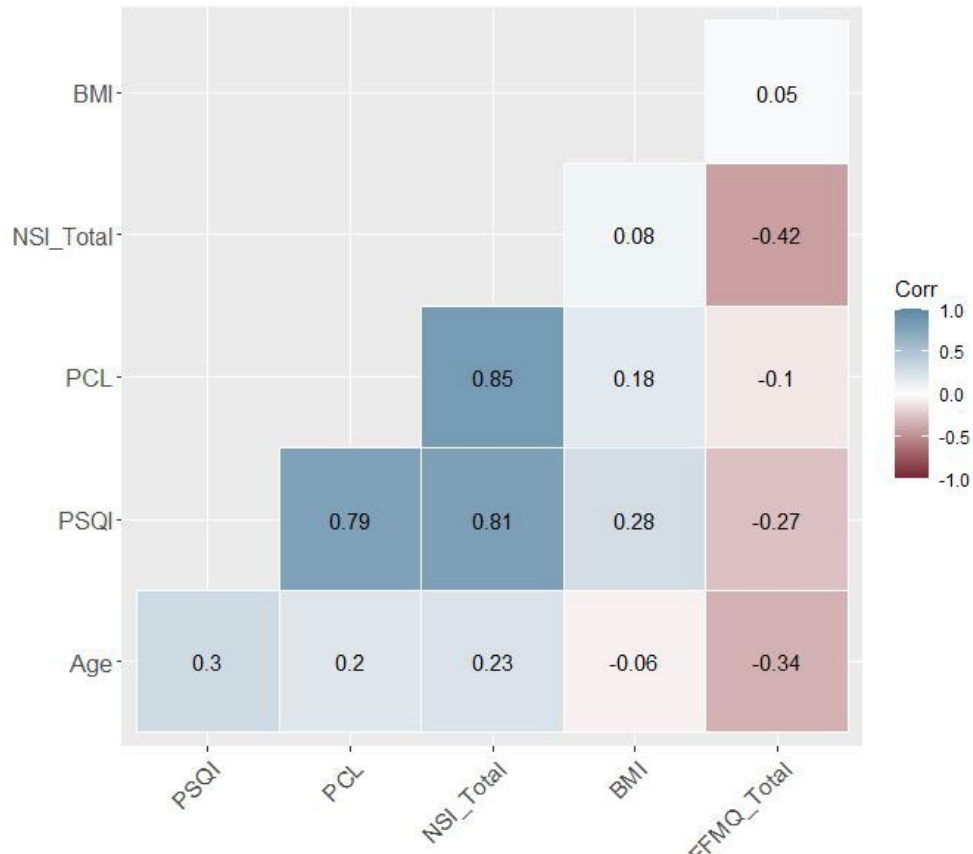

Figure 3. Correlation table between sleep quality (PSQI), PTSD (PCL), symptom burden (NSI_Total), mindfulness traits (FFMQ_Total), and controlling factors (BMI)
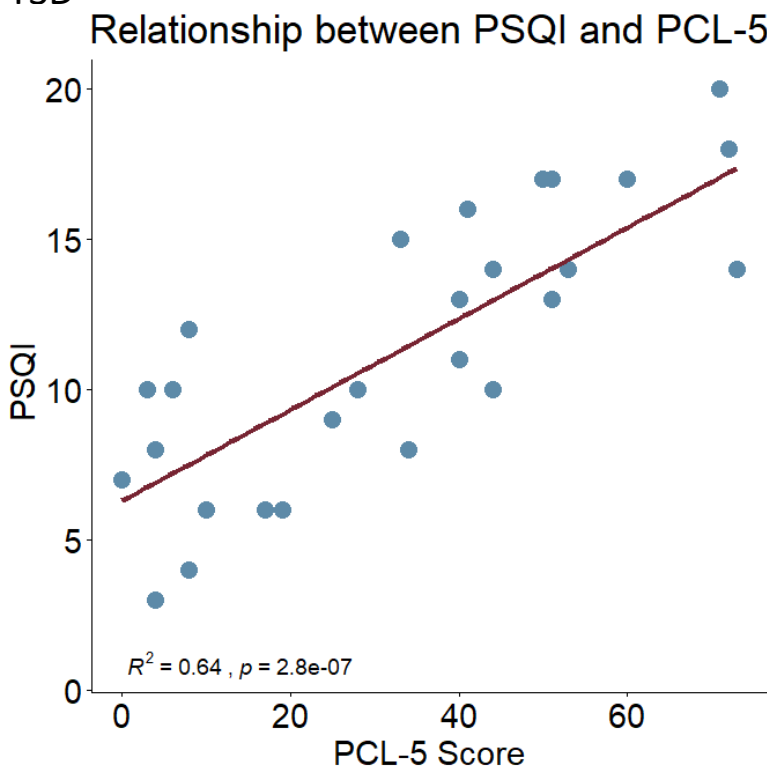

Figure 1. Correlation between sleep quality (PSQI) and depressive symptoms (PCL-5)
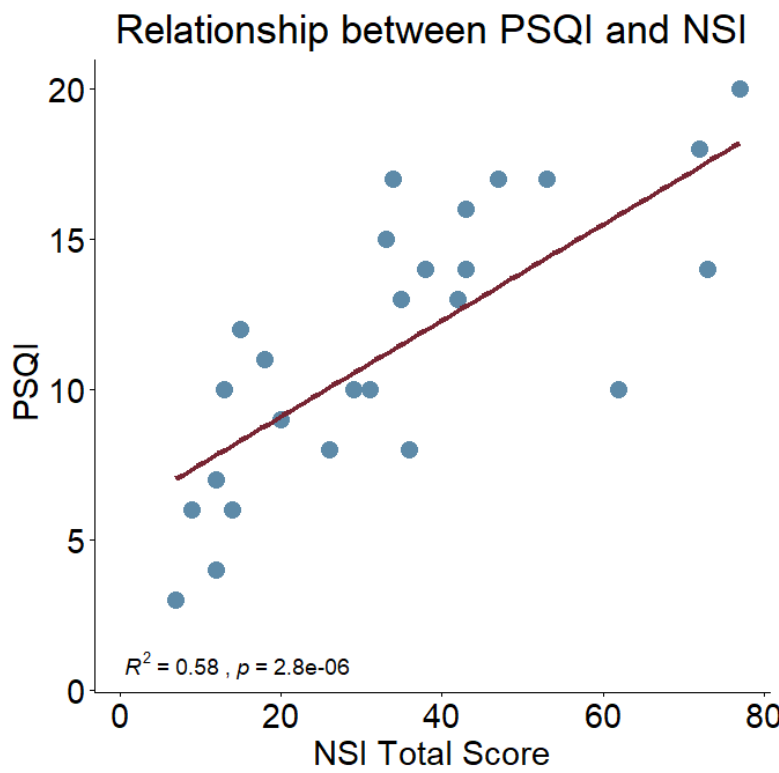
Figure 2. Correlation between sleep quality (PSQI) and TBI symptoms (NSI)

Conclusion

- These results highlight the relationships between sleep quality (via PSQI scores) and reported symptom burden (via NSI) or PTSD symptoms (via PCL-5).
- Given the diverse ranges of symptoms reported in this population, clinicians may benefit from tailored measurement based care standards to assess the specific symptoms being reported by Veterans.
- This information may help with treatment planning and improved sleep outcomes due to the intentional focus on symptoms causing the most distress around sleep.

References

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