Measuring sleep in college students with insomnia

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Background

• When treating and diagnosing sleep disorders it is essential to obtain objective as well as subjective reports.
• The standard measure of sleep, polysomnography (PSG), is very time consuming, invasive, and expensive.
• Actigraphy (ACT) provide a cheap and non-invasive means of measuring sleep.
• Five previous studies on the use of actigraphy with ind. suffering from insomnia.
• These studies were with mostly older populations, predominantly over 40 years

Buysse, Ancoli-Israel, Edinger, Lichstein, & Morin, 2006; Jean-Louis, Zizi, Von Gizycki, & Hauri, 1999; Vallieres, 2003; Lichstein, Stone, Donaldson, Nau, Soeffing, Murray et al., 2006;
Insomnia in College Students

- Insomnia is the most common sleep disorder among college students with approx. 17% of college students currently suffering.
- Heightened stress levels and irregular sleep schedules are common among college students.
- There is a need to validate the use of actigraphy among the college age population of individuals with insomnia.
- There may be differences from the populations previously studied.

Bramoweth, 2006; Jensen, 2003
Hypothesis

• Actigraphy will serve as an accurate measure with college students suffering from insomnia for NWAK, WASO, TST, and SE but will not be effective in measuring SOL, in congruence with previous studies with older adults.
Methods

• Comparing a single night’s data from PSG, ACT and sleep diaries (SD)
• ACT scorings were computed using 3 different sensitivity thresholds
• Used AW64 actigraphs by MiniMitter Inc.
• Ambulatory PSG recordings were obtained with portable devices in the participants home
Participants

- N = 8 females, 4 males
- Ages: 18-23 (M=19.5)
- Excluded: Insufficient PSG, Act, or SD data
- All participants were undergraduates at the University of North Texas
Variables of Comparison

- **SOL**: Sleep onset latency
- **NWAK**: Number of awakenings
- **WASO**: Wake after sleep onset
- **TST**: Total sleep time
- **SE**: Sleep efficiency
Results

PSG v SD correlations
• Trend for SOL
• Not sig. for WASO, NWAK, SE, or TST

PSG v Act correlations
• Strong trend for SOL
• Sig. for TST and NWAK (both $p < .01$) on all sensitivity levels
• Not sig. for WASO and SE
Sleep efficiency

PSG v SD

PSG v Act
Conclusions

- SD alone are poor predictors of actual sleep variables
- SD frequently used alone in clinical settings
- Act follows trends of PSG well but may not represent true values
- In the process of computing differences of variance
- SD are still necessary to get satisfaction level and other subjective info
Limitations and in the future

- Continuing to score and collect data
- Direct control over the in and out of bed times
- Compare different brands of actigraphy with different analyses software
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