The majority, 58% (56/96) reported emptying the water chamber daily and using distilled water (81%, 74/96). Most respondents did not note respiratory symptoms starting/increasing with PAP (67%, 64/96). Of those with respiratory symptoms attributed to PAP, congestion was the most common (79%, 11/14).
Conclusion: There is a discrepancy between recommended and actual practices for cleaning PAP equipment. No significant association was found between the duration of PAP use and cleaning practices. However, a moderately low correlation between age and cleaning was identified. Increased age was associated with decreased cleaning practices.
Support:

0987

CHARACTERIZING SCRATCH AND LIMB MOVEMENTS IN ATOPIC DERMATITIS DURING SLEEP

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Introduction: Children with atopic dermatitis (AD) experience significant sleep disruption due to nocturnal scratching. Our group has found distinct patterns of limb movements in contrast to control and PLMD patients. To expand on previous findings, our objective was to characterize timing and duration of scratch v. non-scratch movement in children with AD coincidentally undergoing polysomnography (PSG).
Methods: Retrospective chart review of PSG, video footage was synchronized with the EEG and limb electrode readings using a time/date generator and was then operationally classified as either scratching or non-scratching movement. Analysis of data was done using SPSS and groups were compared using an ANOVA.
Results: We analyzed four previously completed sleep studies in children with atopic dermatitis (1 female and 3 males), mean age years±SD 11.3±1.0, mean BMI±SD 21.9±7.1, mean AHI±SD 2.3±0.8. Average scratch duration was not significantly different by sleep stage, N1v.N2v.N3v.REM (mean scratch duration in seconds±SD= 9.0±1.5 v 6.3±3.2 v. 11.9±11.8 v. 6.3±7.3, respectively p=0.65). However, frequency of scratching events were more common during N2v. N1v.N3v.REM (mean scratching events±SD= 9.3±3.9 v 3.8±1.7 v. 4.3±4.3 v. 1.3±1.9, respectively p=0.02). Yet, given the duration of total time spent in sleep stages, minutes of scratching events occupied the largest percentage of N1v.N2v.N3v.REM (mean% ±SD= 3.9±0.9 v. 0.6±0.4 v. 0.4±0.2 v. 0.3±0.5, respectively, p&lt0.01). Interestingly, non-scratch related movements were not significantly different between sleep stages (p=0.2). However, non-scratch related movements trended to occupy the largest percentage of N1v.N2v.N3v.REM (mean% ±SD= 9.3±7.7 v. 2.1±1.6 v. 1.5±0.8 v. 1.9±1.4, respectively, p=0.05).
Conclusion: Our results suggest that scratching episodes in children with AD occur most commonly during N2 sleep, but occupy the largest % of N1 sleep. Future work will include comparing these limb movements to age and gender-matched allergic rhinitis patients.
Support: This study was unfunded.

0988

INTERACTION OF RACE/ETHNICITY AND ADVERSE CHILDHOOD EXPERIENCES: LINKS TO SUBSEQUENT CHILDHOOD SLEEP DURATION

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Introduction: Adverse childhood experiences (ACEs) and sleep disturbances independently affect health and development across the lifespan. While burgeoning research suggests a link between ACEs and sleep health among adults, few studies have examined the association between ACEs and sleep in childhood or whether these associations vary by sex or race/ethnicity.
Methods: Using prospective data from 2,063 children (49% female; 20% Non-Hispanic [NH] White, 55% NH Black, 25% Hispanic/Latino) from the Fragile Families & Child Wellbeing Study, we used multiple linear regression analyses to examine associations between primary caregiver reports of child cumulative ACEs (i.e., physical abuse; emotional abuse; neglect; household dysfunction; possible range=0 to 10) at age 5 and primary caregiver reports of average sleep duration (minutes) at age 9. We used interaction terms to examine whether these associations varied by sex (reference group: males) or race/ethnicity (reference group: NH Whites). If significant, we used plots to visually investigate other potential between-groups differences (i.e. non-overlapping 95% CIs) and tested these statistically using linear combinations of estimator tests. If there were significant group differences, analyses were stratified by sex or race/ethnicity.
Results: Associations between ACEs and sleep duration significantly varied by race/ethnicity but not sex, such that the magnitude of the association was stronger in NH Whites compared to NH Blacks (p<.0001) and in Hispanics/Latinos compared to NH Blacks (p<.0001). In analyses stratified by race/ethnicity and adjusted for both sex and age 5 sleep duration, each unit increase in ACE score was associated with a 6.66 minute shorter sleep duration in NH Whites (B=-6.66, SD=2.10, p=0.002), a non-significant 2.20 minute shorter sleep duration in NH Blacks (B=-2.20, SD=1.52, p=0.148), and a 4.36 minute shorter sleep duration in Hispanics/Latinos (B=-4.36, SD=2.03, p=0.032).
Conclusion: We found that cumulative ACEs were associated with shorter sleep duration across race/ethnicity and more strongly related in NH White and Hispanic/Latino children. Prospective studies with subjective and objective sleep measures investigating multiple sleep parameters are needed that identify factors (e.g., cumulative disadvantage) that differentially affect associations across race/ethnicity and characterize health outcomes of ACEs and sleep duration.
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0989

