Gender differences in sleep disorders in the US military☆,☆☆,★

Shannon N. Foster, DOa,⁎, Shana L. Hansen, MDa,b, Dale C. Capener, MDa,b, Panagiotis Matsangas, PhDc, Vincent Mysliwiec, MDa,b

a San Antonio Military Medical Center, Department of Sleep Medicine, 2200 Bergquist Dr, Suite 1, JBSA Lackland, TX 78236
b Uniformed Services University of the Health Sciences, 4301 Jones Bridge Rd, Bethesda, MD 20814
c Operations Research Department, Naval Postgraduate School, Monterey, CA 93943

Objective: The purpose of this study is to compare sleep disorders between male and female military personnel. Comorbid behavioral health disorders and chronic pain were also studied in relation to sleep disorders.

Design: We conducted a retrospective review of military personnel who underwent a sleep medicine evaluation and an in-laboratory attended polysomnography. Initial sleep questionnaires, demographics, polysomnographic variables, and comorbid disorders of interest were reviewed and compared for each sex.

Setting: All patients were referred to the Wilford Hall Ambulatory Surgical Center Sleep Disorders Center for evaluation of sleep disturbance.

Participants: Our cohort consisted of 209 military personnel with 51.7% men. The cohort was relatively young with a mean age of 34.3 years. Men had a significantly higher body mass index at 29.4 vs 27.3 in women.

Results: Insomnia was diagnosed in 72 women and 41 men (P < .001), whereas obstructive sleep apnea (OSA) was diagnosed in 92 men and 50 women (P < .001). Depression and anxiety were more common in women. Women had an average of 1.76 ± 1.36 comorbid conditions compared with 1.08 ± 1.19 in men. In patients diagnosed with both insomnia and OSA, women were more likely to have post-traumatic stress disorder, depression, and anxiety. Neither the Epworth Sleepiness Scale (12.8 ± 4.88) nor the Insomnia Severity Index (16.9 ± 5.33) differed between sexes.

Conclusions: Gender-related differences in sleep disorders are present in active-duty personnel. Behavioral health disorders were frequent comorbid disorders, and women diagnosed with both insomnia and OSA manifested greater psychiatric comorbidity. The frequent association between sleep and behavioral health disorders in military personnel requires further study.

Introduction

Sleep disturbances are associated with multiple physical as well as behavioral health disorders. Poor sleep negatively impacts mood, cognition, decision making, and moral reasoning. In addition, in military populations, sleep disturbances can lead to increased body mass index (BMI), failure to meet exercise standards, suboptimal nutritional status, and poorer self-reported health. Thus, the importance of sleep is increasingly recognized throughout society as well as the military.

The prevalence of specific sleep disorders differs between men and women. Studies in the general population reveal that women are more likely to have insomnia and generalized sleep disturbances than men. Specifically, women are twice as likely to be diagnosed with insomnia, with this difference increasing with age. Regarding obstructive sleep apnea (OSA), data from civilian sleep centers, assessing middle-aged adults, show higher rates of OSA in men compared with women with ratios of 8:1 to 10:1. Overall, the incidence of OSA in women referred for polysomnography (PSG) is 16.8%–34.2% compared with 65.8%–83% in men. Women diagnosed with OSA are typically older and have less severe disease than their male counterparts. Most studies comparing gender-related differences in sleep disorders were performed in older populations. Research
Taylor et al.18 surveyed a large sample of US Army soldiers, including
records (EMRs) were reviewed. Demographic/biometric parameters
questionnaires, polysomnographic variables, and electronic medical
records, which consisted of the Epworth Sleep
women and 108 men. Prior to their evaluation, the patients complet-
ed self-report questionnaires, which consisted of the Epworth Sleep-
ingary personnel who were referred for evaluation to an academic military
was performed in accordance with American Academy of Sleep Medicine (AASM) standards within an AASM-accredited laboratory (Embla Systems, Broomfield, CO; Sandman Version 9.3), with a subset of patients receiving split-night studies. Our laboratory policy was to perform a split-night study on any patient with an apnea hypopnea index (AHI) of greater than 20 per hour in the first 2 hours of sleep. Polysomnography was performed with 16 channels, including electrooculogram, electroencephalogram, electrocardiogram, electromyogram (submental and bilateral tibial), airflow measurements using both oronasal-thermal sensors and nasal air pressure transducers, transthecal sounds via microphone, rib cage and abdominal movement by inductance plethysmography using thoracoabdominal belts, and continuous pulse oximetry. Studies were scored using the 2012 AASM scoring guidelines with hypopneas scored as a 30% drop in the nasal pressure from baseline for 10 seconds and associated with either an arousal or drop in oxygen saturation by 3%.22 Polysomnographic variables, to include sleep onset latency (SOL), rapid eye movement (REM) onset latency, total sleep time, sleep efficiency (SE), sleep stages (stage N1, stage N2, stage N3, stage R), wake after sleep onset (WASO), arousal index, AHI, and maximal desaturation, were analyzed.

Diagnosis of sleep disorders and associated illnesses

The International Classification of Sleep Disorders, Third Edition was used to adjudicate sleep disorders in our patients integrating PSG data, EMR review, ESS, ISI, and our sleep laboratory questionnaire.23 All diagnoses were reviewed and adjudicated by 2 board-certified sleep medicine physicians. The diagnosis of insomnia was rendered in patients with self-reported symptoms of insomnia who had an SOL >30 minutes and a reduced SE (<85%) on the sleep laboratory questionnaire, as well as an ISI score consistent with insomnia (≥15). Patients with a threshold ISI of 11–14 were required to have the same self-reported insomnia symptoms along with at least 1 PSG variable consistent with insomnia, to include SOL >30 minutes, WASO of >30 minutes, and/or SE <85%. Patients with a PSG demonstrating apneas or hypopneas with an AHI >5/h were rendered a diagnosis of OSA. The diagnoses of insomnia and OSA were not mutually exclusive; a diagnosis of comorbid insomnia and OSA was adjudicated when the patient’s sleep and wake complaints were not solely due to sleep disordered breathing or another disorder in accordance with the International Classification of Sleep Disorders, Third Edition. Associated illnesses including depression, anxiety, post-traumatic stress disorder (PTSD), and chronic pain were obtained from the EMR and self-report.

Statistical analysis

Statistical analysis was conducted with a statistical software package (JMP Pro 12; SAS Institute, Cary, NC). Individuals with previous PSGs, those referred for postsurgical evaluation, or those who did not complete our sleep center intake questionnaire were excluded from the analysis. Medical record review was performed using the EMR system. After collection, data were recorded in a deidentified database prior to statistical analysis.

Data normality was assessed with the Shapiro-Wilk test. Most of our data violated the assumption of normality (ie, age, all PSG
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات