
Sleep Disturbances in U. S. Soldiers Returning from Wartime Deployment: Preliminary Findings

**Major Betty K. Garner, PhD, RN
Carol A. Landis, D.N.Sc, RN
Monica E. Jarrett, PhD, RN
Mary S. McCarthy, PhD, RN
Michael V. Vitiello, PhD**



Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE JUN 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE Sleep Disturbances in U. S. Soldiers Returning from Wartime Deployment: Preliminary Findings				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Landstuhl Regional Medical Center, Landstuhl, Germany, ,				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Presented at SLEEP 2010, Associated Professional Sleep Societies 24th Annual Meeting June 5 - 9, 2010; San Antonio, Texas, 1/20 (copyrighted photo)					
14. ABSTRACT Over one million U. S. military personnel have been deployed since 2001 in support of overseas operations in Iraq and Afghanistan. The deployment environment is filled with uncertainty and a heightened sense of awareness for survival that may impact sleep quality. Epidemiologic studies have identified sleep disturbances (SD) as both a risk factor for and a manifestation of psychiatric and physical problems. Research on deployed military personnel has focused on the prevalence of psychiatric problems but few data are available on the extent of disturbed sleep that may place soldiers at risk both for psychiatric and physical morbidity. The frequency of SD and associated factors in U. S. soldiers were assessed at two different time points after return from deployment. Method: A convenience sample of 58 U. S. soldiers (ages 23-58 years) completed the Pittsburgh Sleep Quality Index (PSQI), Post Deployment Health Assessment, perceived stress scale, and combat exposure scale immediately upon return from deployment (PD1) and 1.5 months later (PD2).					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Conflict of Interest Disclosures

Authors:

1. The authors do not have any potential conflicts of interest to disclose

2. The authors wish to disclose the following potential conflicts of interest:

Type of Potential Conflict	Details of Potential Conflict
Grant/Research Support	
Consultant	
Speakers' Bureaus	
Financial support	
Other	

3. The material presented in this lecture has no relationship with any of these potential conflicts, **OR**

4. This talk presents material that is related to one or more of these potential conflicts, and the following objective references are provided as support for this lecture:

ACKNOWLEDGEMENTS

Grant Number N08-P07. This research is sponsored by the TriService Nursing Research Program (TSNRP), Uniformed Services University of the Health Sciences (USUHS); however, the information or content and conclusions do not necessarily represent the official position or policy of, nor should any official endorsement be inferred by, the TSNRP, USUHS, the Department of Defense, or the U.S. Government.



INTRODUCTION

- **Current deployment environment¹**
- **Potential for sleep disturbances (SD)**
- **Comorbidity^{2, 3}**
- **Focus on mental health prevalence**
- **Overlooked and not examined**
- **Little data on SD and factors/risks**

PURPOSE

- **To assess prevalence of and identify factors associated with SD in Army soldiers post deployment (PD) in support of OEF or OIF:**
 - PD1 = initial assessment
 - PD2 = 1 ½ months later



Used with permission from Stars and Stripes. ©
2007, 2008 Stars and Stripes

METHODS

- **Design: A descriptive/comparative study at 2 time points**
 - **Soldier Readiness Processing Site**
 - **Sleep Survey**
 - **Approved by IRBs**
 - **Analysis**
-
-

PARTICIPANTS

- **PD1: n = 58 & PD2: n = 29**
 - **Age: 35 yrs**
 - **Gender: 70% male**
 - **Rank: 70% enlisted**
 - **Race: 88% White/Caucasian**
 - **Marital Status: 70% married**
 - **Service Component: 60% Active Duty**
-
-

PREVALENCE

	PD1 n = 58		PD2 n = 29	
PSQI >5, n (%)	50 (86%)		25 (86%)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
PSQI Global Score	10.4	4.0	11.4	4.6
Hours of Sleep Before Deployment	7.3	1.2	7.3	1.3
Hours of Sleep After	5.8	1.5	5.5	1.3
Sleep Quality Before Deployment	0.9	0.7	1.0	0.7
Sleep Quality After	1.7	1.7	2.0	0.8

