

Subjective and Objective Sleepiness in Non-Restorative Sleep, Insomnia Disorder, and Healthy Controls

Non-restorative sleep (NRS) is a condition characterised by subjectively unrefreshing sleep despite normal sleep duration, leading to daytime fatigue and reduced quality of life (Roth et al., 2010). Despite the significant impacts of the disorder, it does not have an established diagnostic criteria, and the characteristics associated with NRS are poorly understood, leading to diminished outcomes for individuals. It has previously been treated as a subtype of insomnia disorder (ID) (American Psychiatric Association, 2013), as daytime impairments are similar despite NRS occurring in the absence of the sleep disruptions associated with ID. This study aimed to examine differences in subjective and objective sleepiness upon awakening in a sample of a sample of 33 age- and sex-matched participants with NRS, ID, and healthy controls.

This study found no significant group differences in self-reported subjective sleepiness upon awakening measured using the Karolinska Sleepiness Scale (KSS). Using high-density electroencephalography (HD-EEG) objective sleepiness was measured through alpha attenuation coefficient (AAC) and slowing ratio (SR), and was not associated with significant group differences. Additionally, there was no significant association between subjective and objective sleepiness across groups, and no significant interaction. These results suggest that within our sample, individuals with NRS and ID do not differ significantly from healthy controls on measures of sleepiness upon awakening, despite daytime impairments. The absence of significant differences highlights the need to explore other factors contributing to NRS, such as fatigue and subjective sleep quality. Understanding these factors may aid in developing diagnostic criteria and effective treatments for NRS, ultimately improving outcomes for those affected.