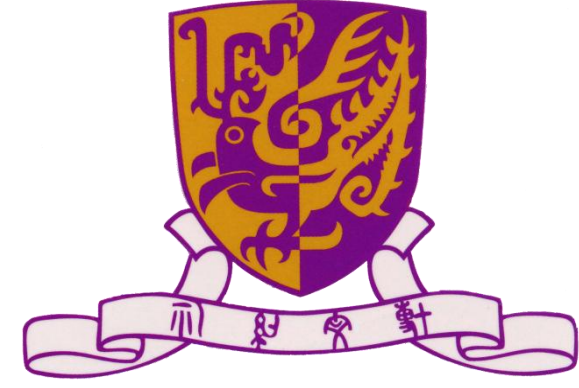




Effect Of Culture-adapted Brain Health Score-guided Education On Cognitive Function & Dementia Risk Reduction In Asian



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Introduction

Multidomain lifestyle interventions can slow cognitive decline, but community-based Asian evidence is limited. The Brain Health Score (BHS) is a culturally adapted tool assessing nine modifiable lifestyle factors. This study evaluated the effectiveness of BHS-guided, nurse-led health education on cognitive function and dementia risk reduction in community-dwelling Asian adults.

Objectives:

- To evaluate the effect of culture-adapted BHS-guided nurse-led education on cognitive function and dementia risk reduction in Asian community-dwelling adults.
- To assess changes in cognitive performance (MoCA-5) and modifiable lifestyle factors following 12 months of BHS-guided tailor-made education, and to estimate the corresponding population-level dementia risk reduction.

Method

280 community 60-80 years old Hong Kong Chinese recruited into Brain Health Evaluation and Tailor-made Measures for Prevention of Alzheimer's Disease (**BEAT AD**) service



Exclusion criteria:

- Previous diagnosed cognitive impairment
- Related past medical history (major depression, obstructive sleep apnea..)

Baseline assessment

Cognitively Unimpaired

- MoCA-5 >16th percentile

Mild Cognitive impaired

- MoCA-5 ≤16th but ≥7th percentile

- Maintained daily independence

BHS includes 9 modifiable risk factors assessments. All received nurse-led, personalized health education.

12 months follow-up assessment

- Evaluated BHS and MoCA-5 changes

Domain	Component	Points
 Vascular Risk Factor Control	Hypertension control	4.0
	Glycemic control	
	LDL cholesterol control	
	Optimal BMI	
	Smoking	
 Physical Activity	Aerobic exercise	3.0
	Muscle strengthening	
 Cognitive & Social Activity	Cognitive stimulation	3.0
	Social participation	
 Dietary Quality	Composite nutritional score	2.0
Total		12.0

72% clients BHS improved

+0.864 additional MoCA-5 points per year achieved by the improved group compared to the Non-improved group(95% CI: 0.187-1.54, p = 0.013), after adjusted for age, sex, education and family income.

Estimated dementia risk reduction: 10.0%

Results

Risk Factor	Baseline suboptimal	Suboptimal improvement proportion	Relative Change	P-value	PAF	Estimated Dementia Risk Reduction
Blood Pressure	66.4%	-	Non-significant	P=0.649	-	Non-significant
BMI	12.5%	-	Non-significant	P=1.000	-	Non-significant
Smoke	3.6%	-	Non-significant	P=0.450	-	Non-significant
Glucose Control	21.4%	8.6%	40.2%	p=0.008	2%	0.80%
LDL Cholesterol	46.4%	19.6%	42.2%	p<0.001	7%	2.95%
Physical Activity	77.1%	15.7%	20.4%	p<0.001	2%	0.41%
Social Activity	52.9%	21.8%	41.2%	p<0.001	5%	2.06%
Diet Quality	91.1%	15.7%	17.2%	p<0.001	13%*	2.24%
Cognitive Stimulation	63.9%	19.6%	30.7%	p<0.001	5%**	1.54
Overall Estimated Dementia Risk Reduction						10.0%

PAF according to lancet 2024

Variable	Total (N=280)	Improved (n=201)	Non-improved (n=79)	P-value
Age, years	67.7 ± 4.9	67.7 ± 4.6	67.5 ± 5.4	0.769
Education years (mapped)	10.4 ± 3.2	10.4 ± 3.0	10.2 ± 3.5	0.520
Baseline MoCA-5 score	24.8 ± 3.7	24.6 ± 3.7	25.4 ± 3.7	0.131
12-month MoCA-5 score	25.7 ± 3.8	25.8 ± 3.8	25.6 ± 4.0	0.813
MoCA-5 change score	0.9 ± 2.6	1.1 ± 2.6	0.3 ± 2.5	0.013
Baseline BEAT AD Score	6.1 ± 1.9	5.7 ± 1.8	7.2 ± 1.8	<0.001
12-month BEAT AD Score	7.5 ± 1.8	7.9 ± 1.7	6.6 ± 1.8	<0.001
BEAT AD Score change	1.4 ± 1.8	2.2 ± 1.4	-0.7 ± 0.9	<0.001
Female, n(%)	183 (65.4)	136 (67.7)	47 (59.5)	0.249
Baseline cognitive stage, n (%)				
MCI	37 (13.2)	31 (15.4)	6 (7.6)	0.160
Cognitive Unimpaired	243 (86.8)	249 (84.6)	274 (92.4)	

*Diet quality calculated according to the estimate of the effect of MIND diet index in UK biobank
Lowest adherence of MIND diet: Pe = 27.6%; RR of having dementia= 1.55
**Cognitive stimulation calculated according to the estimate of the effect of mental stimulation in a large multi-cohort study
Lowest mental stimulation activity: Pe = 19.9%; RR of having dementia= 1.24