ADI / World-Wide FINGERS Member Webinar

Thursday, 25 March 2021
1pm London

Welcome and introductions

Paola Barbarino

Chief Executive Officer, ADI

Speakers

- **Prof. Miia Kivipelto,** *Professor in Clinical Geriatrics at Karolinska Institutet, Center for Alzheimer Research, senior geriatrician and Director for Research & Development of Medical Unit Aging at Karolinska University Hospital in Stockholm. Principal Investigator in the FINGER Study and of the World-Wide FINGERS network*

- **Dr. Gustavo Sevlever,** *Department of Cognitive Neurology, FLENI, Buenos Aires, Argentina*

- **Prof. Suzana Shahar,** *Primary Investigator of AGELESS, the FINGER-like intervention study in Malaysia*

With many thanks for the translational support from **Kristal Morales Pérez,** *World-Wide FINGERS Project Manager*

Polls

Prof. Miia Kivipelto

- Professor in Clinical Geriatrics at Karolinska Institutet, Center for Alzheimer Research
- Senior geriatrician and Director for Research & Development of Medical Unit Aging at Karolinska University Hospital in Stockholm
- Principal Investigator in the FINGER Study and of the World-Wide FINGERS network

World-Wide FINGERS: multidomain interventions for risk reduction and prevention of dementia

Miia Kivipelto, Professor, MD, PhD

Karolinska Institutet

Imperial College London

University of Eastern Finland

FINGERS BRAIN HEALTH INSTITUTE

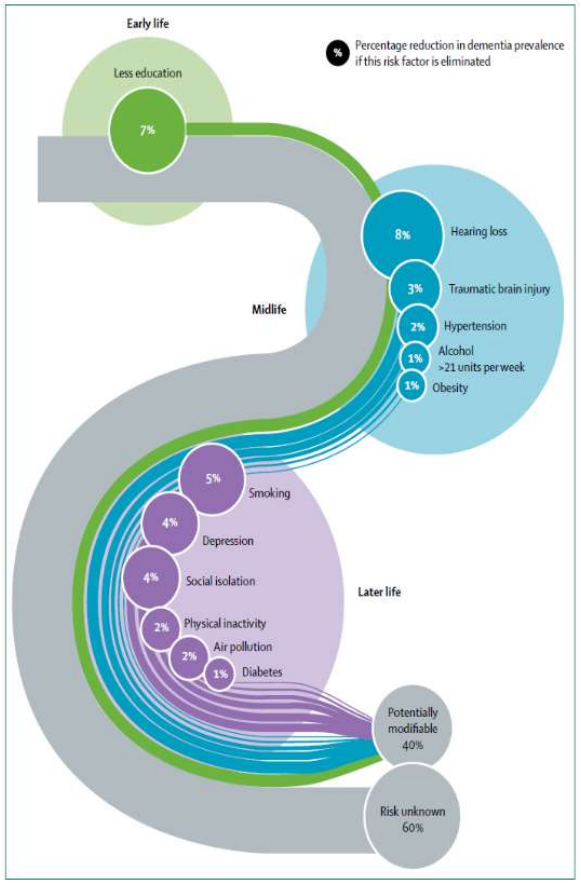
Can Alzheimer (AD) and Dementia be prevented?

Is prevention feasible and effective in older adults?

What is the role of chronic noncommunicable diseases?

Prevention at the time of the COVID-19 pandemic?

Dementia prevention, intervention, and care: 2020 report of the *Lancet* Commission



Prevention potential ≈ 40%
12 modifiable risk factors

1. Diabetes
2. High blood pressure at midlife
3. Obesity at midlife
4. Physical inactivity
5. Depression
6. Smoking
7. Low education
8. Hearing loss
9. Traumatic Brain Injury
10. High alcohol consumption
11. Social isolation
12. Air pollution

Protective factors
Healthy diet
Education
Physical activity
Mental activity
Social activity

Livingston et al., Lancet 2020

Other emerging risk factors

- **Loneliness**
- **Hopelessness**
- **Stress**
- **Sleeping disturbances**
- **Impaired oral health**
- **Infections? COVID-19?**

Kivipelto, Mangialasche and Ngandu, Nature Neurology 2018; Livingston et al., Lancet 2020

World Health Organization

RISK REDUCTION OF COGNITIVE DECLINE AND DEMENTIA

WHO GUIDELINES

EVIDENCE PROFILES

Physical activity interventions
Tobacco cessation interventions
Nutritional interventions
Interventions for alcohol use disorder
Cognitive interventions
Social activity
Weight management
Management of hypertension
Management of diabetes
Management of dyslipidaemia
Management of depression
Management of hearing loss

Karolinska Institutet

UNSW SYDNEY

World Health Organization

www.who.int

2019 (update ongoing)

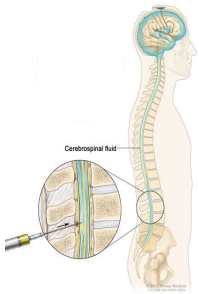
What do we aim to prevent?

Normal Cognition → **At-risk** → Mild Cognitive Impairment/ Prodromal AD

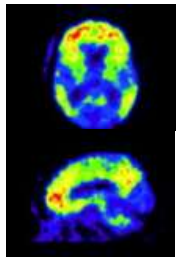
DEMENTIA

- Neurodegeneration (amyloid, tau, α-synuclein, TDP-43, CAA, …)
- Vascular pathology

Childhood & Adulthood | Midlife | Late life



CSF

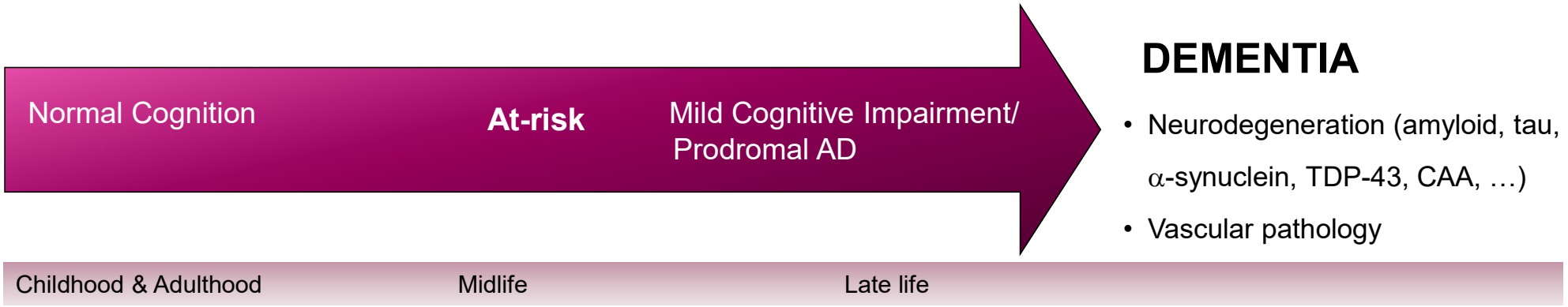


PIB-PET

Risk factors

Kivipelto, Mangialasche and Ngandu, Nature Neurology 2018

What do we aim to prevent?



