Estimated Bed-Partner Effects on Sleep Obtained from a Large U.S. Sample by Home-Based Under-Mattress Monitoring Devices.

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Background

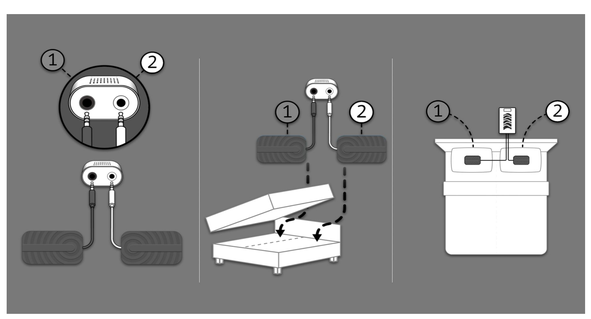
Sharing the bed with a partner is common among adults and is likely to impact sleep in multiple ways. However, polysomnograms are performed without a bed partner and objective data on co-sleeping couples are extremely rare.

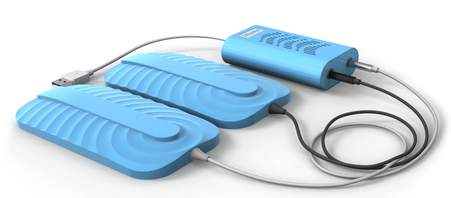
Objective

This study aimed to investigate the effects of a bed partner's presence on objective sleep parameters.

Methods

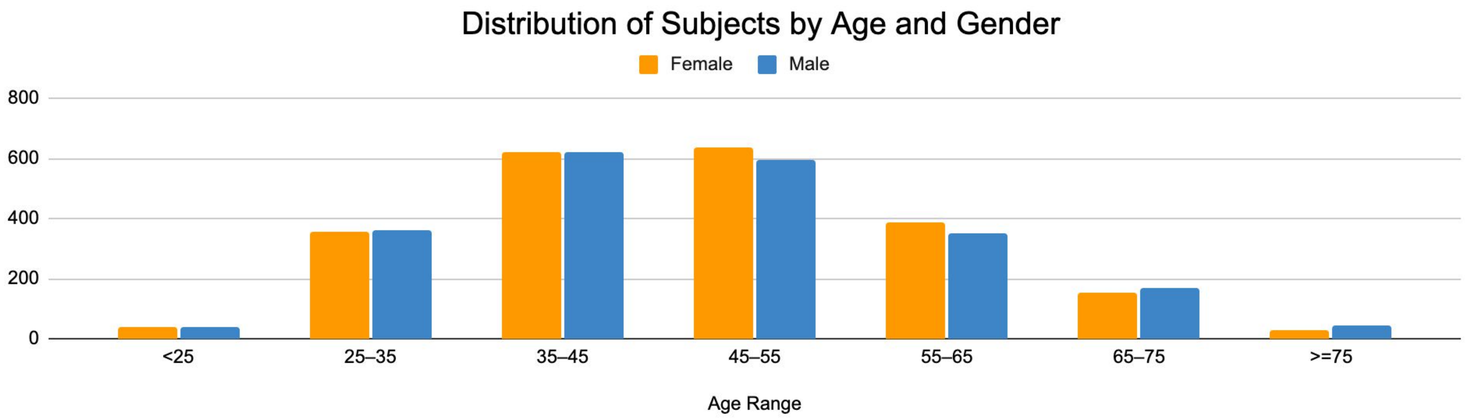
Sleep data from 5190 users (43% female, 14% unspecified gender, mean age 47) and their bed partners were collected through a commercially-available home sleep monitoring device (Sleeptracker-AI Monitor, Fullpower Technologies, California, USA). The device passively monitors sleep using piezo-electric sensors that register the forces exerted through the mattress. Subjects with at least 10 weekday sleep recordings with a bed partner present for at least an hour, and at least 10 weekday sleep recordings without a bed partner present at all during the period from 08/2021 to 11/2021 were included. Estimated total sleep time (TST), wake after sleep onset (WASO), sleep efficiency (SE), and light, deep, and REM sleep were analyzed comparing between the nights with and without a bed partner.

