



RANDOMIZED EXPERIMENT USING SLEEP TECHNOLOGY

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In 2019, it was estimated that almost 35% of the US population slept less than seven hours a night (Center for Disease Control and Prevention). The risks of short sleep episodes have been linked to increased obesity rates, development of cardiovascular disease, diabetes, hypertension, and increased mortality in healthy middle-aged adults. Sleep greater than seven hours per night can alleviate or reduce the risk of developing the above medical illnesses by lowering elevated blood pressure, decreasing insulin resistance in individuals diagnosed with pre-diabetes, and reduce food cravings in overweight individuals (Adkins, DeYonker, Duffecy, et al., 2019). One in five of Americans report owning and utilizing a smartwatch or fitness tracker regularly (PEW Research Center, 2020). These devices have the compatibility to monitor individuals' sleep. If technology interventions are preferred by users, this enhances the adherence to intervention. With the popularity of wearable sleep technology, it is crucial to know whether these monitors may be desirable for short sleep intervention. Therefore, the goal of this study is to conduct a 12-week pilot study to evaluate the feasibility and preliminary acceptability of sleep extension due to technology intervention among individuals with short sleep.

This pilot study was designed as a single blind-randomized study. Forty-one participants, average age of 44, were recruited to participate in a study on how technology can potentially improve sleep duration. Participants were selected to participate in the study if they slept an average of 7 hours or less per night, had a BMI greater than 25 and between the ages of 25 and 65. We placed participants in one of four groups randomly: Self Management, Sleep Coaching, Fitbit, or Fitbit and Sleep Coaching. The Self Management group received no intervention, while the sleep coaching group received brief telephone counseling with the primary investigator, Kelly Baron, a certified Behavioral Sleep Medicine Clinical Psychologist. The Fitbit group received a Fitbit that would monitor sleep, activity and heart rate. The last randomized group, received both a Fitbit and sleep coaching. This study lasted twelve weeks, the first six weeks included intervention and the last 6 weeks had no intervention. Data was collected through actigraphy watches, hip/waist circumference, and BMI, blood pressure, and heart rate calculations at allocated times: pre-intervention, 6-week intervention and post-intervention.

Preliminary data suggest significant improvement in sleep duration in the participants that used the Fitbit and Coaching intervention compared to the sleep coaching, fitbit and the self

management groups. This study was limited due to the small sample size and the preliminary data collection.

Future research is needed to refine and explore changes of sleep behavior due to technology use. Some ideas include: the use of different tracking devices, increasing the sample size, and lastly designing a multi-year duration study that monitors extension of sleep, technology adherence for intervention and if it's correlated to improving physiological outcomes.