Late-life dementia is heterogeneous: multidomain preventive strategies needed!

Pure AD pathology only ≈10-30% AD cases

Abner et al. Ann Neurol 2017; Boyle et al. Ann Neurol 2018; James et al. Brain 2016

Kivipelto, Mangialasche and Ngandu, Nature Neurology 2018

FROM KNOWLEDGE ABOUT RISK FACTORS TO CLINICAL TRIALS AND SUSTAINABLE IMPLEMENTATION

- Multidomain interventions
- Brain plasticity

- One size does not fit all!
- Mechanistic foundation

A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial

FINGER

Lancet 2015; 385: 2255–63

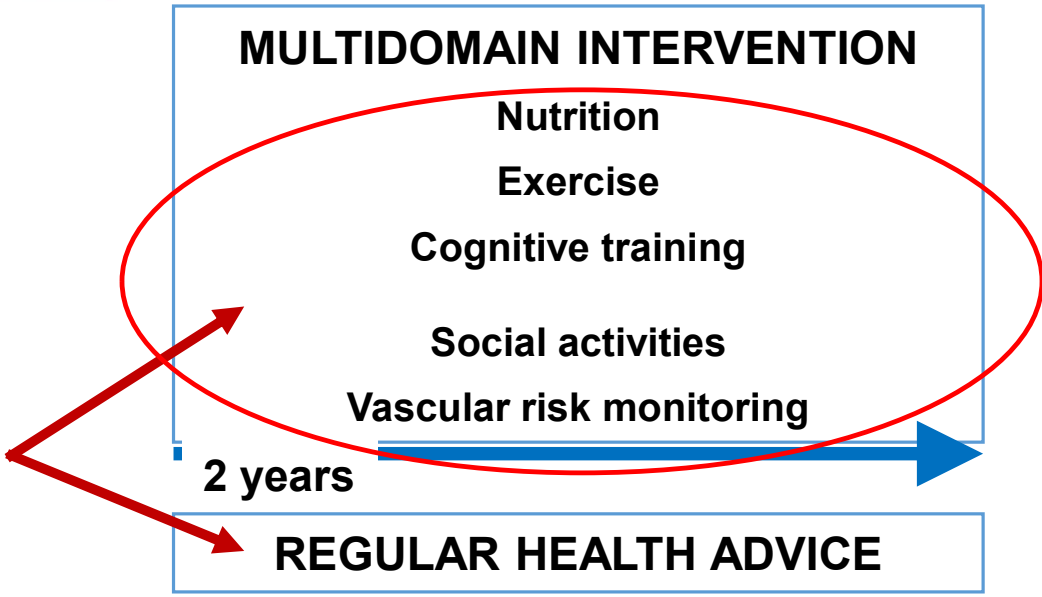
Tiia Ngandu, Jenni Lehtisalo, Alina Solomon, Esko Levälahti, Satu Ahtiluoto, Riitta Antikainen, Lars Bäckman, Tuomo Hänninen, Antti Jula, Tiina Laatikainen, Jaana Lindström, Francesca Mangialasche, Teemu Paajanen, Satu Pajala, Markku Peltonen, Rainer Rauramaa, Anna Stigsdotter-Neely, Timo Strandberg, Jaakko Tuomilehto, Hilkka Soininen, Miia Kivipelto

CAIDE **Dementia Risk Score**

Kivipelto et al., Lancet Neurology 2006, Alzheimer's and Dementia 2011

N = 1260
Age 60-77 years

At risk general population



Extended 5- & 7-year follow-up finished
10-year follow-up

Multidomain intervention

Group & individual training

High adherence

2-year drop out 12%

No SAEs

FINGER

Beneficial effects of the intervention: cognition

COGNITION	% Improvement vs control *(p value)*	
Global Cognition	**+ 25%**	*(0.03)*
Executive function	**+ 83%**	*(0.04)*
Processing Speed	**+ 150%**	*(0.03)*
Memory	**+ 40%**	*(0.04)*

Global cognition and specific cognitive domains assessed with the Neuropsychological Test Battery

FINGER

Control group: 30% increased risk of cognitive decline in global cognition

(Ngandu, Kivipelto et al. Lancet 2015;
Scientitic American open acces: http://www.csc.kth.se/cvap/EACare/eacare_sciam_2017.pdf)

FINGER

APOE4 carriers - clear beneficial effects

JAMA Neurology | Original Investigation April 2018 Volume 75, Number 4

Effect of the Apolipoprotein E Genotype on Cognitive Change During a Multidomain Lifestyle Intervention

A Subgroup Analysis of a Randomized Clinical Trial

Alina Solomon, MD, PhD; Heidi Turunen, BM; Tiia Ngandu, MD, PhD; Markku Peltonen, PhD; Esko Levälahti, MSc; Seppo Helisalmi, PhD; Riitta Antikainen, MD, PhD; Lars Bäckman, PhD; Tuomo Hänninen, PhD; Antti Jula, MD, PhD; Tiina Laatikainen, MD, PhD; Jenni Lehtisalo, MSc; Jaana Lindström, PhD; Teemu Paajanen, MA, Psy; Satu Pajala, PhD; Anna Stigsdotter-Neely, PhD; Timo Strandberg, MD, PhD; Jaakko Tuomilehto, MD, PhD; Hilkka Soininen, MD, PhD; Miia Kivipelto, MD, PhD

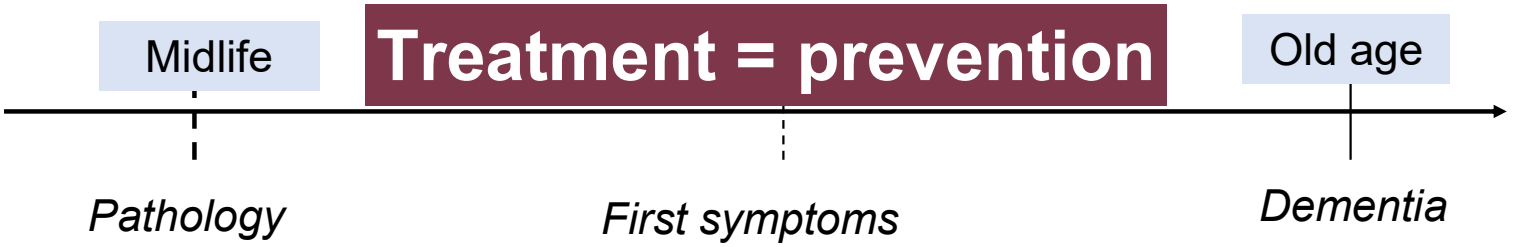
Beneficial effects of the intervention: beyond cognition

FINGER

Additional beneficial health effects of the FINGER intervention

- **30% lower risk for functional decline**
- **Improvement in mobility**
- **Better health related quality of life**
- **60% lower risk of other chronic diseases (multimorbidity)**
- **20% lower risk of hospitalization**
- **Health-economical benefits**

