



Feasibility of a Remote Multidomain Lifestyle Intervention for Older Adults With Mild Cognitive Impairment

Tej Shah, MPH¹, Manju Ramakrishnan, MPH, MBBS², Aiden Bergey, Yuyao Zhang, MPH¹, Ambar Kulshreshtha, MD, PhD²
1. Rollins School of Public Health, Emory University, 2. Department of Family and Preventive Medicine, Emory University School of Medicine

Background

- Mild cognitive impairment (MCI) is an intermediate stage to dementia.
- Lifestyle factors such as exercise, diet, and sleep are modifiable targets linked to cognitive health.
- Multidomain Interventions are promising, but few remote programs have focused on adults already diagnosed with MCI.
- PRISEM was designed to test the feasibility and acceptability of a remote lifestyle intervention for this population.

Data and Methods

- Single-arm pilot and feasibility study of a 6-month remote lifestyle intervention for adults with MCI
- PRISEM included 17 group-based Zoom sessions focused on diet, physical activity, and stress management
- Feasibility outcomes included retention, attendance, and acceptability
- Baseline and 6-month assessments captured cognitive, behavioral, and psychosocial outcomes
- Pre-post changes were analyzed using paired parametric or nonparametric tests with effect sizes

Results

- 45 participants enrolled; 24 retained
- Mean attendance was 70.5%, >90% in later sessions
- Acceptability - 4.60–4.71/5 for feedback items
- Significant improvements were observed in:
 - Physical activity (p = 0.038)
 - Dietary quality (p = 0.017)
 - Perceived stress (p = 0.015)
- Cognitive and other psychosocial outcomes showed small, non-significant changes

Results

Outcome	Baseline	Post-intervention	Change estimate
Lifestyle Measures			
Food Frequency Questionnaire	8.50 (2.72)	9.92 (2.43)	1.42 ([0.28, 2.55])*
PASE*	91.15 [38.9-150.72]	121.40 [83.71-185.27]	24.65 [4.36, 72.38]*
Patient Activation Measure	34.00 [29.75-37]	33.00 [30.75-37]	1.00 [-2.75, 3.25]
Psychosocial Measures			
CD-RISC-10	29.50 [23.5-36]	31.00 [24-35]	1.00 [-3.5, 4.5]
Everyday Discrimination Scale	1.79 (2.04)	2.38 (2.89)	0.58 ([-0.27, 1.44])
GAD-7	3.50 [0.75-5.5]	2.00 [0-5.25]	0.00 [-2, 0.25]
GDS	4.50 [2-7]	3.50 [1.75-5.25]	-1.00 [-3, 0.25]
PSQI	8.21 (4.87)	8.00 (5.11)	-0.21 ([-2.23, 1.81])
Perceived Stress Scale			
SF-12 Mental	38.05 (7.38)	38.11 (7.16)	0.06 ([-3.53, 3.65])
SF-12 Physical	42.33 (12.22)	43.57 (11.51)	1.24 ([-1.5, 3.99])
Short Loneliness Scale	4.83 (1.79)	4.46 (1.86)	-0.38 ([-1.28, 0.53])
Cognitive Measures			
DCCS	100.33 (17.74)	99.17 (13.84)	-1.17 ([-6.22, 3.89])
Flanker	89.33 (17.93)	87.12 (16.64)	-2.21 ([-7.58, 3.17])
Pattern Comparison Processing Speed	90.54 (23.88)	89.00 (16.48)	-1.54 ([-8.68, 5.6])
Picture Sequence Memory	88.00 [82.5-96]	88.00 [81-98]	1.00 [-2.5, 7]
MoCA	21.76 (2.23)	22.29 (4.67)	0.52 ([-1.06, 2.11])
Cardiovascular Measure			
rMSSD (ms)	34.30 (25.78)	37.20 (23.42)	2.89 ([-2.64, 8.43])

