Sleep Disturbances Experienced by Military Burn Survivors

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Purpose: Military men and women may suffer from burn injuries because of their military duties. Due to advances in burn care, many service members survive their injuries. Following burn center discharge, military burn survivors continue to experience sleep disturbances; however there is a lack of understanding of sleep disturbances in this population. The purpose of this study was to examine subjective reports of sleep disturbances as experienced by military burn survivors over time.

Methods: This was a secondary analysis of data from a descriptive longitudinal study in which data were gathered at 5 time points: burn center discharge; 3, 6, 12, and 18 months post-discharge. Sleep was measured in an innovative way by using the sleep questions from instruments that are commonly used in this population, rather than with a Sleep Scale (e.g. the Pittsburgh Sleep Quality Index) that might be used in sleep research. Sleep specific data were collected from questions on the: Burn Specific Health Scale-A (BSHS-A; 1 item), Post-Traumatic Distress Check List- Military (PCL-M; 2 items), and Center for Epidemiologic Studies Depression Scale (CESD; 4 items); participants also completed demographic and clinical history forms. Data were analyzed using measures of central tendency and repeated measures ANOVA. Cronbach’s alpha was used to determine reliability of the sleep questions as a “measurement tool.” The sleep questions also were factor analyzed using exploratory principal components analysis (unrotated).

Results: Seventy-eight service members enrolled in the study with 64 remaining at 18 months-for a total of 349 participant surveys collected over time. The participants were primarily Army (74%), enlisted service members (96%) with an average of 62 months of military service. Most service members were Caucasian (69%), males (n=97%) with a mean age of 25 years, at least a high school education or GED (56%); 45% were married and they had an annual income of $40,000 or less (78%). They presented with thermal burns and polytrauma resulting from combat injuries and accidents with a mean total body surface area burned = 24%; the average length of stay in the burn unit was 44 days (median = 17 days). Patients reported persistent sleep disturbances that included: nightmares (50%); insomnia (71%); hypersomnia (31%) and excessive daytime sleepiness (63%). These sleep disturbances continued during the 18 month post-discharge period. There were no statistically significant improvements in their sleep over time. Cronbach’s alpha for the sleep questions was .87 and when the seven sleep questions were factor analyzed, all seven questions
loaded on one component, *Sleep*, which explained 60% of the variance (eigenvalue 4.169). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .83 and Bartlett’s Test of Sphericity was significant (p <.000; df = 21).

**Conclusions:** These patients were relatively young and in good physical health prior to sustaining a burn injury. Participants' sleep disturbances remained relatively consistent over this 18 month study post-discharge period. **This lack of improvement indicates a need for ongoing assessment of sleep quality and interventions that can improve sleep, decrease nightmares, and decrease excessive daytime sleepiness for this population.** The seven questions used to measure sleep in this sample came from instruments commonly used with military and civilian patients rather than a specific sleep scale. The reliability and factor analysis results indicated that these seven questions can be used to measure sleep without needing to use another instrument specifically designed for sleep measurement. This ultimately decreases the clinical and research burden for patients. Understanding burn patients' sleep disturbances is critical to the interpretation of burn rehabilitation progress and to understanding these patients’ psychosocial needs.

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