Kivipelto et al., Lancet 2015, JAMA Neurology 2018, Eur Ger Med 2017, JAMDA 2017, JAGS 2019; Wimo et al, submitted



CHALLENGE: One size does not fit all

- **Multidomain interventions: several simultaneous targets**
- **Tailor interventions to the individual's specific risk profile**
- **Mechanistic foundation**
- **Optimal time windows**

From FINGER To WORLD WIDE FINGERS

Launched 2017

- Urgent need to expand FINGER work to test the **generalizability, adaptability, and sustainability** in diverse populations worldwide
- **Harmonize** research methods in prevention trials
- **Share** experiences and data and plan joint dementia prevention initiatives



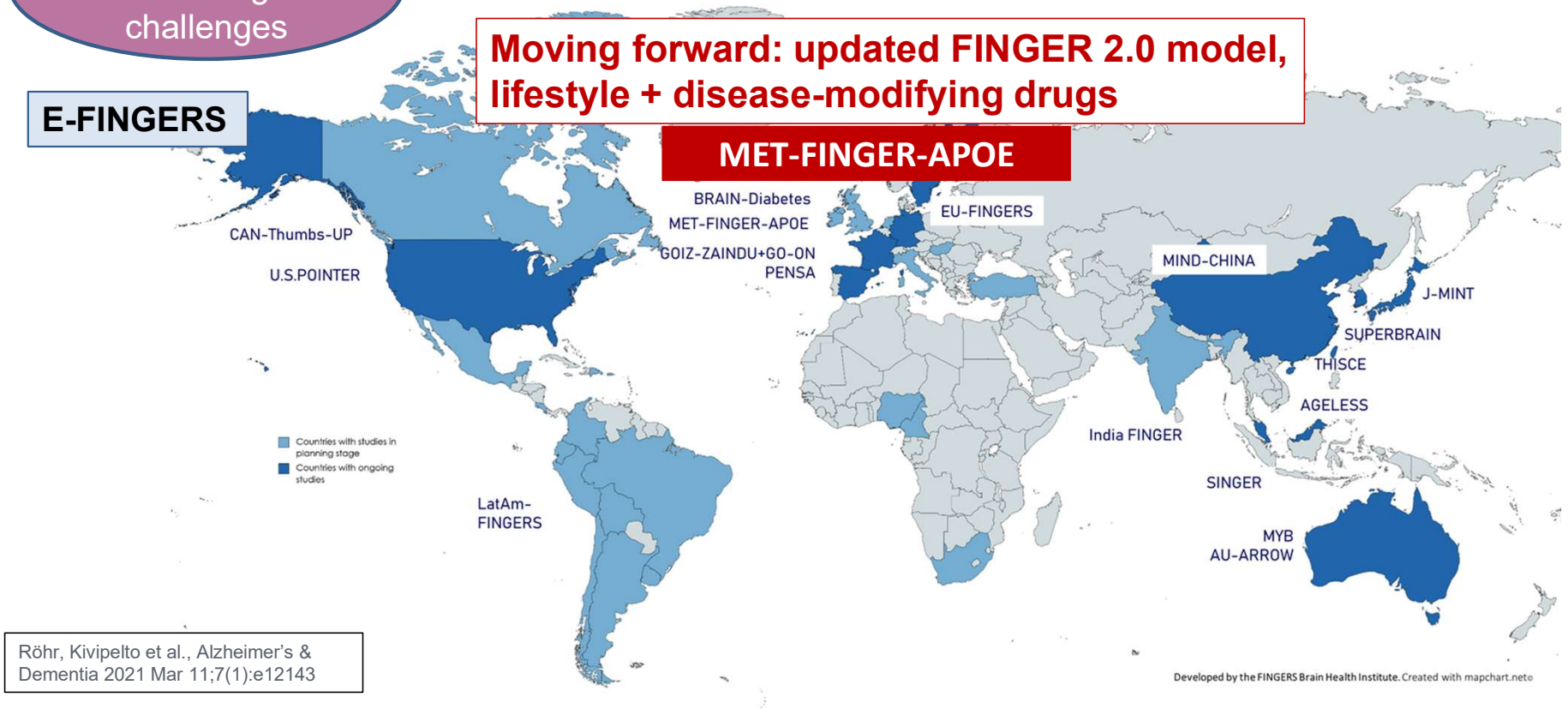

Covid-19 related methodological challenges

WW-FINGERS Network

Moving forward: updated FINGER 2.0 model, lifestyle + disease-modifying drugs

E-FINGERS

MET-FINGER-APOE



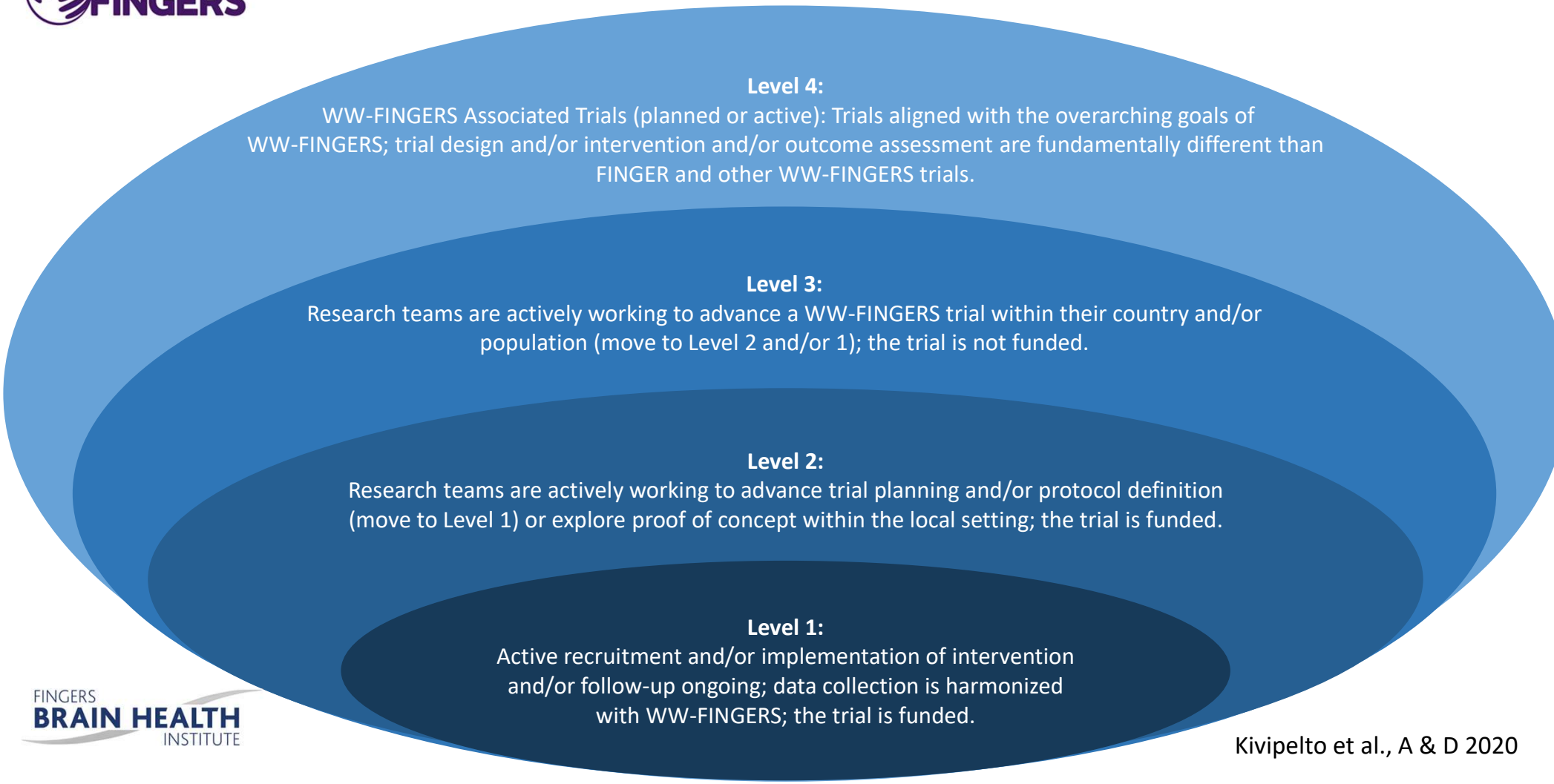
Röhr, Kivipelto et al., Alzheimer's & Dementia 2021 Mar 11;7(1):e12143

