

App-Based Motivational Messages

for Physical Activity and Heart Rate in Coronary Plaque Patients: Microrandomized Trial Protocol

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What is a microrandomized trial?

Microrandomized trials (MRTs) represent a novel approach in clinical trials, particularly suited to digital health interventions. These trials feature multiple randomizations of interventions across different time points to study dynamic treatment effects. Key characteristics include detailed granularity, the ability to personalize treatments, and sequential decision-making. MRTs allow for the exploration of temporal dynamics, context-dependent effects, individual response variations, and adaptability of treatments, offering insights into creating personalized and effective digital health interventions.

Advantages of MRT over traditional RCTs:

MRTs are distinct for their ability to collect data that aids in refining decision-making tools, particularly for customizing notification delivery in mobile apps. Their multiple randomization capability, a feature not found in traditional randomized control trials, enables the examination of interventions' repeated effects over time, immediate impacts of motivational messages on engagement, and the consistency of these effects across different study phases. This design helps optimize the timing and content of notifications to encourage physical activity among patients with coronary heart disease, enhancing the effectiveness of just-in-time adaptive interventions.

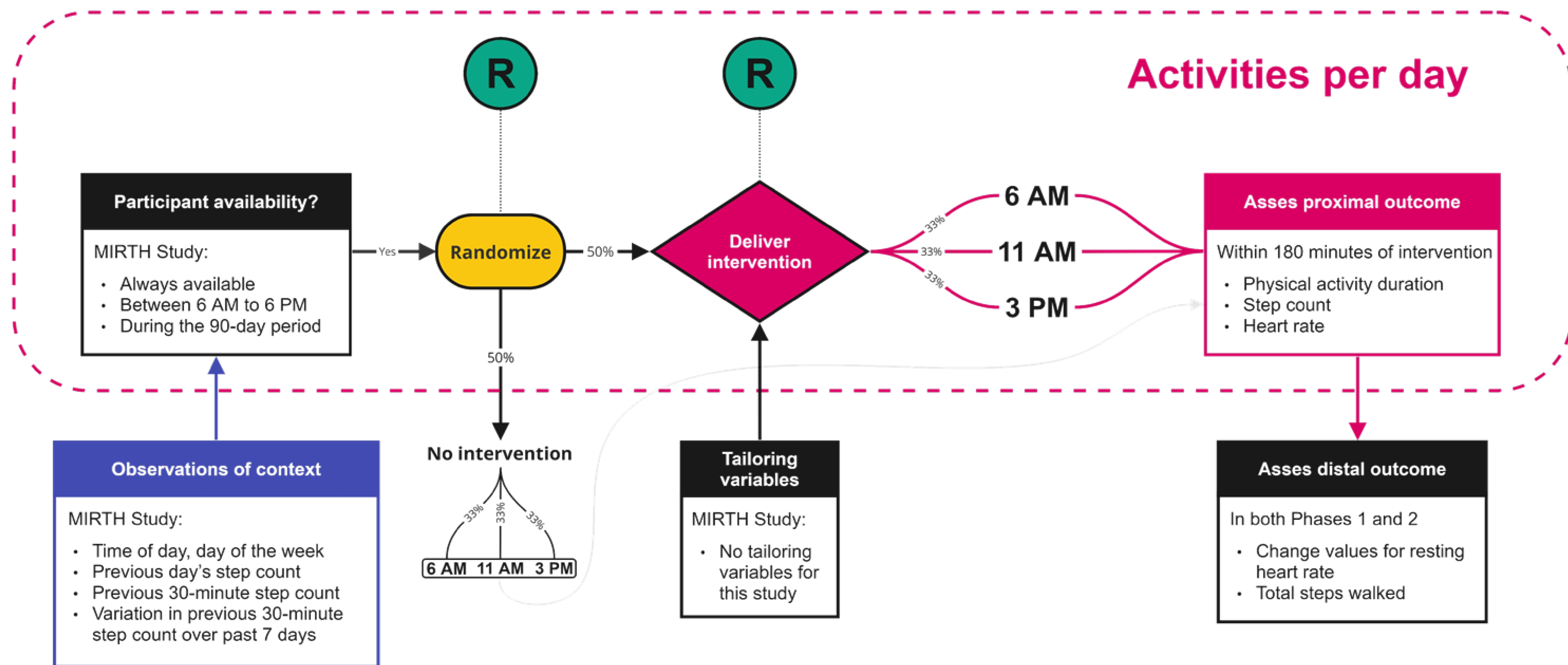


Figure 1 Microrandomized trial design for the Messages Improving Resting Heart Health (MIRTH) study. Intervention randomization is followed by time randomization, as shown by R.

