

To a Nurse-Led Dementia Risk Trial Limited App Use Adds a Twist

A new study evaluated the effectiveness of a nurse-led, mobile health (mHealth)-supported behavioral intervention among middle-aged adults for improving estimated [dementia](#) risk profiles.



Study

The current HAPPI MIND trial was a pragmatic, cluster-randomized controlled trial assessing a nurse-led, mHealth intervention to improve estimated dementia risk scores in middle-aged adults in Australian [primary care](#). General practices in Victoria and New South Wales were randomized to intervention or control arms. Participants and providers were aware of group allocation. Outcome assessors and analysts remained blinded.

Eligible participants were adults aged 45–65 who attended a clinic within the previous 12 months, had two or more modifiable dementia risk factors, and had access to a smartphone or tablet. Key exclusion criteria included inability to consent or communicate in English, terminal illness, neurological disease, enrolment in another similar trial, or other limiting conditions. Practices identified potential participants through [medical records](#) and routine appointments.

The intervention included six nurse-led sessions (five in year one, one at 24 months) that used behavior-change techniques to address vascular, lifestyle, and psychosocial risk factors. Nurses provided personalized risk reports and collaborated on goal-setting using established behavior-change methods and practical, measurable goals. Participants used the HAPPI MIND app to self-monitor, track goals, and access [education](#). Nurses delivered motivational interviewing, reviewed progress, and referred participants to general practitioners for further assessment or specialist care when needed.

Control participants received a baseline brief intervention, including Australian National University–Alzheimer's Disease Risk Index (ANU-ADRI) screening, a risk report, and an educational booklet. They continued usual care without structured nurse-led sessions or [mHealth support](#).

The researchers collected demographic and [clinical data](#) at baseline and at 12 months. The primary outcome was the average change in ANU-ADRI score at 12 months. This questionnaire-based index estimates future dementia risk from established risk and protective factors, with

lower scores indicating a more favorable risk profile. Secondary outcomes included changes in cognition, quality of life, cardiovascular risk, and psychosocial or behavioral measures. Follow-up is planned to 36 months for long-term effects, but this report presents only the 12-month results.

Findings

A total of 31 clinics (13 intervention, 18 control) contributed participants to the [trial](#). Clinics recruited a median of 13 participants each, yielding 201 in the intervention and 202 in the control group. Of 430 participants who consented, 403 completed baseline; 12-month retention was 78% (intervention) and 88% (control).

The intervention group showed significantly greater improvement on the ANU-ADRI than the control group (56% versus 44% of participants had improved scores, with an adjusted between-group difference of 1.6 points). Additional analyses were consistent with the [primary result](#), though the estimated effect was smaller after further baseline adjustment.

Dementia risk factors were generally comparable between groups; uncontrolled hyperlipidemia (93%), low cognitive activity (73%), and obesity (58%) were most common. [Physical inactivity](#) and uncontrolled diabetes were more frequent in the intervention group. Baseline BMI and socioeconomic status also differed between groups, and estimated dementia risk scores were numerically higher in the intervention arm.

Changes in risk-factor scores did not differ between groups. Protective-factor scores improved more with the intervention. The intervention group had greater improvements in ANU-ADRI components relating to physical activity, [fish intake](#), and BMI status. The researchers did not adjust these additional comparisons for multiple testing. Nurses most frequently targeted physical inactivity, overweight/obesity, and low cognitive activity.

The groups did not differ significantly on any secondary outcome, including cognition, quality of life, cardiovascular risk, and psychosocial measures. Clinical and biomarker measures also showed no significant differences between groups. Satisfaction with social/leisure activities increased, and harmful alcohol use declined within the intervention group, while MIND diet and medication adherence scores declined over 12 months. The control group also showed worsening diet and medication adherence scores, alongside increased absolute cardiovascular risk. Both groups improved in [low-density lipoprotein](#) (LDL) cholesterol; total cholesterol fell among participants with elevated baseline levels, and diastolic blood pressure fell among those with elevated baseline blood pressure.

Exploratory subgroup analyses suggested potentially greater benefits among those with low [socioeconomic status](#) and high baseline dementia risk; these findings require confirmation in larger studies. The low-socioeconomic subgroup was small, and the estimated benefit was uncertain. Age, sex, and other examined characteristics did not appear to modify the intervention effect. In an exploratory analysis, targeting social isolation was associated with greater improvement in ANU-ADRI.

In the intervention group, 80% attended ≥ 4 sessions and 35% used the HAPPI MIND app for ≥ 13 weeks. Seven participants experienced adverse events, including two deaths (one per group) and five serious events, two of which were considered intervention-related and involved [distress](#) associated with pre-existing disordered eating.

Conclusion

The current nurse-led, multidomain [mHealth intervention](#) modestly improved estimated dementia risk profiles in middle-aged adults in Australian primary care. The trial did not show improved cognition or establish a reduction in dementia incidence.

The open-label design, reliance on self-reported outcomes, recruitment after clinic randomization, baseline imbalances, differential follow-up, and variable digital engagement may have introduced bias and limited the interpretation of [behavioral change](#). The independent effect of the mHealth component remains unclear.

Longer-term follow-up and broader implementation studies are needed to determine the sustainability, generalisability, and cost-effectiveness of this model and assess its [true impact](#) on clinical and cognitive outcomes.

Source:

<https://www.news-medical.net/news/20261028/Limited-app-use-adds-a-twist-to-a-nurse-led-dementia-risk-trial.aspx>