Kivipelto, Mangialasche et al. World-Wide FINGERS Network: A Global Approach to Risk Reduction and Prevention of Dementia *(Alzheimer's Dement, July 6, 2020)*

Participating countries 2021 ~30

WORLD WIDE FINGERS

WW-FINGERS Network RCTs levels



Kivipelto et al., A & D 2020

SARS-CoV-2 (COVID-19) pandemic and brain health

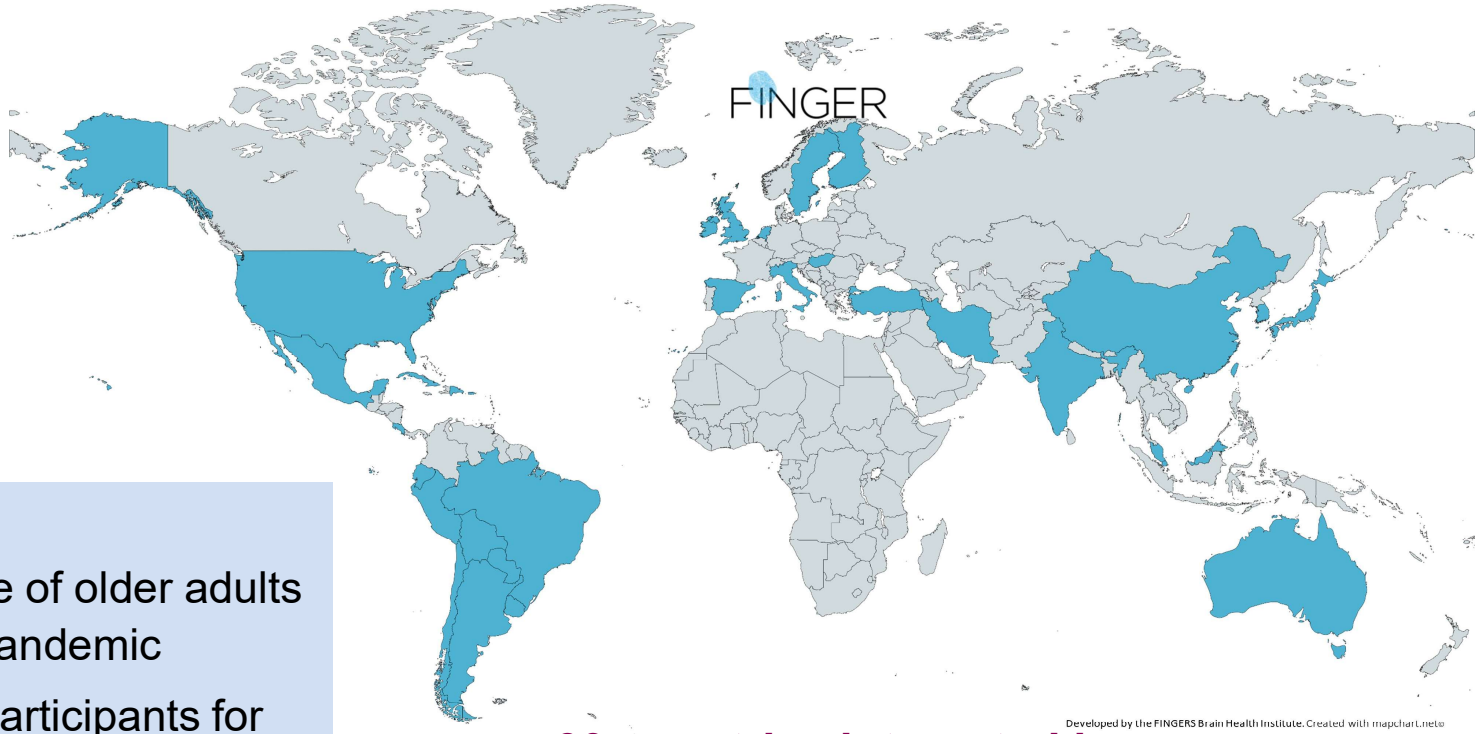
Pandemic direct and indirect effects on cognition:

- infection effects on CNS
- infection effects on organs and systems
- disruption of regular healthcare
- effects of physical distancing measures

World Health Organization

WHO collaboration: Neurology and COVID-19 global forum

World-Wide FINGERS-SARS-CoV2 survey



≈ 30 countries interested in participating

Opportunities:

- To inform better care of older adults in the context of a pandemic
- (Pre)-screening of participants for prevention trials
- To adapt and successfully deliver prevention trials

WORLD-WIDE-FINGERS-SARS-COV-2 INITIATIVE

Assessment of the SARS-CoV-2 (COVID-19) outbreak effects on seniors

World Health Organization

WHO collaboration: Neurology and COVID-19 global forum

Main research questions include:

- How has the pandemic, and measures deployed to contain it, affected lifestyle?

- How has the pandemic, and infection control measures, affected the management of noncommunicable diseases (NCDs)?

- How much of the changes in NCDs management are related to modifications in medical care or to lifestyle changes?

- How has the pandemic affected overall physical and mental health and wellbeing?

- What factors are associated with different severity levels of COVID-19?

