

Virtual Community-integrated Multidomain Cognitive Intervention In Vietnam: 24-month Cluster-RCT Outcomes

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In this 24-month cluster RCT, V-MIND improved cognition by 1.3 adjusted MoCA points and attenuated functional decline by 0.15 CDR-SB points versus usual care. A culturally tailored, primary-care–anchored virtual community may provide a scalable model for maintaining cognitive and functional health in resource-constrained urban settings.

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES	
Scalable dementia prevention models integrating digital health into primary care are scarce in Southeast Asia. We evaluated a pragmatic two-stage strategy in Ho Chi Minh City: (1) developing a locally validated risk stratification model and (2) implementing a culturally tailored, virtual community-integrated multidomain intervention to slow cognitive decline.	We established a prospective cohort of 878 community-dwelling adults aged ≥60 years recruited via ward health stations (2023–2025). Cognitive screening (Mini-Cog) and functional adjudication were performed annually. A parsimonious risk model was developed using penalised logistic regression and validated via temporal validation and Net Reclassification Improvement (NRI). In the embedded cluster-randomised controlled trial (20 clusters; n=799), participants were randomised (1:1) to Usual Care or the “V-MIND” intervention. The intervention combined community exercise with a Zalo-based virtual community delivering gamified reminiscence therapy (traditional folk songs, proverbs, and historical landmarks). Outcomes included the Montreal Cognitive Assessment (MoCA) and Clinical Dementia Rating Sum of Boxes (CDR-SB). Analysis used mixed-effects models (intention-to-treat).	In the cohort, Mini-Cog positivity increased from 6.6% at baseline to 9.2% at 24 months. The 5-predictor risk model (age, education, baseline MoCA, diabetes, stroke/CVD) demonstrated excellent discrimination with an optimism-corrected AUC of 0.83 (95% CI 0.79–0.88). The model yielded a Net Reclassification Improvement (NRI) of 0.73 compared to demographics alone, indicating superior risk stratification utility. In the cluster-RCT (n=799), the intervention group exhibited significant cognitive improvement relative to controls (MoCA mean change +0.6 vs -0.6; adjusted difference +1.3, 95% CI 0.8–1.7; p<0.001). Furthermore, the intervention significantly attenuated functional decline, with an adjusted difference in CDR-SB change of -0.15 (95% CI -0.20 to -0.09; p<0.001). High engagement was observed, with 78% of participants actively interacting within the virtual community platform.	We validated a highly discriminative risk model and demonstrated that a primary-care-anchored multidomain intervention, leveraged by a culturally adapted virtual community, confers significant cognitive and functional benefits. This scalable model offers a blueprint for dementia risk reduction in resource-constrained urban settings.	1. Brodaty H. Nat Med. 2025;31:565-573. 2. Livingston G. Lancet. 2024;404(10452):572-628. 3. Ngandu T. Lancet. 2015;385(9984):2255-2263.	
	Prospective Cohort (n=878) Baseline Assessment (n=878) → 12-Month Follow-up (n=799) → 24-Month Follow-up Cluster-RCT (n=799) 20 Clusters → Randomization 1:1 → Usual Care (control) n=404 / V-MIND Intervention n=395 STUDY DESIGN	A. ROC Curve C. Calibration Plot Figure 1. Model performance	Risk Prediction Nomogram Figure 2. Risk prediction nomogram	A. Cognitive Function (MoCA) B. Functional Status (CDR-SB) Figure 3. Cluster-RCT Outcomes at 24 Months	CONTACT ePoster GitHub Minh Nguyen minhnt@ump.edu.vn nguyenminh2301@gmail.com ALZHEIMER'S ASSOCIATION AAIC>26