Table 1: Pre and Post Results

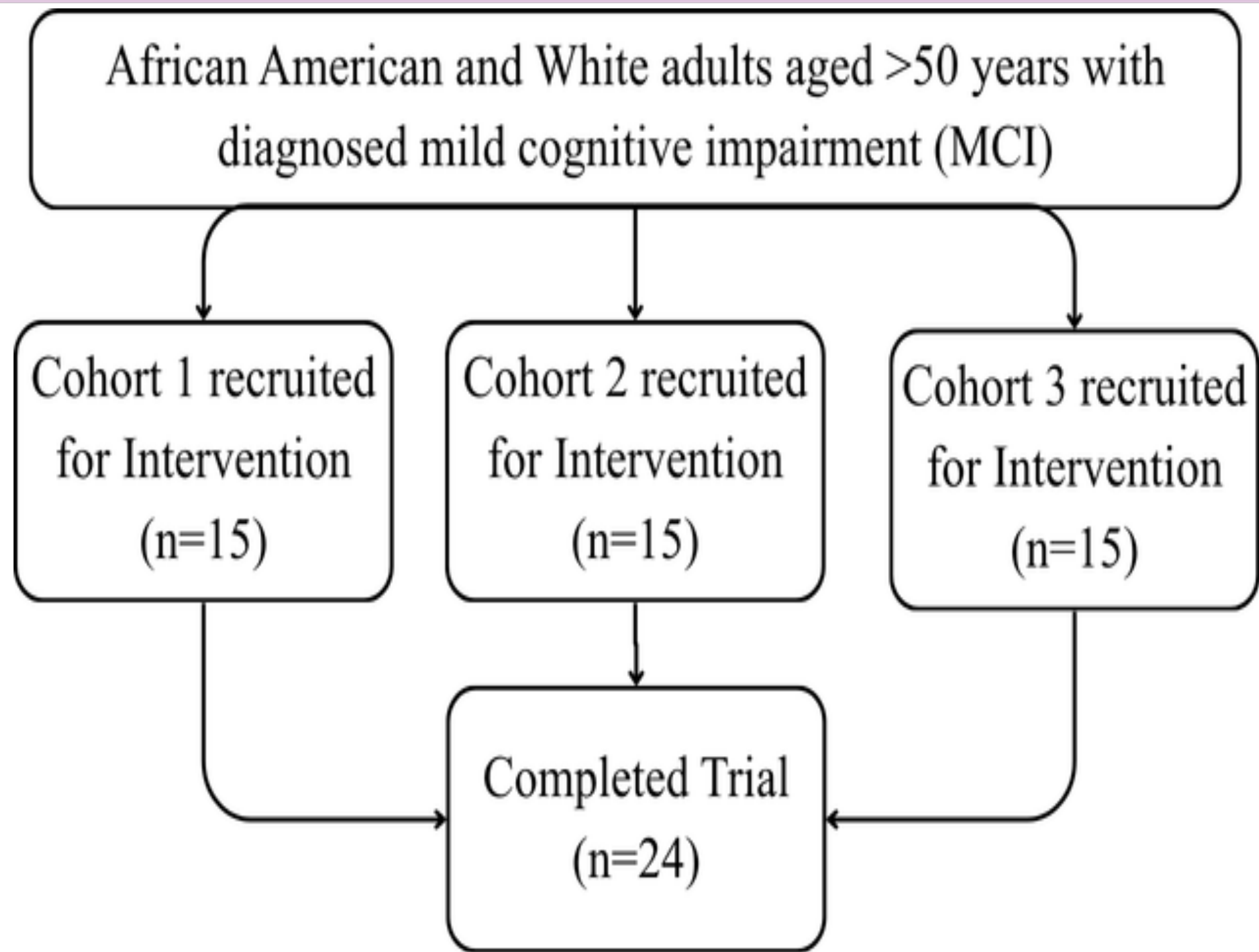


Figure 1: Participant Flow Diagram.

Participants' Demographic Characteristics

Age	74.2±7.6
Race/Ethnicity	
White	32 (71%)
Black or African American	13 (29%)
Gender	
Female	32 (71%)
Male	13 (29%)
Marital Status	
Married	22 (49%)
Unmarried	23 (51%)
Education	
High school	11 (24%)
Bachelor's	20 (44%)
Master's or doctorate	14 (31%)

Table 2: Participant Demographics

Conclusions

- PRISEM recruited and retained adults with diagnosed MCI, including 29% African American participants, supporting the feasibility of remote lifestyle interventions in a diverse, clinically important population.
- PRISEM produced promising preliminary signals in physical activity, diet, and perceived stress
- Remote delivery may support more inclusive and scalable intervention models for MCI

Limitations

- Single-arm pilot study without a control group
- Small sample size and moderate retention
- High educational attainment may limit generalizability

Future Directions

- Conduct a randomized controlled trial with a larger sample size.
- Strengthen early retention and onboarding support
- Explore tailoring the intervention based on baseline stress, activation, or psychosocial burden
- Larger controlled studies with longer follow-up are needed to evaluate cognitive and psychosocial effects.

References