PSQI = Pittsburgh Sleep Quality Index

DIFFERENCES FROM PD1 TO PD2

	PD1 n = 29	PD2 n = 29		
	Md	Md	z	p
PSQI Global Score	11.5	12.0	-0.71	0.52
Sleep Quality	2	2	-0.83	0.58
Sleep Latency	2	3	0	0.77
Sleep Duration	2	2	-0.28	1.0
Sleep Efficiency	1	1	-0.46	0.55
Sleep Disturbances	2	2	-0.33	1.0
Medication Usage	1	0	-1.71	0.27
Daytime Dysfunction	1	2	-2.50	0.02*

Note. Analysis conducted using the Paired Signed Rank Test for differences.

PSQI = Pittsburgh Sleep Quality Index

DESCRIBE FACTORS

Sleep History and Psychological Factors

	PD1 n = 58	PD2 n = 29
Personal History Yes, n (%)	26 (45)	16 (55)
Family History Yes, n (%)	9 (15)	4 (14)
PTSD Score, <i>M (SD)</i>	0.6 (1.2)	1.0 (1.5)
PTSD ≥ 2 , n (%)	10 (18)	8 (28)
Depression Score, <i>M (SD)</i>	1.3 (1.5)	2.1 (1.7)
Depression ≥ 3 , n (%)	7 (13)	4 (14)
Alcohol Score, <i>M (SD)</i>	0.1 (0.3)	0.3 (0.7)
Alcohol Problems, n (%)	1 (2)	4 (14)
Perceived Stress Scale, <i>M (SD)</i>	17.6 (7.8)	15.3 (8.4)

PTSD = Post Traumatic Stress Disorder

DESCRIBE FACTORS

Physical Illness/TBI and Combat Exposure

	PD1 n = 58	PD2 n = 29
Symptoms of PI, <i>M (SD)</i>	2.5 (3)	6.8 (5.0)
TBI Yes, n (%)	3 (5)	2 (7)
TBI Score, <i>M (SD)</i>	0.3 (0.9)	--
Symptoms of TBI, <i>M (SD)</i>	1.0 (1.3)	2.6 (1.6)
Combat Exposure Scale, <i>M (SD)</i>	7.7 (7.5)	8.5 (6.4)
>Moderate, n (%)	8 (14)	3 (10)

PI = Physical Illness, TBI = Traumatic Brain Injury

CORRELATIONS

Adjusted for Age, Gender, and Rank

	PD1 n = 58 PSQI Global Score	PD2 n = 29 PSQI Global Score
Race	-0.10	0.34
Marital Status	0.13	-0.17
Service Component	0.10	0.25
Personal History	0.48**	0.42**
Family History	0.09	-0.28

* < 0.05 ** < 0.01

PSQI = Pittsburgh Sleep Quality Index

CORRELATIONS

Adjusted for Age, Gender, and Rank CONT.

	PD1 n = 58 PSQI Global Score	PD2 n = 29 PSQI Global Score
PTSD Score	0.08	0.21
Depression Score	0.34*	0.31
Alcohol Score	0.26	0.18
Perceived Stress Scale	0.49**	0.36
Symptoms of PI	0.38**	0.41*
Symptoms of TBI	0.44**	0.42*
Combat Exposure Scale	0.17	0.05

* < 0.05 ** < 0.01. PSQI = Pittsburgh Sleep Quality Index, PTSD = Post Traumatic Stress Disorder, PI = Physical Illness, TBI = Traumatic Brain Injury

CONCLUSIONS

- **High prevalence of SD at initial time point and 1 ½ months later**
 - **High association between SD and personal history, symptoms of PI and TBI**
 - **Early identification and timely referral**
-
-

?? and comments