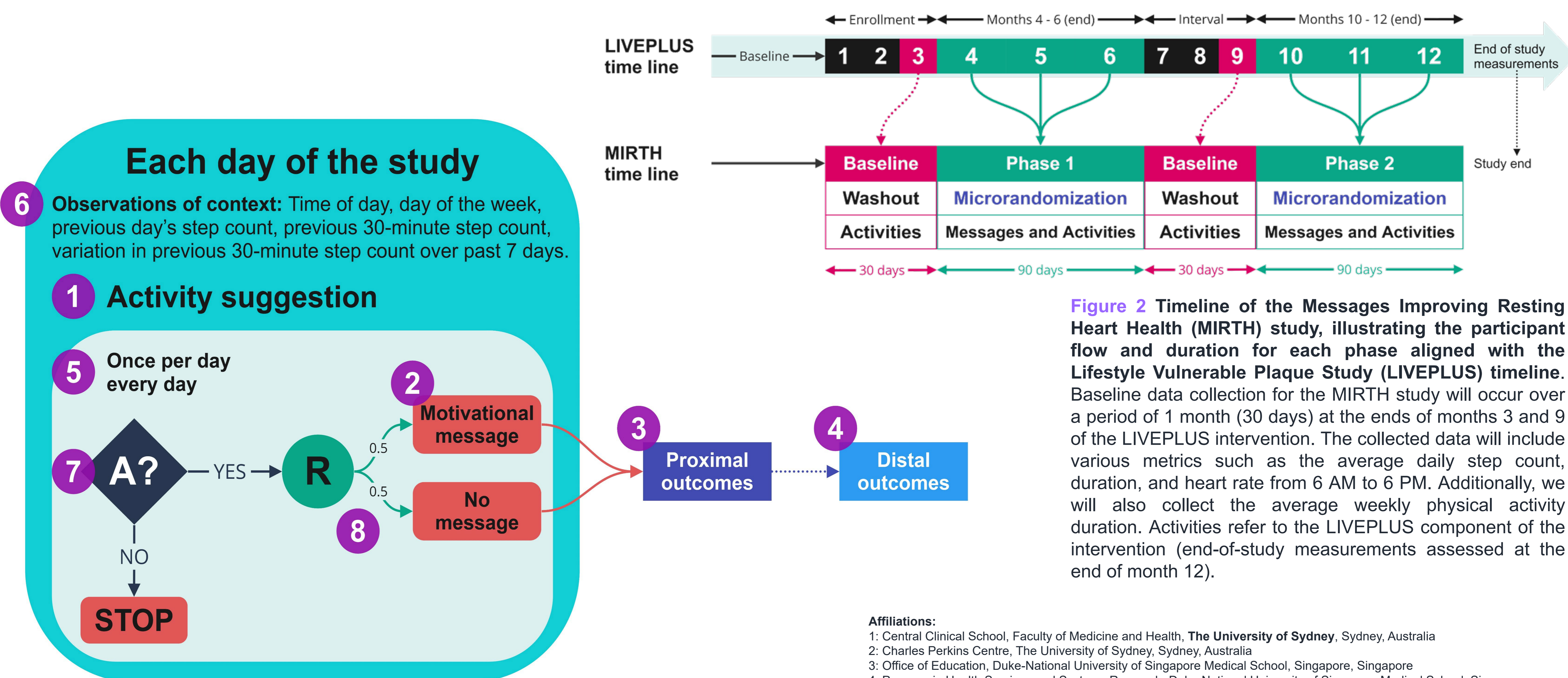


Figure 2 Timeline of the Messages Improving Resting Heart Health (MIRTH) study, illustrating the participant flow and duration for each phase aligned with the Lifestyle Vulnerable Plaque Study (LIVEPLUS) timeline. Baseline data collection for the MIRTH study will occur over a period of 1 month (30 days) at the ends of months 3 and 9 of the LIVEPLUS intervention. The collected data will include various metrics such as the average daily step count, duration, and heart rate from 6 AM to 6 PM. Additionally, we will also collect the average weekly physical activity duration. Activities refer to the LIVEPLUS component of the intervention (end-of-study measurements assessed at the end of month 12).

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Access the study protocol by scanning the QR code



Mitra S, Kroeger CM, Xu J, Avery L, Masedunskas A, Cassidy S, Wang T, Hunyor I, Wilcox I, Huang R, Chakraborty B. Testing the Effects of App-Based Motivational Messages on Physical Activity and Resting Heart Rate Through Smartphone App Compliance in Patients With Vulnerable Coronary Artery Plaques: Protocol for a Microrandomized Trial. JMIR Research Protocols. 2023 Oct 2;12(1):e46082.