New results from the FINGER study: How the COVID-19 pandemic has impacted the lifestyle and behaviors of older adults at risk of dementia

FINGER

- 34% reported a decrease in physical activity
- 21% reported more feelings of loneliness
- 15% felt that their memory had been getting worse during the pandemic
- Cancellations in dental healthcare (43%), home aid (30%), and rehabilitative services (53%) were common

On the positive side….

- Many individuals were able to use digital tools to keep in contact with family and friends
- Many were able to keep up healthy eating habits

Lehtisalo et al., 2021 https://www.frontiersin.org/articles/10.3389/fpsyt.2021.624125/full

Can Alzheimer (AD) and Dementia be prevented?

- YES, a significant portion of cases can be prevented or at least delayed

Is prevention feasible and effective in older adults?

- The FINGER multidomain preventive model was feasible and effective. The model is being adapted and validated to develop feasible, sustainable and effective interventions in different settings
- Awareness about prevention in the community and healthcare professional is crucial

What is the role of chronic noncommunicable diseases?

- Many chronic disorders common in older adults have a negative effect on cognition
- Multidomain preventive intervention can have beneficial effects beyond cognition

Prevention at the time of the COVID-19 pandemic?

- It is even more important! Requires innovative approaches. Can be associated with improvement of health and function in older adults

WW-FINGERS Scientific Helpdesk

We have daily communications with different countries to support RCT development and grant applications

WW-FINGERS Scientific Helpdesk:

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Thank you for your attention!

UNIVERSITY OF EASTERN FINLAND

Finnish institute for health and welfare

FINGERS BRAIN HEALTH INSTITUTE

Karolinska Institutet

Imperial College London

Summary in Spanish

Dr. Gustavo Sevlever

Department of Cognitive Neurology
FLENI, Buenos Aires, Argentina

LatAm
Fingers

A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial

Tiia Ngandu, Jenni Lehtisalo, Alina Solomon, Esko Levälahti, Satu Ahtiluoto, Riitta Antikainen, Lars Bäckman, Tuomo Hänninen, Antti Jula, Tiina Laatikainen, Jaana Lindström, Francesca Mangialasche, Teemu Paajanen, Satu Pajala, Markku Peltonen, Rainer Rauramaa, Anna Stigsdotter-Neely, Timo Strandberg, Jaakko Tuomilehto, Hilkka Soininen, Miia Kivipelto

Summary

Background Modifiable vascular and lifestyle-related risk factors have been associated with dementia risk in observational studies. In the Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER), a proof-of-concept randomised controlled trial, we aimed to assess a multidomain approach to prevent cognitive decline in at-risk elderly people from the general population.

Methods In a double-blind randomised controlled trial we enrolled individuals aged 60–77 years recruited from previous national surveys. Inclusion criteria were CAIDE (Cardiovascular Risk Factors, Aging and Dementia) Dementia Risk Score of at least 6 points and cognition at mean level or slightly lower than expected for age. We randomly assigned participants in a 1:1 ratio to a 2 year multidomain intervention (diet, exercise, cognitive training, vascular risk monitoring), or a control group (general health advice). Computer-generated allocation was done in blocks of four (two individuals randomly allocated to each group) at each site. Group allocation was not actively disclosed to participants and outcome assessors were masked to group allocation. The primary outcome was change in cognition as measured through comprehensive neuropsychological test battery (NTB) *Z* score. Analysis was by modified intention to treat (all participants with at least one post-baseline observation). This trial is registered at ClinicalTrials.gov, number NCT01041989.

Findings Between Sept 7, 2009, and Nov 24, 2011, we screened 2654 individuals and randomly assigned 1260 to the intervention group (n=631) or control group (n=629). 591 (94%) participants in the intervention group and 599 (95%) in the control group had at least one post-baseline assessment and were included in the modified intention-to-treat analysis. Estimated mean change in NTB total *Z* score at 2 years was 0·20 (SE 0·02, SD 0·51) in the intervention group and 0·16 (0·01, 0·51) in the control group. Between-group difference in the change of NTB total score per year was 0·022 (95% CI 0·002–0·042, p=0·030). 153 (12%) individuals dropped out overall. Adverse events occurred in 46 (7%) participants in the intervention group compared with six (1%) participants in the control group; the most common adverse event was musculoskeletal pain (32 [5%] individuals for intervention *vs* no individuals for control).

Interpretation Findings from this large, long-term, randomised controlled trial suggest that a multidomain intervention could improve or maintain cognitive functioning in at-risk elderly people from the general population.

Published Online
March 12, 2015
http://dx.doi.org/10.1016/S0140-6736(15)60461-5

Chronic Disease Prevention Unit (T Ngandu PhD, J Lehtisalo MSc, E Levälahti MSc, S Ahtiluoto MD, Prof A Jula PhD, Prof T Laatikainen PhD, J Lindström PhD, Prof M Peltonen PhD, Prof J Tuomilehto PhD, Prof M Kivipelto PhD) **and Welfare and Health Promotion Unit** (S Pajala PhD), **National Institute for Health and Welfare, Helsinki, Finland; Karolinska Institutet Center for Alzheimer Research, Stockholm, Sweden** (T Ngandu, A Solomon PhD, Prof M Kivipelto); **Institute of Clinical Medicine/Neurology** (A Solomon, Prof H Soininen PhD, Prof M Kivipelto) **and Institute of Public Health and Clinical Nutrition** (Prof T Laatikainen), **University of Eastern Finland, Kuopio, Finland; Aging Research Center, Karolinska Institutet-Stockholm University, Stockholm, Sweden** (A Solomon,

WORLD WIDE FINGERS
alzheimer's association

ABOUT | PROJECTS | CONTACTS | PAPERS & ABSTRACTS | MEETINGS | NEWS

A GLOBAL COLLABORATION FOR FUTURE GENERATIONS

The World Wide FINGERS (WW-FINGERS) is an interdisciplinary network to share experiences, harmonize data and plan joint international initiatives to reduce risk of cognitive impairment or dementia.

Dementia has been declared a public health priority by the World Health Organization (WHO)[1, 2], which has also prioritized research into dementia prevention. Risk reduction and prevention are pivotal in managing the dementia epidemic globally, and the sharing of data is vital to informing this process. World Wide FINGERS will facilitate the use of data from several countries, creating a unique opportunity for rapid knowledge dissemination and implementation.

