Application number/Title: 43711 - Is sleep associated with cognitive and psychosocial outcomes in autism spectrum disorder?

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Keywords provided by the Applicant PI to describe the research project: autism, cognition, education, employment, mood-disorder, sleep

Application Lay Summary:

We spend roughly a third of our lives asleep. Unless sleep offers us some vital functions, it has been argued that it could be "biggest mistake human evolution ever made". Thankfully, an accumulation of research strongly suggests that sleep is vital for an array of reasons: health, emotion, immunity, and of particular interest here, learning and cognition.

The importance of sleep for cognition is clear in sleep deprived individuals. Sleep deprived teens, for instance, are less likely to retain newly learned material and are more likely to obtain poor grades. It is perhaps unsurprising then, that many developmental disorders are often associated with sleep difficulties. Autism spectrum disorder (ASD) is one example, with the severity of sleep difficulties associated with the severity of cognitive and communication impairment.

Despite frequent claims, evidence for sleep difficulties in ASD is not compelling. Some studies claim prevalence rates of more than 80%, whilst others claim less than 40%. The field largely relies on subjective parent or self-report, which often conflicts with more objective measures of sleep (e.g., activity monitoring). Research has relied upon clinic-based populations, who may be more likely to present with additional difficulties including sleep difficulties. There is also very little research into sleep difficulties in adults with ASD.

The proposed project will tackle these issues. Controlling for crucial variables, such as age, BMI, socio-economic status, we will examine whether subjective and objective measures of sleep (as measured by wrist-worn actigraphy) predict ASD...
status in a population sample. Given the link between sleep and mood disorders (which also frequently co-occur with ASD), we will examine whether any association between sleep and ASD is driven by symptoms of anxiety and depression. Crucially, we will address whether sleep difficulties in ASD are associated with cognitive, educational and/or employment outcomes. Whilst a recent study has established an association between sleep and employment in ASD, we will examine whether this is a consequence of sleep difficulties hampering educational attainment and subsequently reducing employment chances, OR whether unemployment is more simply associated with suboptimal sleep patterns.

The UK’s annual cost of supporting adults with ASD is estimated to be more than £34 billion per year. Demonstrating that sleep difficulties are associated with cognitive, mental health and/or employment outcomes, therefore has important clinical and economic implications for the assessment and treatment of sleep difficulties in this and other disorders.