

Toward Wearable-Driven Individualized and Context-Specific Behavior Activation Using Major Depression with Sub-threshold Symptoms as a Test Case

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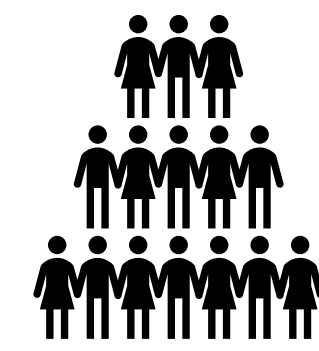
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BACKGROUND

- Increased physical activity is associated with improved mental health benefits.
- Individuals with major depressive disorder (MDD) are often left in a state of diminished functioning.
- Rating instruments assessed in clinical endpoints in trials are often relying on subjective reports.
- Unmet need:** Passive and continuously measured digital biomarkers of symptom severity or change that can be used to guide behavior activation as a process to improve mental health outcomes.

METHODS: ENGAGEMENT and ANALYSES



Participants recruited in a 12-month smartwatch study on wellbeing and burnout

No life history of major depression (NH-MDD)

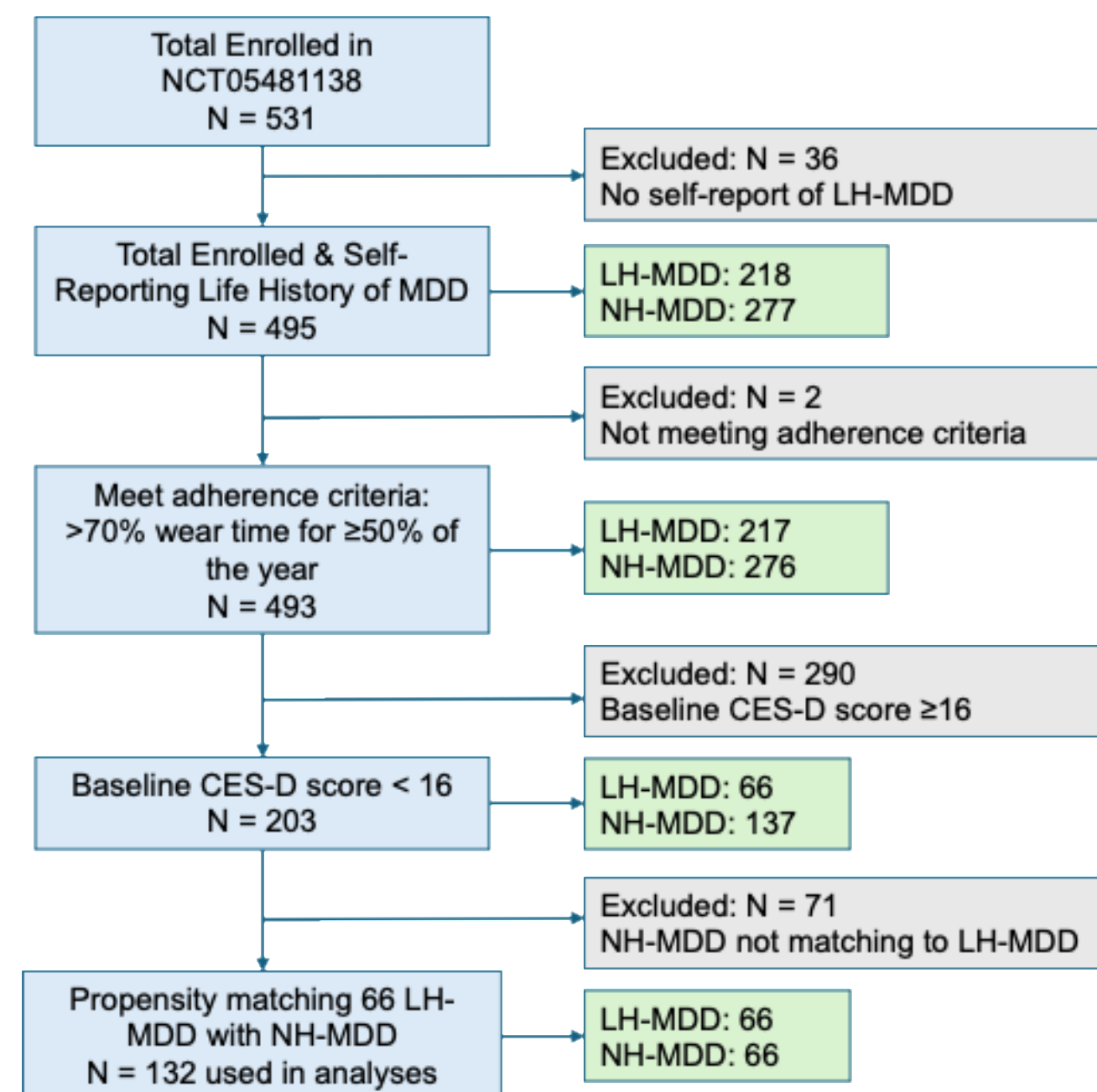
Life history of depression (LH-MDD)

