Conclusion: This adolescent sample demonstrated greater sleep/wake regularity compared to previous reports of college students and adolescents/young adults, supporting the hypothesis that SRI may be a proxy for regularity of other aspects of daily living (e.g., fixed school start times). Adolescent SRI appears to be independent of sleep duration (consistent with previous findings) and timing, suggesting that SRI captures a distinct dimension of sleep. This research team plans to proceed with longitudinal analysis to clarify developmental trends, further explicating the potential informative role of SRI.

0182

CHILDHOOD SLEEP IS LONGITUDINALLY ASSOCIATED WITH ADOLESCENT ALCOHOL AND MARIJUANA USE

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Introduction: Worse sleep health has been linked with greater substance use among adolescents. However, most studies have only cross-sectionally examined this relationship or examined these longitudinal effects in children with sleep disorders. This study investigates whether childhood sleep is longitudinally associated with adolescent alcohol or marijuana use.

Methods: We analyzed data from the Fragile Families and Child Wellbeing Study, a longitudinal birth cohort. Parents reported their child's bedtime at ages 3, 5, and 9, and their child's average sleep duration at ages 5 and 9. At age 15, adolescents self-reported their bedtime, time in bed, whether they ever drank alcohol without parents, and whether they ever tried marijuana. Only participants with complete data were included (N=1,493). Logistic regression analyses for each substance use outcome were adjusted for age, sex, race, family socioeconomic status, family structure, and caregiver education level.

Results: Later bedtime at age 3 was longitudinally associated with lower odds of ever drinking alcohol at age 15 (OR=0.73, CI=0.58, 0.91, p<0.01) whereas later bedtime at age 9 was associated with greater odds (OR=1.44, CI=1.10, 1.89, p<0.01). Later bedtime at age 15 was cross-sectionally associated with greater odds of ever drinking alcohol (OR=1.40, CI=1.23, 1.59, p<0.01). Later bedtime at age 5 was associated with greater odds of ever trying marijuana (OR=1.25, CI=1.00, 1.57, p<0.05), as was later bedtime at age 15 (OR=1.34, CI=1.19, 1.51, p<0.01). Additionally, longer sleep duration at age 9 was longitudinally associated with lower odds of ever trying marijuana (OR=0.84, CI=0.74, 0.97, p<0.02). Adolescents who had longer time in bed at age 15 had lower odds of ever drinking alcohol (OR=0.72, CI=0.63, 0.81, p<0.01) and ever trying marijuana (OR=0.89, CI=0.79, 0.99, p<0.04).

Conclusion: In general, earlier bedtimes and longer sleep duration during childhood and adolescence were associated with lower odds of ever using alcohol or marijuana during adolescence. These results are consistent with current literature indicating that healthy sleep is associated with reduced risk-taking behaviors. Future research should further investigate whether sleep patterns across childhood are linked to decision-making and risk-taking behaviors in adolescence.

0183

DAILY SLEEP PREDICTS ADOLESCENTS' NEXT-DAY PSYCHOMOTOR VIGILANCE, SLEEPINESS, AND FATIGUE: ECOLOGICAL MOMENTARY ASSESSMENT ACROSS 28 DAYS OF SCHOOL AND VACATION

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Introduction: Few studies have examined the associations between daily sleep and daytime functioning in adolescents during naturalistically-occurring constrained (school term) and unconstrained (vacation) sleep opportunities.

Methods: Adolescents (n = 205; 54.1% females, age M ± SD = 16.9 ± 0.87 years) completed daily measures of sleep and daytime functioning over 28 continuous days (2-week school, and the subsequent 2-week vacation). Total sleep time (TST) and sleep efficiency (SE) were measured using actigraphy and sleep diary. Participants self-reported sleepiness and fatigue every morning and afternoon, and completed the brief, 3.2-minute psychomotor vigilance task (PVT; Joggle Research) on an iPad every afternoon. Using cross-lagged multilevel models, daily TST and SE were examined as predictors of next-day sleepiness, fatigue, and PVT performance. The associations did not differ between school and vacation. The non-significant interaction terms were dropped, and school/vacation status was maintained as a covariate. Previous-day outcome, day of the week, study day, school/vacation and sociodemographics were adjusted. Between-person associations (differences between individuals) and within-person associations (daily deviations from individual's own mean capturing whether nights with longer- or better-than-average TST or SE respectively, relative to the individual's average TST/SE, predict next-day outcomes) were tested simultaneously.

Results: Adolescents performed better on the PVT (faster reaction time and fewer lapses) following nights with longer-than-average TST (actigraphy and diary, p-values ≤ .044). Longer-than-average TST (actigraphy and diary) and higher diary SE also predicted lower self-reported sleepiness the next day (morning and afternoon, p-values ≤ .002). Similarly, longer-than-average TST and higher-than-average SE predicted lower self-reported fatigue the next day (morning and afternoon, all p-values ≤ .032). Compared to the vacation, school term was associated with higher self-reported fatigue in the morning and afternoon (p-values ≤ .014), but not higher sleepiness or poorer PVT performance.

Conclusion: Fluctuations in daily sleep were associated with adolescents' next-day functioning. Importantly, longer- and better-than-average sleep consistently predicted better daytime functioning the next day. Findings were consistent across objective sustained attention and self-reported sleepiness and fatigue, highlighting the short-term effects of sleep restriction on adolescents' daytime functioning. Protecting adolescents' sleep duration and promoting good quality sleep on a daily basis could support optimal daytime functioning.

