Objective vs. Subjective Reports of Sleep Quality in Major Depressive Disorder: A Pilot Study

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Hypotheses
- There is variability in sleep regularity and patterns among individuals with Major Depressive Disorder (MDD).
- There is a strong correlation between subjective self-reported sleep ratings and objective accelerometer-based measurements.
- Objective sleep measurement could detect differences among individuals with MDD.

Background
- Sleep patterns in MDD are heterogeneous: both insomnia and hypersomnia are symptoms of depression.
- Assessment of sleep patterns in MDD is often limited by clinicians’ reliance on subjective self-reported ratings of sleep.
- Objective measures, such as sleep regularity measured by accelerometer data, may provide a more accurate prognostication.

Methods
- Recruitment: • n=11 MDD and n=4 healthy controls (HC) completed the protocol
- We developed an algorithm to calculate objective sleep based on accelerometer data.
- We calculated sleep regularity indices (SRI) for both objective and subjective sleep.

Results
- Totally, the accelerometer-based (objective) and self-reported (subjective) sleep/awake time periods matched 60.94% of the time.
- Specifically for MDD patients, the algorithm overestimated accelerometer-based sleep epochs that were reported as awake.
- Based on t-statistics, MDD patients had a lower objective (t=3.09, p=0.012) and subjective SRI (t=3.37, p=0.005) compared to HCs.

Conclusions
- There are discrepancies between Individuals’ subjective sleep ratings and objective data from the E4 sensors.
- Irregular sleep is associated with depression.

Fig. 1: Study measurements

Fig. 2: Objective sleep from a sample HC. Black: sleep, white: awake, grey: missing.

Fig. 3: Objective sleep from a sample MDD patient. Black: sleep, white: awake, grey: missing.