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AGREEMENT BETWEEN SURVEY AND ACTIGRAPHY-ASSESSED SLEEP TIMING AMONG ADOLESCENTS IN THE FAMILY LIFE, ACTIVITY, SUN, HEALTH, AND EATING (FLASHE) STUDY

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0**Introduction:** Epidemiologists often deploy questionnaires or wearable monitors to quantify sleep. The extent to which self-report and device-derived sleep measures agree among adolescents are not well known. This study describes the agreement between survey and actigraphy-assessed sleep timing among adolescents in the 2014 Family Life, Activity, Sun, Health, and Eating (FLASHE) study.
Methods: FLASHE survey and motion substudy participants provided data for analyses. FLASHE participants (12–17y) completed a survey that captured self-reported usual sleep and wake times on weekdays and weekends. A subset of participants also wore an ActiGraph GT3X+ accelerometer on the wrist for 24-hours for seven days and completed a daily log for time in/out of bed. Actigraphy-assessed sleep periods were estimated using the Sadeh algorithm. Total sleep time (TST) and sleep midpoint for weekday and weekend, social jetlag, and chronotype were computed for survey and actigraphy and means and standard deviations were examined. Paired t-tests were used to test mean differences between measures overall and stratified by sex and school level (middle vs. high school).
Results: The analytic sample included 372 U.S. adolescents: 49% were female, 53% were high schoolers, 28% had overweight/obesity, and 62% identified as non-Hispanic White. Compared to actigraphy, surveys overestimated TST by an average of 2.6h on weekdays (8.7h [SD:1.4h] vs. 6.1h [SD:1.5h], $p<0.001$) and 3.1h on weekends (9.5h [SD:1.5h] vs. 6.4h [SD:1.8h], $p<0.001$), and resulted in earlier weekday sleep midpoints (02:49 [SD:1h:24 min] vs. 03:40 [SD:1h, 42 min], $p<0.001$); differences were not significant for weekend midpoints. Survey estimates were larger than actigraphy for social jetlag (1.7h [SD:1.2] vs. 0.9h [SD:1.3], $p<0.001$) and resulted in an earlier chronotype (04:16 [SD:1h, 38min] vs. 04:30 [SD:1hr, 43 min], $p=0.004$). Findings remained consistent when stratified by sex and school level except for chronotype: estimates were not significantly different among females or high schoolers.
Conclusion: The large discrepancies between survey and actigraphy-based sleep timing highlight the importance of understanding what type of data each assessment method is capturing in adolescents (self-report vs. objective measures; average vs. daily sleep). Differences between self-report and device-derived sleep data should be considered during study development and when comparing results across studies.
Support (If Any):

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REST-ACTIVITY PROFILES AMONG U.S. ADULTS IN A NATIONALLY REPRESENTATIVE SAMPLE: A FUNCTIONAL PRINCIPAL COMPONENT ANALYSIS

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Introduction: The 24-hour rest and activity behaviors are fundamental human behaviors essential to health and well-being. Functional principal component analysis (fPCA) is a flexible approach for characterizing rest-activity rhythms and does not rely on a priori assumptions about the activity shape. The objective of our study is to apply fPCA to a nationally representative sample of American adults to characterize variations in the 24-hour rest-activity pattern, determine how the pattern differs according to demographic, socioeconomic and work characteristics, and examine its associations with general health status.
Methods: The current analysis used data from adults 25 or older in the National Health and Nutrition Examination Survey (NHANES, 2011-2014). We applied fPCA to derive profiles of the rest-activity cycle for overall, weekday and weekend activity patterns. We examined the association between each rest-activity profile in relation to age, gender, race/ethnicity, education, income and working status using multiple linear regression. We also used multiple logistic regression to determine the relationship between each rest-activity profile and the likelihood of reporting poor or fair health.
Results: We identified four distinct profiles (i.e., high amplitude, early rise, prolonged activity window, biphasic pattern) that together accounted for 86.8% of total variation in the study sample. We identified numerous associations between each rest-activity profile and multiple sociodemographic characteristics. We also found evidence suggesting the associations differed between weekdays and weekends. Finally, we reported that the rest-activity profiles were associated with self-rated health.
Conclusion: Our study provided evidence suggesting that rest-activity patterns in human populations are shaped by multiple demographic, socioeconomic and work factors, and are correlated with health status.
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SLEEP ICEBREAKERS AND BEHAVIORAL CHANGE: IF YOU COULD TELL PEOPLE ONLY ONE THING ABOUT SLEEP, WHAT SHOULD IT BE?

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Introduction: Insufficient sleep is widespread in the general population, but education and outreach can combat this problem. Informal learning settings, like museums, provide unique opportunities for educating a local community. However, in such settings, engagement with the content relies on the topic's ability to immediately incite interest. Therefore, we developed and tested a series of sleep "icebreakers" (brief, informal facts) to determine their effectiveness in eliciting interest in sleep science and encouraging behavioral change.
Methods: Five hundred and twenty-one participants were recruited via the local museum (n=103) and Amazon Mechanical Turk (n=418). Participants viewed eight sleep icebreakers (randomly-selected from a bank of 16 icebreakers) and rated whether they knew it already,