- Establish biomarkers that differentiate functioning levels between NH-MDD and LH-MDD
- Establish group x time effects on biomarkers between NH-MDD and LH-MDD
- Establish biomarkers that associate with worsening of depression severity in LH-MDD

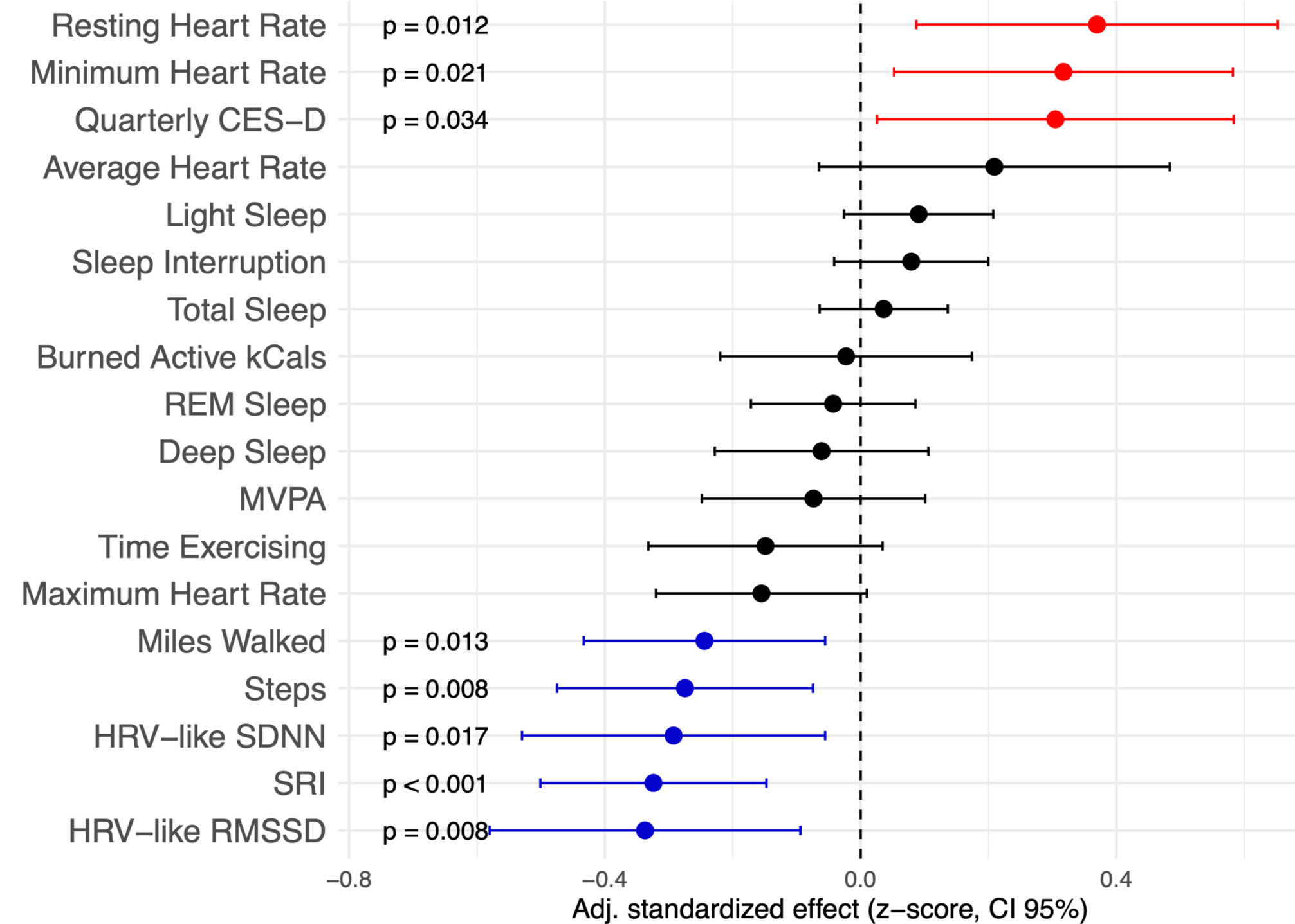
IMPLICATIONS FOR FUTURE CLINICAL TRIALS WITH DIGITAL ENDPOINTS for MDD

- Identify which biomarkers and related pedagogy needed to engage participants based on life context.
- Study the different pathways of utilizing digital biomarker data for activating behavior change.
- Participant-centered engagement essential for maintaining high-adherence.