WORLD WIDE FINGERS
alzheimer's association

WORLD WIDE FINGERS

HOME A

STUDY DESIGN

MULTICENTER: 13 centers across Latin America

SINGLE BLIND

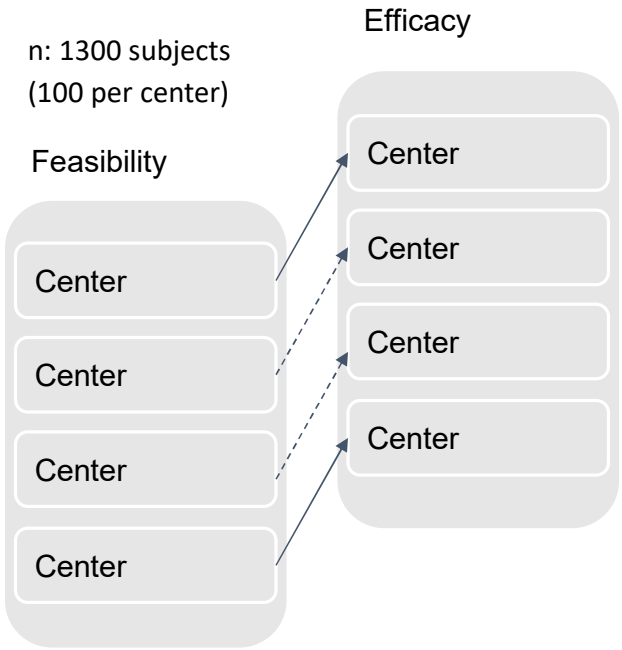
1 YEAR INTERVETION
2nd year intervention in planning stage

RANDOMIZED
- Flexible lifestyle intervention
- Systematic lifestyle intervention

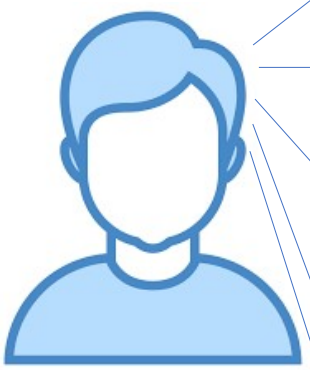
Feasibility/Efficacy (ITT)

STUDY DESIGN

SYSTEMATIC LIFESTYLE INTERVENTION	FLEXIBLE LIFESTYLE INTERVENTION
1. Cognitive Training and Social stimulation 2. Physical Exercise. 3. Nutritional Intervention 4. Control of cardiometabolic health.	Regular health advice.



PARTICIPANTS



SUBJECT AT RISK OF DEMENTIA

AGE 60-77

CAIDE ≥ 6

MMSE Z score > -1,5

OR

CERAD word list recall ≤ 75%

CERAD (Delayed Recall) Z score > -1,5

CDR ≤ 0,5 &

CDR soB < 1

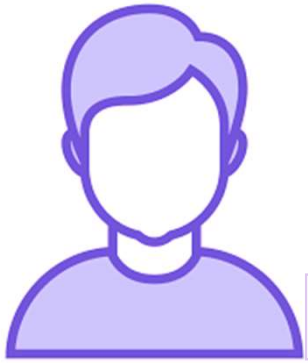
Low physical activity according to IPAQ

Subject has at least 1 year of education and knows how to read and write

EXCLUSION

- Dementia
- Medical conditions which interfere with patient security
- Any significant neurologic disease
- Illiteracy

DATA COLLECTION



APOE genotyping

Clinical data

Lifestyle measures
Nutrition measures
Physical act measures
CV risk factors
Sleep
…

Neuropsychological data

OUTCOMES
Global cognition
Domain specific cognition
Functionality
Mood

BIOBANKING

- Structural MRI
- Resting state MRI
- DTI

Serum banking

DNA banking

DATA HARMONIZATION AND DATA SHARING

INTER CENTER RELIABILITY

- Shared electronic data capture (*EDC*) using REDCap

- Central data managment core

- Common data warehouse

FINGER NETWORK HARMONIZATION

Outcomes LatAm Fingers	Tests
Primary BNT (LATAM-FINGER modified global composite)	Free and Cued Selective Reminding Test (FCSRT)
	Wechsler Memory IV Digit Span (forwards, backwards, sequencing)
	Digit Symbol Substitution Test score from the Wechsler Adult Intelligence Scale–Revised
	Category Fluency Test (CFT)
	COWAT (Controlled Word Association test)
	Stroop Test 40 stimulus short version
	TMT shifting score (B-A)