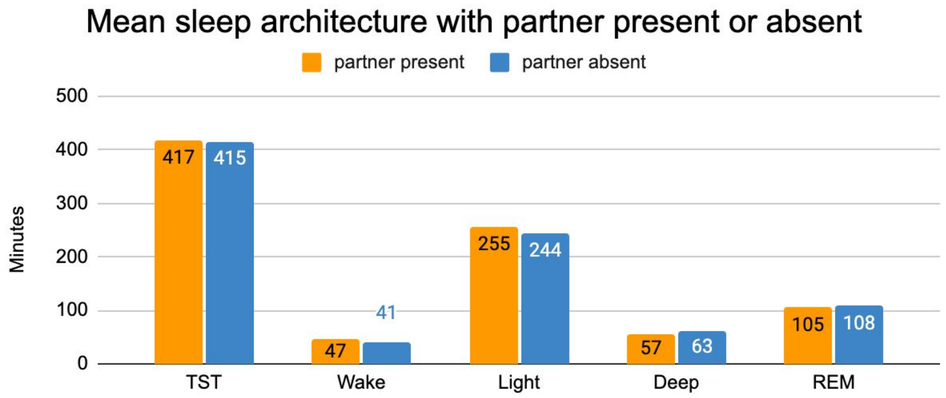


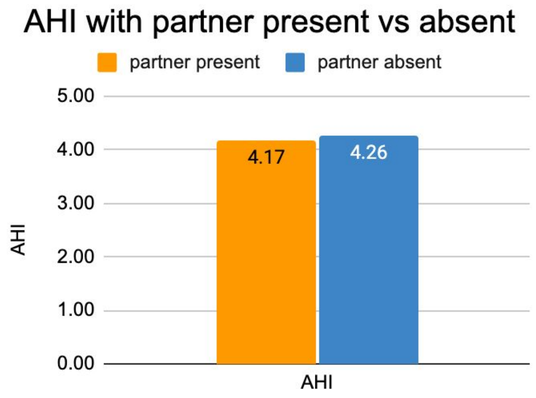


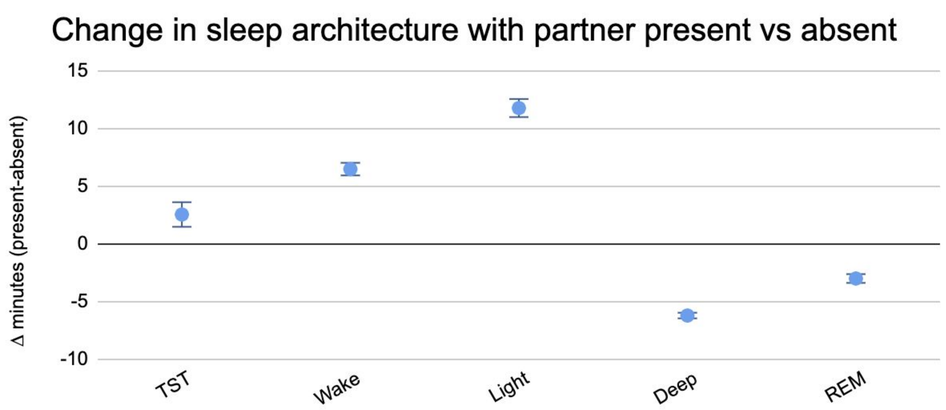
Results

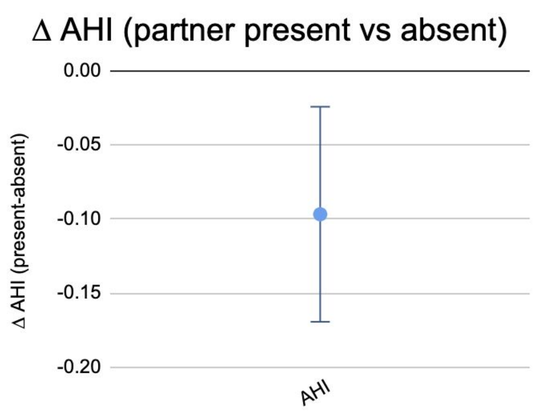
The mean (standard deviation) across subject averages of estimated TST (min), WASO (min), SE (%), and light, deep and REM sleep (min) with a bed partner were: TST 417.2(44.5), WASO 47.2(24.9), SE 89.5(6.4), light sleep 255.4(34.2), deep sleep 56.7(11.9) and REM sleep 105.2(17.5) and without a bed partner were: TST 414.7(49.2)-*, WASO 40.7(20.5)-*, SE 90.7(5.8)+*, light sleep 243.6(38.0)-*, deep sleep 62.9(12.9)+* and REM sleep 108.2(19.0)+*. Regarding AHI, mean (SD) across subject averages with a bed partner was 4.17(6.54) and without 4.26(6.97)+*. (+) indicates an increase and (-) a decrease in the sleep parameter between nights with and without a bed partner, (*) signifies $p < 0.05$ by paired t-test.











Conclusions

When the bed partner is absent, an individual's sleep architecture shows on average a higher sleep efficiency, with less awake time but also less total sleep; more minutes spent in deep and REM sleep, and less in light sleep. This suggests a less interrupted night, perhaps due to fewer disruptions from the partner, where the individual has enough continuity in his/her sleep to transition to deeper stages.