



Sleep Disruptions May Be a Function of Combat, Not Specific to PTSD or Other Medical Disorders

U.S. Army sleep study points the way for future research

HONOLULU, May 15, 2011 /PRNewswire/ -- A study presented today at the American Psychiatric Association's annual meeting suggests that sleep disturbances like obstructive sleep apnea (OSA), excessive awakening and insomnia, may be a normal result of combat experience, rather than a symptom of post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), major depression or other psychiatric conditions.

The retrospective study, which will be published this summer as "Sleep Disruption Among Returning Combat Veterans from Iraq and Afghanistan" in the peer-reviewed journal *Military Medicine*, examined the electronic medical records of recently redeployed soldiers complaining of sleep disturbances. The purpose of the study was to uncover the relationship between common combat-related conditions among active duty military personnel and the frequency of a diagnosis of OSA and other sleep problems.

U.S. Army Capt. Vincent F. Capaldi, II, Sc.M., M.D., the study's lead author, is a resident physician in psychiatry and internal medicine at Walter Reed Army Medical Center. Many of the Army's sleep studies are run at Walter Reed, and it is widely known that sleep disturbance is a frequent complaint among deployed soldiers. In 2008, the Army reported that 8 percent of the U.S. soldiers in Afghanistan were taking mental health-related medications to treat sleep problems, while in Iraq, soldiers averaged 5.6 hours of sleep per night, significantly less than the 6.4 hours self-reports indicated they required to feel rested. Many soldiers continue to suffer from sleep disruptions for several months after returning home from deployment.

"In this study, we discovered surprisingly few and subtle differences in the sleep issues of soldiers with various psychiatric diagnoses, as well as between civilian and military sleep patterns among those with disturbed sleep," said Capt. Capaldi. "While the study had limitations of size and scope, a key takeaway is that routine screening for sleep problems may be beneficial for all combat veterans, since many who suffer from sleep disturbance post-deployment are otherwise healthy."

PTSD and TBI are both characterized by sleep disruptions. Nightmares and insomnia are core characteristics of PTSD, but OSA, restless legs, sleep terrors, nocturnal anxiety attacks and sleep avoidance can also occur. However, the study showed that many of the symptoms experienced by soldiers with these diagnoses occurred with the same frequency in civilians who sought relief at a sleep clinic. Sleep apnea, which occurred in 76.8 percent of the soldiers in the study, occurs at a similar rate in civilians seeking treatment.

Overall, the service members referred to the sleep clinic had higher rates of psychiatric diagnoses than the general population and war veterans who either have normal sleep or whose sleep disruptions are not severe enough to cause them to seek medical help. However, the sleep study participants did not have a higher rate of OSA than non-veteran sleep clinic participants, calling into question the commonly held view that sleep apnea and related sleep disorders are a function of PTSD and TBI. Rather, they appear to be a function of experiencing stress under combat conditions, even if that stress does not rise to the level of

PTSD.

There was no statistically significant difference in the rate of sleep apnea, excessive awakening, hypoxia or daytime sleepiness among sufferers of PTSD, TBI and the control group of "other," which included patients with depression, anxiety and no diagnosis. Deeper analysis did reveal some differences between diagnoses. For example, those with a PTSD diagnosis showed more sleep arousals – abrupt changes from sleep to wakefulness or from a deeper to REM stage of sleep – and higher sleep apnea than the soldiers without PTSD. This finding was consistent with prior PTSD research. Study participants with a TBI diagnosis experienced significantly less sleep apnea, spent less time awake over the course of the night and spent more of their time asleep in slow wave ("Stage 3 and 4") sleep. This finding was also consistent with prior research on TBI sleep patterns and symptoms.

Obstructive sleep apnea in soldiers appeared more frequently in the male gender, older participants and those with a higher BMI.

The data for the study was collected from sequential patient admissions for an overnight polysomnographic sleep study at Walter Reed of recently redeployed active duty soldiers from 2006 to 2008. They included men and women between the ages of 20 and 55. The study monitored a full night's sleep and captured brain, eye and leg movement, heart rate and various breathing measures.

Melanie L. Guerrero, M.D., and William D.S. Killgore, M.D., participated in the study.

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