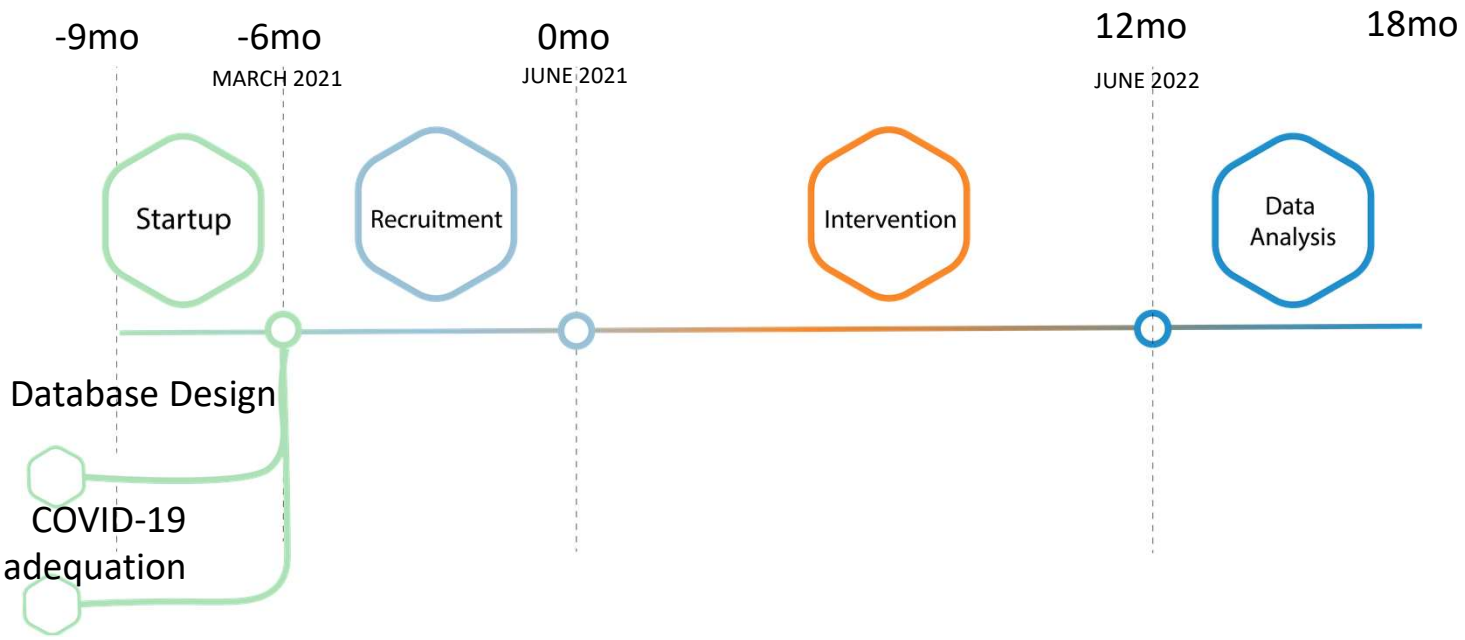
DATA SHARING

After primary analysis, publicly accessible

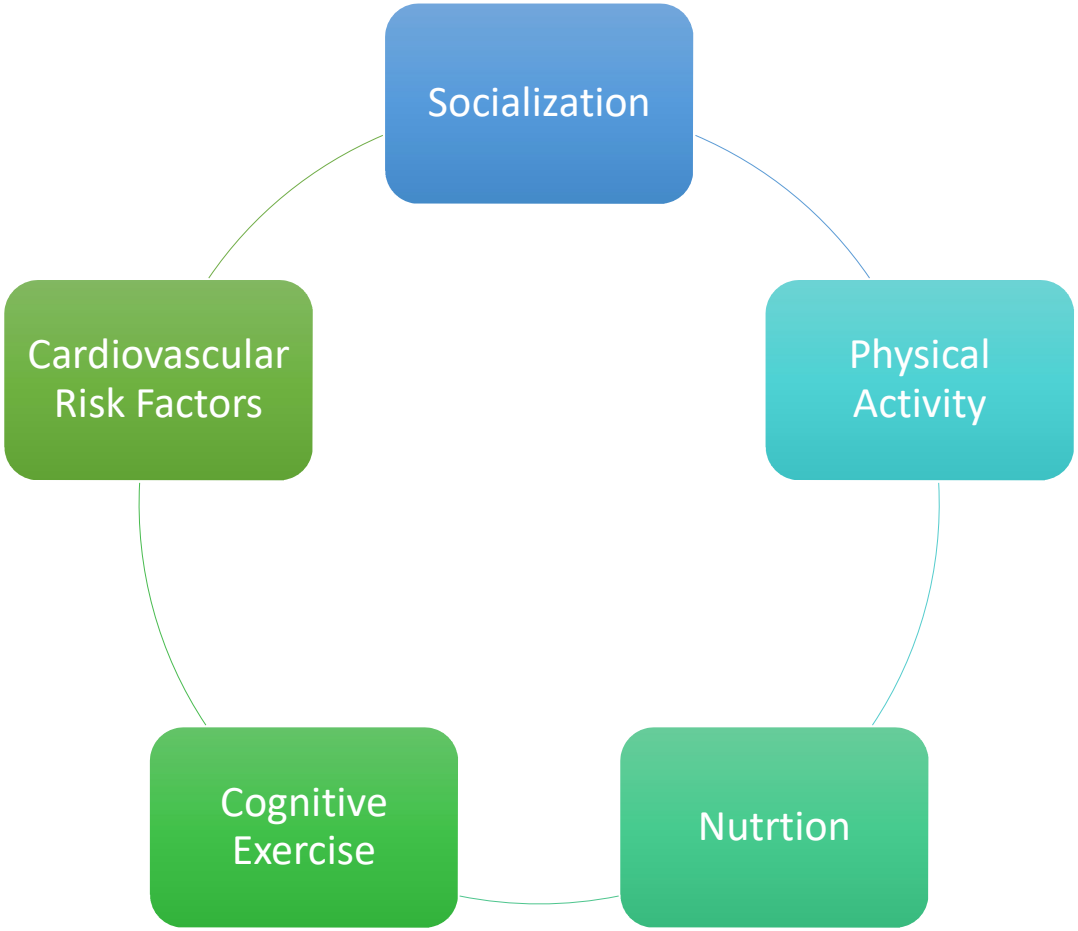
Curated data

Global repositories

STUDY TIMELINE



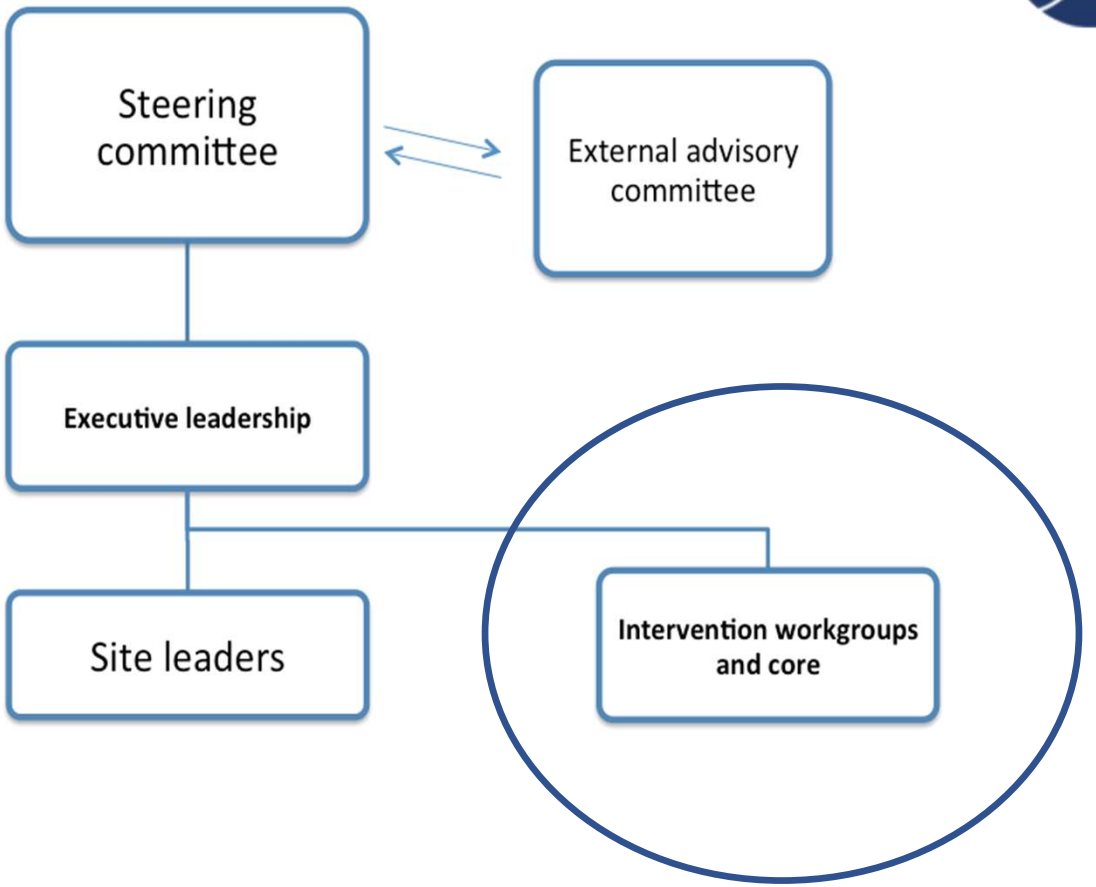
A multifactorial intervention will be carried out in:



