

# Use of Actigraphy to Monitor Sleep Parameters and Sleep Problems in the Adult Learning Disabilities Population.

## A Proposal

Maruf Mustapha

ST4 Intellectual disabilities Psychiatry

### Background

Sleep is vitally important for health and wellbeing. This is particularly relevant for people who live with Intellectual Disabilities (ID) and psychiatric co-morbidities. However, people living with ID are more likely to have sleep problems than the general population, and more likely to have sleep problems than non-ID psychiatric populations. There is evidence suggesting that the severity of cognitive difficulties may be linked to an increased incidence of sleep difficulties. Additionally, cognitive ability is linked to the ability to complete patient reported outcome measures.

Technology is now ubiquitous and essential to everyday life, with increasing relevance in healthcare service delivery. The availability of technology that provide accurate information about important sleep parameters are no longer entirely limited to a sleep clinic/polysomnography assessment setting. There is an increasing opportunity to utilise personal devices (e.g. smartphones, smartwatches) in the assessment of sleep parameters and identifying sleep problems in the community. Furthermore, the use of m-health data may allow for the identification of personalised support hours which could improve efficiency in manpower allocation.

### Aims

- To Improve diagnostic accuracy of sleep problems and disorders in adults living with a learning disability
- To Co- produce an adapted and acceptable means of using available actigraphs in sleep assessments in the community



### Methodology

Individuals who are 18 years and above and with a confirmed diagnosis of learning disabilities attending a learning disability clinic in the greater Manchester area will be recruited into the study through a convenience sampling method, while those with a diagnosed comorbid sleep disorder will be excluded from the study.

The investigator will organise a pilot focus group discussion involving the patient and their carers, with the aims of finding out how sleep is been monitored currently, and also to find out if they are aware of actigraphy technologies and get their opinion on the merits and limitations to monitoring sleep with actigraphy.

There would also be an expert-led focus group discussion session to identify potential ethical and medicolegal challenges and proposed solutions

The sleep parameters readily available on the devices include hours slept, sleep stages, heart rate, calorie burn, respiratory rate, and algorithms can use these data sets to compute sleep efficiency, Stress and recovery levels

### Procedure

Suitable wearable actigraphs (e.g Fitbit, Whoop) which have been calibrated to clinical standards will be used to collect data on duration of sleep

This, and other sleep parameters measured would be extracted and collated from the devices over an agreed period at follow-up.

The process would rely primarily on adherence to the requirements to have on these actigraphs for the duration of sleep. Reasons for poor adherence eg tactile hypersensitivity would be identified and solutions to improving this– e.g. fabric straps would discussed with the patient/carers.

Data storage will be on individual devices and extraction of data would be at follow-up appointments.

### Summary

- Assessing sleep parameters with the aim of early detection and intervention in sleep problems would contribute to a better quality of life in the learning disabled population.
- Use of available technologies like actigraphs/smart watches/other mobile or wearable devices which have been adapted to fit for purpose is proposed to be an assessment tool which could help improve the quality of life in this clinical population.
- With further advances in technology, there would be increasing opportunities to harness the availability and utility of devices to gain insight into the prevalence and nature of sleep problems and disorders and how these contribute to the clinical and psychiatric morbidity in the Intellectual disability