DATA

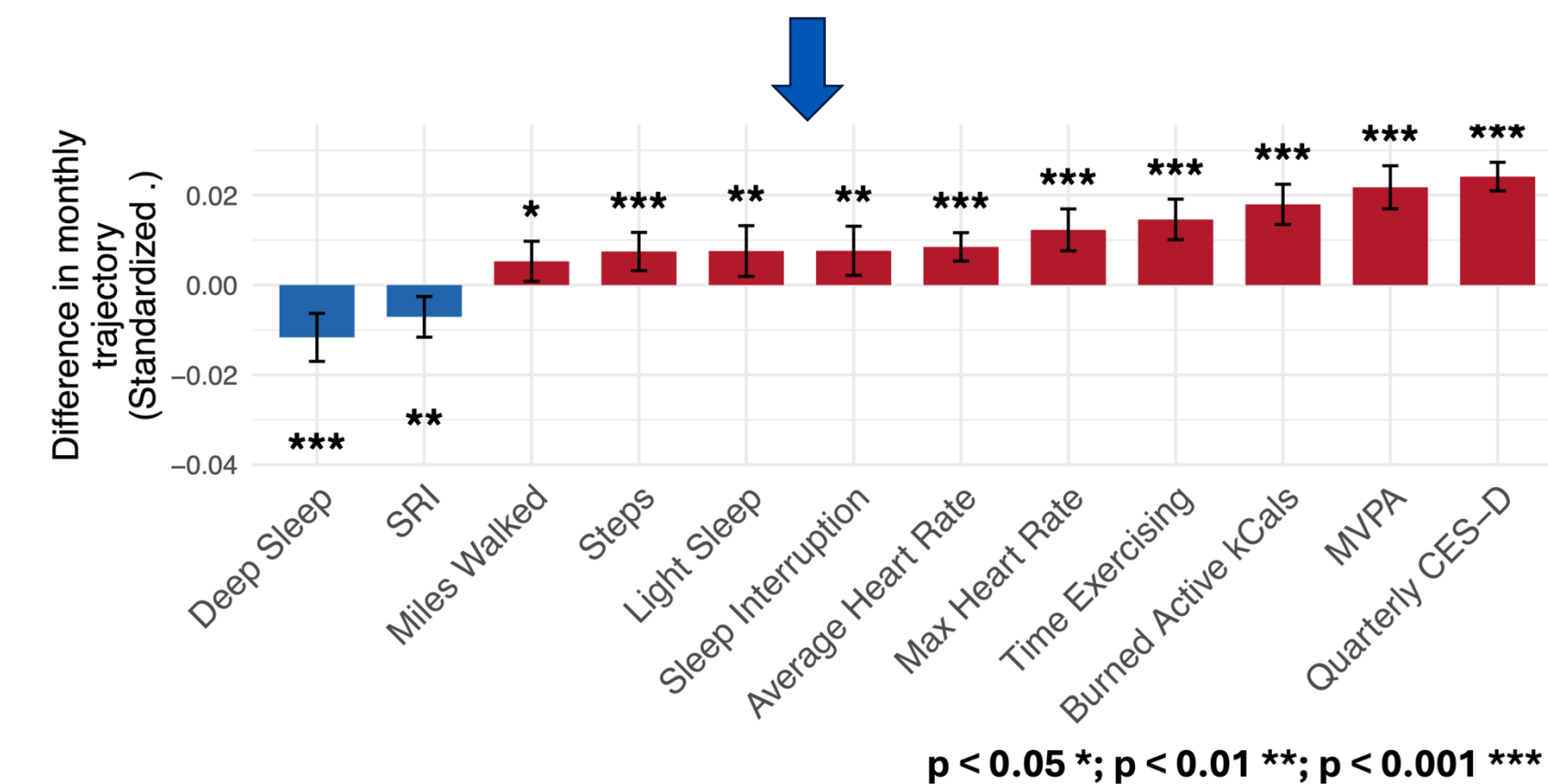


KEY RESULTS



Digital biomarkers differentiate LH-MDD vs. NH-MDD participants matched for baseline depression severity levels, demographic and work context.

LH-MDD participants had higher odds of improvement in activity over time, in comparison with NH-MDD



Among LH-MDD participants with worsening depressive symptoms, cardiovascular measures (reduced HRV and increased resting heart rate) and sleep (increased light sleep) progressively changed as days passed.

