

Self-Reported Sleep & Cognitive Performance Among U.S. Military Service Members & Veterans

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Problem

Effective cognitive performance is essential for military operations. Lack of sleep (sleep deprivation) degrades complex mental processing and impedes cognitive response time (Belenky, 1997). Self-reported sleepiness among an otherwise healthy population may also impact cognitive performance.

Purpose

To examine self-reported sleep and cognitive performance in active duty and veteran U.S. military personnel.

Method

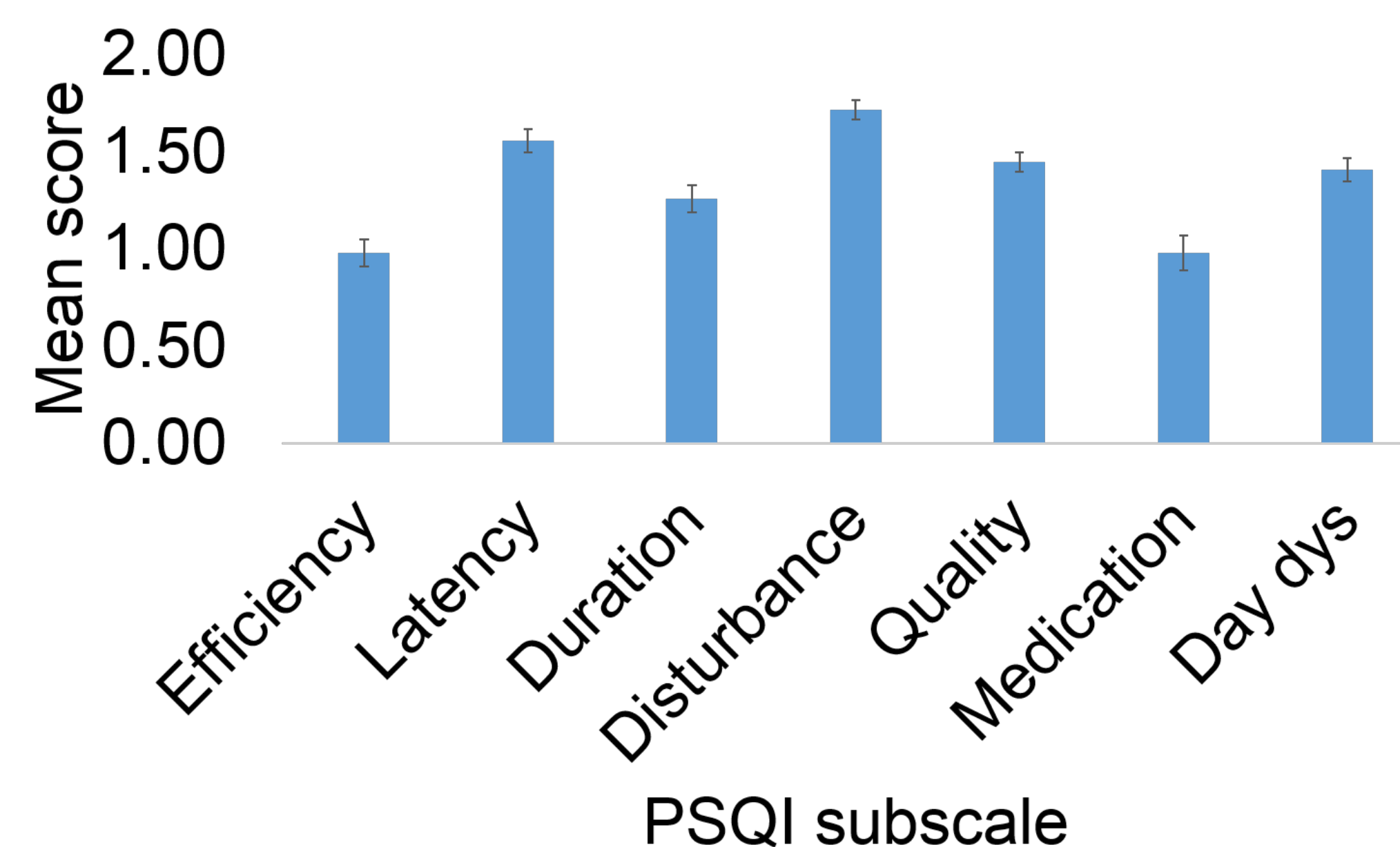
240 active duty and veteran U.S. Military service members completed the:

- Pittsburgh Sleep Quality Index (PSQI)
- Running Memory Continuous Performance Task (CPT)
- Simple Reaction Time (SRT)
- Switching Task (SWT)

Results

Participants average age was 48.13 ± 12 yrs. Volunteers were primarily male (52.5%), Caucasian (52.5%), married (55.4%), and had some college (32.5%). The average time in service (years) was 15 ± 8.56 yrs. and 58.8% reported prior deployment. The mean global PSQI score was $9.37 (\pm 4.48)$.

PSQI Subscale Scores



Cognitive Task Scores

Metric	CPT		SRT		SWT	
	M	SD	M	SD	M	SD
# correct	63.92	12.00	39.45	1.82	47.71	10.75
# incorrect	7.38	8.02	.00	.00	14.93	10.43
Mean RT (msec)	639.05	94.41	353.34	150.76	2986.58	1234.46
Throughput	75.96	22.73	181.10	38.85	14.57	5.59

Note: Throughput = number of correct responses per unit of time.

Correlations (significant only)

	CPT	SRT	SWT
PSQI	RT	RT	#Incorr
Duration		.14*	-.16*
Disturbance		.19**	-.19**
Quality		.18**	-.23**
Medication	.15*		
DayDys	.14*	.17**	-.17**
Global		.16*	-.19**

**p < .01, *p < .05; RT = reaction time, TP = throughput

Discussion

- The average global PSQI score fell within the range of sleep disorders (≥ 5 , Buysse et al., 1989), was lower than previous scores of active duty personnel (Mysliwiec et al., 2015), and was similar to that in studies with veterans (Insana et al., 2013; Pietrzak et al., 2010).
- High PSQI subscale scores indicate that areas of concern are: sleep disturbance, latency, and quality.
- Average scores and RT's for the CPT and SRT were lower and longer than previously found (Kaminski et al., 2009), and SWT throughput was lower than among two Marine populations (Shattuck et al., 2016; Shattuck et al., 2013).
- Poor self-reported sleep was associated with longer average RT's (CPT & SRT) and diminished performance (SRT & SWT).
- Of cognitive tests, SRT was most effected.

Conclusions

Self-reported poor sleep was associated with increased processing times (SRT) and lower efficiency (throughput). This suggests that poor sleep interferes with cognitive processing and storage during working memory tasks.

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