

investigated the factors that patients perceive as affecting their sleep in a major Australian tertiary ICU.

**Methods:** Patients (n=138, 51F; aged 58.1±16.8 years) completed a survey assessing sleep before and during their ICU stay, factors contributing to poor sleep, and factors that may have improved their sleep in the ICU. Night-time sound (16 nights) and light (28 nights) levels in rooms were also measured.

**Results:** Most patients reported good (38%) to very good (25%) sleep quality before their ICU stay, and poor (28%) to very poor (32%) sleep quality in the ICU. Over half (56%) reported an abnormal sleep-wake cycle and most (60%) felt as though they did not obtain sufficient sleep. Noise (54%), pain (50%) and lights (48%) were the top reasons for self-reported poor sleep. Patients felt as though their sleep would have been improved with dimmed lights (64%), a sleeping pill (57%) and closing door/blinds at night (46%). Median (IQR) overnight noise and light levels were 52.8 (51.4–54.6) dB and 39.9 (8.2–90.9) lux respectively.

**Discussion:** Of the top three factors that patients perceive to be the primary reasons for poor sleep, two are modifiable (noise and lights). Night-time sound levels exceed standard recommendations and light levels, while mostly low, were higher than indicated for a healthy sleep environment, suggesting that these could be modified to improve patients sleep.

## P108

### EFFECTS OF DIFFERENT PILLOW DESIGNS ON PROMOTING SLEEP QUALITY AND SPINAL ALIGNMENT BY REDUCING NECK PAIN, WAKING SYMPTOMS, NECK DISABILITY IN ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

*PANG J<sup>1</sup>*

<sup>1</sup>Caritas Institute Of Higer Education, Hksar, Hong Kong SAR

**Introduction:** Poor sleep quality is more prevalent in patients with neck pain than in the control without neck pain. The effectiveness of using different pillows in the management of neck pain, waking symptoms and sleep quality is inconclusive.

**Objectives:** To identify the randomized controlled trials assessing the effect of different types of pillows on sleep quality, spinal alignment, neck pain, waking symptoms and neck disability.

**Methods:** A systematic review was conducted by searching CINAHL Complete, Cochrane Library, EMBASE, Medline, Pubmed and Psycinfo databases from inception to September 2020. Two reviewers independently assessed the articles and evaluated the methodological quality using the Physiotherapy Evidence Database (PEDro) scale.

**Results:** Thirty-five articles fulfilled the inclusion criteria of the study. There were nine high-quality studies involving 555 participants. The meta-analysis revealed significant differences favouring the use of rubber pillows to reduce neck pain [standardized mean difference (SMD): -0.263; P < 0.001]. Moreover, favourable outcomes by using rubber and spring pillows were found in waking pain (SMD: -0.228; P < 0.001), neck disability (SMD: -0.506; P = 0.020) and pillow satisfaction (SMD: 1.144; P < 0.001). However, pillow designs did not influence sleep quality (SMD = 0.047; P = 0.703) or spinal alignment at side-lying position (SMD=0.049; P=0.280) in patients with chronic neck pain.

**Discussion:** The use of spring and rubber pillows shows positive effects on reducing neck pain and disability. Although pillow designs do not change the sleep quality, waking symptoms can be reduced with positive pillow satisfaction in patients with chronic neck pain.

## P109

### THE ASSOCIATION BETWEEN SLEEP MICROARCHITECTURE AND COGNITIVE FUNCTION IN MIDDLE-AGED AND OLDER MEN: A COMMUNITY-BASED STUDY

*Parker J<sup>1</sup>, Melaku Y<sup>1</sup>, D'Rozario A<sup>4</sup>, Wittert G<sup>2,5</sup>, Martin S<sup>2,5</sup>, Toson B<sup>6</sup>, Catcheside P<sup>1</sup>, Lechat B<sup>1</sup>, Teare A<sup>1</sup>, Appleton S<sup>1,5</sup>, Adams R<sup>1,3,5</sup>, Vakulin A<sup>1,4</sup>*

<sup>1</sup>Flinders Health and Medical Research Institute, Adelaide Institute for Sleep Health, Flinders University, Adelaide, Australia,

<sup>2</sup>Freemasons Centre for Male Health and Wellbeing, Adelaide Medical School, University of Adelaide, Adelaide, Australia,

<sup>3</sup>Respiratory and Sleep Services, Southern Adelaide Local Health Network, Bedford Park, Adelaide, Australia, <sup>4</sup>NeuroSleep - NHMRC Centre of Research Excellence, and Centre for Sleep and Chronobiology (CIRUS), Woolcock Institute of Medical Research, University of Sydney, Sydney, Australia, <sup>5</sup>South Australian Health and Medical Research Institute, Adelaide, Australia, <sup>6</sup>Neuroscience Research Australia (NeuRA), Sydney, Australia

**Introduction:** Sleep microarchitecture metrics determined by quantitative power spectral analysis (PSA) of the electroencephalogram (EEG) have been proposed as potential biomarkers of cognitive function. However, there remain no data from community-based samples. This study examined cross-sectional associations between sleep microarchitecture metrics determined by PSA and cognitive function outcomes in community-dwelling men.

**Methods:** Men, Androgen, Inflammation, Lifestyle, Environment, and Stress (MAILES) study participants (n=477) underwent home-based polysomnography between 2010–2011. All-night EEG recordings were processed using PSA following exclusion of artefacts. MAILES participants also completed the inspection time task, Fuld object memory evaluation, and trail-making test A (TMT-A) and B (TMT-B). Multivariable linear regression models were used to determine the associations of sleep microarchitecture (relative spectral power) with cognitive function in the complete and age-stratified samples.

**Results:** Power spectral densities in theta-alpha ranges during NREM and REM sleep were associated with worse TMT-A performance, whereas higher delta density was associated with better TMT-A performance in the complete sample and men ≥65 years (all p<0.05). Similar associations were observed with TMT-B performance in men ≥65 years. Furthermore, in men <65 years, higher sigma density during NREM sleep was associated with faster inspection time (B = -3.14, 95% CI [-6.00, -0.27], p=0.032), whereas in men ≥65 years, higher theta density during NREM sleep was associated with faster inspection time (B = -3.33, 95% CI [-6.65, -0.02], p=0.049).

**Discussion:** PSA markers of sleep microarchitecture are independently associated with cognitive function. Longitudinal studies are needed to determine whether sleep microarchitecture metrics predict future cognitive dysfunction and decline.

## P110

### THE ASSOCIATION BETWEEN SLEEP SPINDLES AND COGNITIVE FUNCTION IN MIDDLE-AGED AND OLDER MEN: A COMMUNITY-BASED STUDY

*Parker J<sup>1</sup>, Melaku Y<sup>1</sup>, D'Rozario A<sup>4</sup>, Wittert G<sup>2,5</sup>, Martin S<sup>2,5</sup>, Catcheside P<sup>1</sup>, Lechat B<sup>1</sup>, Teare A<sup>1</sup>, Appleton S<sup>1,5</sup>, Adams R<sup>1,3,5</sup>, Vakulin A<sup>1,4</sup>*