0351

TOWARDS INTERPRETING CONSUMER SLEEP DATA: DISTRIBUTIONS OF SLEEP SCORES

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Introduction: With the rise of sleep measurement technology becoming widely available to the public, it has become apparent that traditional sleep metrics might not be best suited for a lay audience. Most consumer industry has started including a metric that would capture sleep quality, although the exact calculations of these scores remain proprietary. These novel outcome metrics require a set of reference values in order to become interpretable. Here, we provide reference values for the parameters SleepScore, BodyScore and MindScore as included in the SleepScore Labs non-contact radiofrequency sleep measurement devices.

Methods: SleepScore is a sleep quality metric that includes objectively measured total sleep time (TST), sleep onset latency (SOL) and sleep stage durations, normalized for aged and sex, using reference values of Ohayon et al (2004), ranging from 0-100. BodyScore reflects the normalized amount of deep sleep, whereas MindScore reflects the normalized amount of REM, ranging from 0-100. Data from 40,862 S+ and Max users between 18 and 98 years old were used to calculate distribution statistics.

Results: The average age of users was 53±15 years old. Individual scores of SleepScore, BodyScore and MindScore ranged from 0-100 and their distribution was left-skewed. SleepScore averaged 81±11, with the first quartile (Q1) at 73, median at 81 and third quartile (Q3) at 88, and a mode of 89. BodyScore averaged 81±10 with Q1 at 73, median at 80 and Q3 at 86, and a mode of 84. MindScore averaged 78±10 with Q1 at 72, median at 79 and Q3 at 84, and a mode of 83. Despite being algorithmically normalized for age, average SleepScore increased from 70 to 88 across the age range, BodyScore increased from 71 to 89, and MindScore increased from 75 to 81.

Conclusion: SleepScores, BodyScores and MindScores presented to the average consumer will mostly show them a number in the low 70 to high 80 range. This distribution was intentionally created as being left-skewed to prevent triggering anxiety that may contribute to orthosomnia. Despite the intent to create a normalized score that would not be impacted by age, the data show an increase of scores by age.

Support (If Any):

0352

COMPLIANCE TO SLEEP RECOMMENDATIONS: A BIG DATA ANALYSIS IN USERS OF A CONSUMER SLEEP TECHNOLOGY

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Introduction: The National Sleep Foundation has published sleep time duration (Hirshkowitz et al., 2015) and sleep quality (Ohayon et al., 2017) recommendations across the lifespan based on expert panel input. These recommendations offer sleep guidance to millions of individuals. Many individuals are using commercially available sleep tracking devices to measure their sleep. We analyzed the data of two non-contact radiofrequency sleep measurement devices (SleepScore Max (SleepScore Labs) and S+ (ResMed), both validated against PSG) to determine how well the users of these devices are sleeping.

Methods: Total Sleep Time (TST), sleep latency (SL) and sleep efficiency (SE) data of 40,892 users between 15 and 98 years old were used in this analysis, covering 5,513,369 nights of data, and averages per user were calculated. In alignment with the aforementioned papers, the data were split in 3 age groups; Young Adults (18-25), Adults (26-64) and Older Adults (>=65), and the criteria as listed were used, classifying the sleep indicators in 3 bins; Appropriate/Recommended, Uncertain/ May be Recommended, and Inappropriate/Not Recommended. Proportion of users meeting the Appropriate/Recommended, Uncertain/May be Appropriate and Inappropriate/Unlikely were calculated for each age group.

Results: In the Young Adults group most users had an Appropriate SL (SL<= 30 min; 79.7 %), an Appropriate SE (SE>=85%; 53.6 %), but only 30.0% had a Recommended TST (7 to 9 h.). In the Adult group, larger proportions of users met on average the Appropriate measures for SL (SL<= 30 min; 84.8%), SE (SE>= 85%; 58.4%), but only 27.3% slept on average the Recommended hours (TST 7 to 9 h). In the Older Adults group, the average SL and SE was considered Appropriate for most elderly users (SL<30min; 84.3: SE>=85%; 59.6%), but only 28.2% slept the Recommended amount (TST 7 to 8 h).

Conclusion: 30% or less users slept on average the recommended amount, whereas slightly over half of the users showed the recommended sleep efficiency, and at least 79.7% fell on average asleep within 30 minutes. These results show that sleep improvement campaigns need to focus on extending the sleep duration and sleep hygiene to improve SE.

Support (If Any):