Recruitment for the Slow Wave Sleep Impairment and Plasticity Study

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Introduction

Previous research has discovered mechanisms linking impaired slow-wave activity, impaired neuroplasticity, and MDD[1]. Slow-wave activity, observed during slow-wave sleep, is used as a marker for homeostatic sleep regulation. It has been posited that the function of sleep is to decrease synaptic strength in order to maintain synaptic homeostasis[2]. Therefore, this study focuses on the modulation of neuroplasticity through the intentional disruption of slow-wave sleep.

Objective

The study's objective is to discover if there exists a neurobiological mechanistic relationship between the disruption of slow wave sleep and changes in neuroplasticity in people with MDD. My primary objectives were to recruit and screen participants for the study.

Recruitment

Participants were recruited primarily through BuildClinical, an online platform designed to connect potential participants with research studies that might interest them. Some participants were also recruited through iConnect, a service similar to BuildClinical; Craigslist; and outside referrals.

Figure 1: A screenshot of the script used to contact participants.

Screening

Participants were screened using RedCap, an online system used for creating and managing surveys and databases. Screens took place by phone.

Criteria for ineligibility included: disinterest or inability to contact; left-handedness; age (younger than 25 or older than 50); poor or inconsistent sleep and wake schedule (falling asleep before 9:00PM or after 1:00AM; waking up before 6:00AM or after 9:00AM); sleep disorders; TMS exclusions (pregnancy, epilepsy, implanted devices, concussions, migraines, etc.); substance use; medical or psychiatric history (current or past severe medical conditions; diagnoses of psychiatric disorders excluding depression, anxiety, and ADHD); travel beyond 2 time zones within the past 2 months; unwillingness to cease use of psychiatric medications; and unavailability for the study dates or times.

MDD was assessed through a series of questions shown in Figure 2. If the results of the initial MDD screening were unclear, a PHQ-9 was administered after. If the participant did not meet the criteria for current, symptomatic MDD, they were excluded from the study; however, participants with no history of psychiatric diagnoses were eligible as healthy controls.

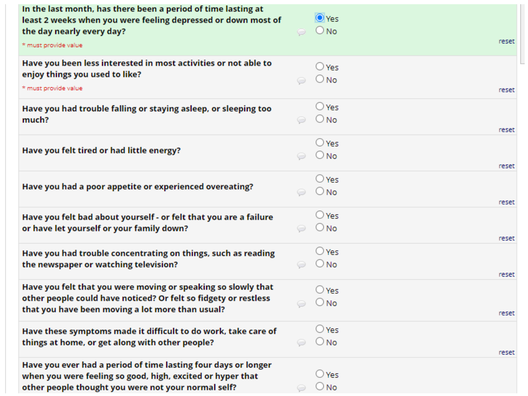

Figure 2: The list of questions used to conduct the initial assessment of MDD.

Results

In total, I contacted 138 participants, whose eligibility statuses are depicted in Figure 3. Of the 138 participants, 8 were eligible and 121 ineligible (with 9 participants' eligibility status either pending or postponed), making the percentage of eligible participants 5.80%. Of the participants who were deemed eligible, 62.50% proceeded to participate in the study. Figure 4 shows the breakdown of reasons for ineligibility.

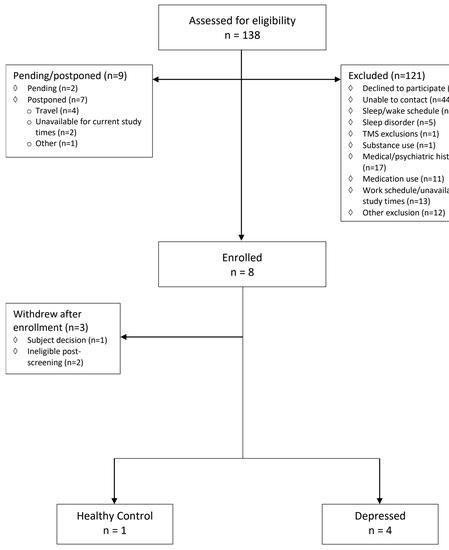

Figure 3: A chart outlining the eligibility status of the 138 participants I contacted.

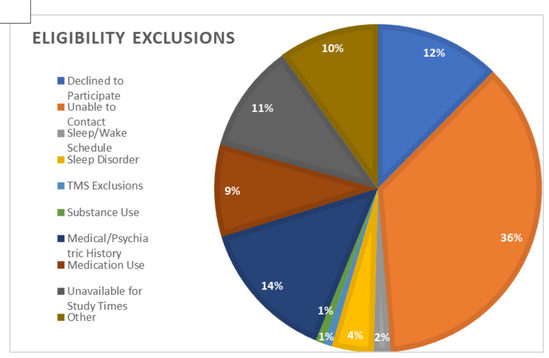

Figure 4: A pie chart depicted the reasons for exclusion for the participants found ineligible.

Acknowledgements

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References

1. Goldschmied, J.R., Gehrman, P. An Integrated Model of Slow-Wave Activity and Neuroplasticity Impairments in Major Depressive Disorder. Curr Psychiatry Rep 21, 30 (2019). https://doi.org/10.1007/s11920-019-1013-4
2. Tononi, G., & Cirelli, C. (2003). Sleep and synaptic homeostasis: a hypothesis. Brain research bulletin, 62(2), 143-150.