0184

TOO JITTERY TO SLEEP? TEMPORAL ASSOCIATIONS OF ACTIGRAPHIC SLEEP AND CAFFEINE IN ADOLESCENTS

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Introduction: The majority of adolescents report consuming a caffeinated beverage on a typical day, which has been linked to poor sleep health in cross-sectional studies. However, it is unknown whether poor sleep predicts caffeine consumption, and/or whether caffeine consumption predicts poor sleep, particularly when sleep is measured objectively. The current study examined within- and between-person associations of actigraphic sleep dimensions with caffeinated beverage consumption in adolescents.

Methods: Data were collected from a micro-longitudinal substudy of the age 15 wave of the Fragile Families and Child Wellbeing Study (n=589). Adolescents wore a wrist-actigraphy device and completed daily surveys for approximately one week (mean=5.6 days). Daily surveys assessed sleep quality and caffeinated beverage consumption (0=no caffeine, 1=any caffeine). Separate mixed models assessed whether actigraphy-measured sleep duration, timing, maintenance efficiency, and subjective quality predicted next-day caffeinated beverage consumption within and between adolescents. Variability of sleep duration and timing (SD), sleep regularity index, and social jetlag were tested as additional between-person predictors. Lagged models tested whether daily caffeinated beverage consumption predicted sleep that night (n=458; mean=5.2 days).

Results: Between-person results showed that adolescents who had more variable actigraphic sleep duration (OR=1.21, p=.042) and sleep midpoint (OR=1.27, p=.045) had greater odds of consuming caffeinated beverages compared to others. Within-person results showed that on days when adolescents consumed ≥1 caffeinated beverage, they had later sleep onset by (b±SEM) 17±6 mins (p=.003) that night and later wake time by 19±7 mins (p= .011) the next morning, compared to days when they did not consume caffeine. Sleep duration, timing, maintenance efficiency, and subjective quality did not predict next-day caffeinated beverage consumption (all p>.10).

Conclusion: Greater variability in sleep duration and timing and later sleep timing are risk factors for poor emotional and cardiometabolic health. Curbing caffeinated beverage consumption may aid in the maintenance of regular sleep schedules and advance sleep timing in adolescents, potentially improving physical and psychological health.

0185

N2 SLEEP SPINDLE ACTIVITY IS ASSOCIATED WITH BETTER NEXT-DAY EMOTION REGULATION IN HEALTHY CHILDREN

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Introduction: Children's day-to-day mental health is dependent on adequate quantity and quality of sleep, but far less is known about the microstructural sleep features that support emotional functioning in children. NREM sleep spindles (rhythmic EEG oscillations between 10 and 15 Hz) are closely linked with intellectual abilities and cognitive processing, and have also been shown to relate to children's emotional behavior, both concurrently and longitudinally. For example, socially-anxious youth showed reduction in sleep spindle activity compared to healthy controls, which correlated negatively with subjective reports of arousal in response to negative images (Wilhelm et al., 2017). In younger children, greater NREM 2 spindle density was associated with greater prosocial behavior concurrently and fewer behavioral and social problems one year later (Mikoteit et al., 2012; 2013). However, studies in pediatric samples are limited overall and haven't examined spindles in relation to objective measures of emotion regulation.

Methods: We examined relationships between spindle activity during NREM stage 2 (N2) and next-day subjective and objective emotional responses among N=26 healthy children, 7-11 years old. Children completed a full-night of at-home PSG monitoring (10hr sleep opportunity) followed by two in-lab tasks. In task 1, children rated arousal/reactivity in response to negative images from the International Affective Pictures System (IAPS). In task 2, respiratory sinus arrhythmia (RSA) was measured while children were directed to suppress all facial expressions of emotion (i.e., regulate emotional responses to negative content) while watching negatively-valenced movie clips. All analyses controlled for total sleep time on PSG night and RSA analyses controlled for a resting baseline period.

Results: Greater C3 spindle count (r = .51, p < .05) and density (r = .53, p < .05) were significantly associated with less child-reported arousal towards negative images. Greater F3 peak spindle frequency was positively associated with higher RSA during negative movies (r = .54, p < .05), suggesting better regulatory control of emotional responses to correspond with greater spindle peak frequency.

Conclusion: Together with previous data, our findings suggest that sleep spindle activity may partially reflect children's capacity to regulate emotional responses in relation to stressful situations, thereby potentially reducing risk of mental health problems.

0186

POST-BIRTH FEEDING EXPERIENCES ARE ASSOCIATED WITH ACTIGRAPHY-ASSESSED SLEEP PATTERNS AMONG NEWBORNS

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Introduction: Exclusively breastfed (EBF) newborns wake more often at night than partially breastfed, or exclusively formula fed (EFF) newborns. Contextual factors during the first weeks of life related to these associations are understudied. We examined relationships among post-birth experiences, objectively-estimated sleep-wake patterns, and feeding practices through three weeks post-delivery.

Methods: English or Spanish speaking mothers (n=20) and their full-term (≥37wk), singleton infants were recruited from Phoenix, Arizona. Mothers were 32.7±5.1y, 30.0% identified as Hispanic, 20.0% with < high school degree, and 15.0% were enrolled in the federal Women, Infants, and Children program. Infants were born normal weight (2500-4000g) and without major complications. At three weeks post-delivery, infants wore a Micro Motionlogger (Ambulatory Monitoring Inc.) on their left ankle for five 24hr periods at three weeks of age. Mothers completed an accompanying