EXAMINING THE ROLE OF TODDLER SLEEP QUALITY ON WAKE EEG AND LANGUAGE ABILITY

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Introduction: Sleep and the development of language are prominent concerns of many parents and until recently, many have examined these concerns tangentially. Children with developmental delays/disabilities have shown to have impaired sleep and poor sleep quality, and impairments or changes in sleep quality may play a prominent role in the acquisition of language and neuronal oscillatory patterns. This study examines the role of child sleep quality paired with a normed measure of language and wake electroencephalography (EEG). Examining the role of child sleep quality with language ability and wake EEG may provide nascent incremental utility to understanding the influences of sleep on healthy development.
Methods: Data from 109 toddlers (age range 24 to 30.5 m, M = 26.83 ± 1.58 m, 52% male) from the Brief Infant Sleep Questionnaire (BISQ), Mullen Scales of Early Learning (MSEL), and continuous EEG were collected and analyzed. EEG was recorded (32 electrode cap BioSemi) while toddlers sat in a booster seat and watched a silent video. Data were analyzed in RStudio and Matlab to examine toddler's sleep quality (infant sleep and parent behaviors) and relations with the MSEL and EEG (controlling for child age and gender).
Results: Means and standard deviations appeared within expected limits based on the range of each variable. Toddlers with slow-developing language were associated with relatively poor sleep quality, explaining 9.75% of the variance. We find preliminary evidence to suggest a potential sleep disruption around the time when a child is undergoing a rapid expansion in their vocabulary (expressive language). Toddler's sleep quality and language acquisition were also correlated with wake EEG (alpha and beta).
Conclusion: Sleep is regarded as an essential component supporting the myriad changes observed in early development. Sleep quality fundamentally influences healthy development across domains. Here, we showed child sleep quality is highly associated with toddler's language ability, and wake EEG, providing new insights into the developing brain.
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0990

EVALUATING COMPONENTS OF SLEEP QUALITY AND THE SLEEP-QUALITY OF LIFE RELATIONSHIP FOR CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA

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Introduction: Poor sleep quality is associated with reduced health-related quality of life (HRQL) for children with Acute Lymphoblastic Leukemia (ALL). Research has yet to evaluate how components of child sleep quality uniquely contribute to HRQL beyond demographic characteristics. This study evaluates features of sleep and the relationship between sleep and HRQL for children in the maintenance phase of ALL treatment.
Methods: 89 caregivers (ages 20-52, M=35.95, SD=7.10) of children with ALL (ages 3-12, M=5.73, SD=2.21; 13.76 months from diagnosis) completed demographic questionnaires and reports of child sleep quality (Child Sleep Habits Questionnaire; CSHQ), and 64 caregivers reported on child HRQL (Pediatric Quality of Life Inventory). Descriptive statistics were calculated. T-tests compared CSHQ subscales to ratings of healthy normative values. Pearson correlations evaluated associations between sleep and overall HRQL. Hierarchical regression assessed whether CSHQ subscales uniquely predicted HRQL beyond demographic characteristics.
Results: This sample reported greater bedtime resistance [t(88)=6.413, p<.001], sleep onset delay [t(88)=3.180, p=.002], sleep anxiety [t(88)=4.271, p<.001], night awakenings [t(88)=6.031, p<.001], parasomnias [t(88)=3.900, p<.001], and daytime sleepiness [t(87)=1.781, p=.078] than normative values, although sleep duration [t(88)=1.781, p=.078] and sleep disordered breathing (SDB) [t(88)=-.061, p=.951] did not differ. HRQL was related to SDB (r=-.289, p=.021), bedtime resistance (r=-.263, p=.036), and total sleep score (r=-.34, p=.006). The regression model with SDB and bedtime resistance explained 24.2% of variance but was not significant [F(6,31)=1.651, p=.167].
Conclusion: Caregiver ratings showed greater sleep impairments for children in this sample than of norms. Sleep subscales were associated with HRQL, but did not predict HRQL beyond demographic factors. Caregiver reports of child sleep and HRQL may vary depending on when during the monthly chemotherapy cycle questionnaires were completed. SDB did not differ from normative values but was related to HRQL, suggesting the need to screen for SDB symptoms to potentially improve child outcomes.
Support: This study was supported by funding from the American Cancer Society PF-13-238-01-PCSM (PI: Daniel).

0991

THE EFFECT OF EXTENDING TOTAL SLEEP TIME AND WEIGHTED BLANKETS ON TEENAGE SWIMMERS PERFORMANCE

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Introduction: Effectiveness of sleep extension on performance and cognition in adult athletes has been studied extensively. Effectiveness of weighted blankets on sleep extension in children has been studied with mixed results. The effect of sleep quantity on teen competitive swimmers has not been evaluated extensively. This study investigated the effects of sleep extension and weighted blankets on performance, as well as daytime sleepiness in competitive teen swimmers. The principal investigator is a high school student and a teen-swimmer herself.
Methods: Study Design: Using an open label prospective approach, the pilot study will investigate swimmer's event time changes, actigraphy findings and daytime sleepiness with sleep extension and weighted blankets. **Setting/ Participants:** 12 healthy swimmers on the MAKOS swim team will maintain their habitual sleep-wake schedule for a one-week; baseline period followed by a one-week sleep extension period, combined with weighted blankets use. **Procedure/Protocol**: The head-coach will assign event type to each participant of the study, 2 participants of the same type of event, will do the baseline timed race and initial evaluation, followed by one week of regular sleep (control). Another timed event will be done at the end of the 1st week and followed by a 2nd week of extended sleep (one hour/day) and weighted blanket. Final timed event race will be at the end of the 2nd week. Participants will fill initial, weekly questionnaires and wear a sleep tracker during the two weeks of the study. Detailed sleep and activities analysis will be obtained.
Results: 12 swimmers were recruited, 8 females and 4 males. All participants have been consistently with the team for more than 2 years. Age range of participants is 11- 17 years. Members of the team practiced 5 days every week with each practice lasting for 2