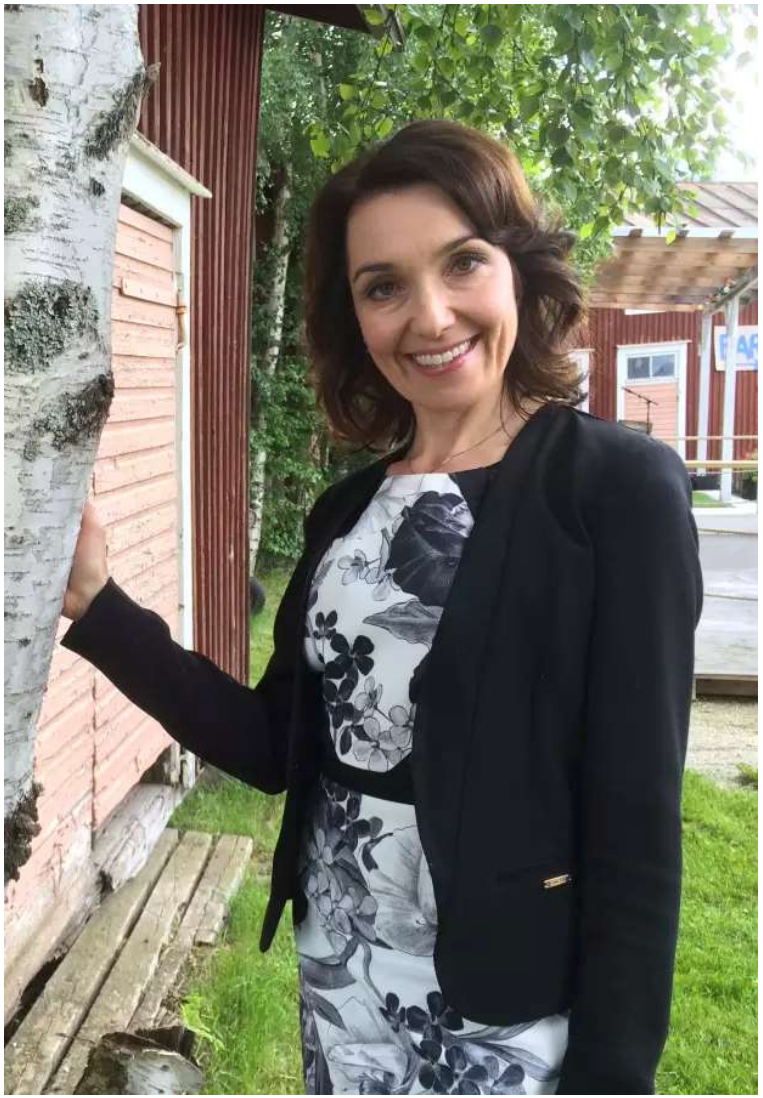
LatAm Fingers

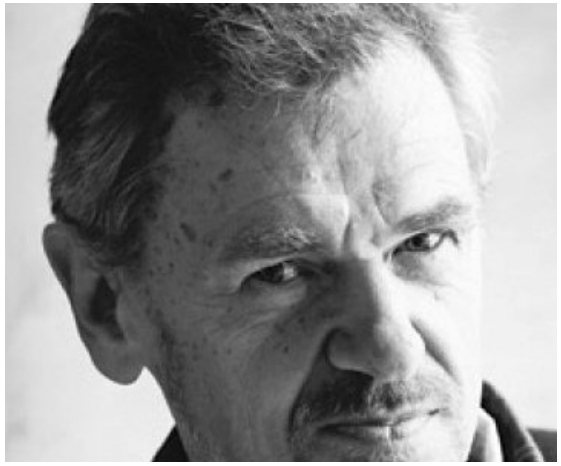
LatAm Fingers

LatAm Fingers



Nutrition
Physical Exercise
Cognitive
Health Control





Latin America takes centre stage in dementia prevention

Latam FINGERS

The study of Alzheimer's disease has placed Latin America at the forefront of dementia research. In Colombia, researchers have focussed on autosomal dominant Alzheimer's disease, while in Argentina and Brazil, their colleagues have been working hard to promote prevention of sporadic disease (ie, primary prevention). The wider region is now taking centre stage in both inherited and sporadic dementia prevention. As announced on July 30 at the Alzheimer's Association International Conference (AAIC 2020), the LatAm-FINGERS trial will commence before the end of the year. The trialists have the ambitious aim of tackling primary prevention of dementia throughout the continent.

Over the past decade, European initiatives led the clinical research on primary prevention. The Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) marked an inflection point, showing that prevention could be a realistic aspiration. This trial tested whether a multidomain intervention (diet, exercise, cognitive training, and cardiometabolic risk management) could prevent cognitive decline in people aged 60–77 years. Cognitive decline was less in those randomised to the intervention than in controls, who received only general health advice. The between-group difference in cognitive scores per year was small, but statistically significant, and the effect could have considerable impact if replicated in the real world. Participants in the FINGER trial were deemed to be at high risk of dementia, due to their age and cardiovascular risk factors. This latter criterion is relevant, as risk reduction seems to be most efficacious when interventions target the people carrying such risk. The Dutch Prevention of Dementia by Intensive Vascular Care (PreDIVA) study found no benefit to targeting cardiovascular factors in participants selected according to age (70–78 years) only. The FINGER intervention was more intensive than those used in other pioneering trials, like the Multidomain Alzheimer Preventive Trial (MAPT), suggesting that targeting several risk factors simultaneously and vigorously can optimise benefit. Building on the foundation provided by these studies, the World Wide FINGERS network was launched at AAIC 2017 to tackle the prevention of cognitive impairment globally. By 2018, the network had planned trials—with harmonised methods based on the interventions of the original FINGER—in Australia, China, Singapore, the USA, the UK, and several European countries. These ongoing studies have informed the design of LatAm-FINGERS, which is the network's largest project so far.

LatAm-FINGERS will recruit 1300 participants in 13 countries, from Argentina to Mexico. The study will also compare the effects of health advice (control arm) with those of the multidomain intervention, which has been locally adapted. Diet and exercise interventions will be country-specific, to accommodate local habits and cultural preferences. Nevertheless, diets must comply with MIND-diet guidelines (regarding caloric intake, proportion of fats versus carbohydrates, etc) and exercise programmes will be standardised regarding recurrence, intensity, and proportion of aerobic, strength, and balance training. Some participants might have low educational attainment, and cognitive training is perhaps the most challenging intervention. The trial will test a digital cognitive stimulation platform, adapted from the U.S.-POINTER study, which is the network's ongoing trial in the USA. After 1 year, LatAm-FINGERS will assess the feasibility of the multidomain intervention in its large and heterogeneous geographical setting. If feasibility outcomes are positive, the trial will be extended for another year, but the expectation is that the first 12 months will suffice to detect a change in cognitive scores (the primary outcome).

The Lancet Standing Commission on *Dementia prevention, intervention, and care*, launched at AAIC 2020, recommends to "be ambitious about prevention". It proposes a life-course model of dementia prevention, in which a dozen modifiable risk factors are responsible for about 40% of the population attributable fraction of dementia worldwide. Excessive alcohol consumption, obesity, and hypertension in midlife (45–65 years), and diabetes and sedentarism in later life are among these factors. A major limitation of the model is that most data were obtained in Europe and North America, although the Commission recognises that the "potential for prevention is high and might be higher in low-income and middle-income countries, where more dementias occur". Dementia prevalence is high and expected to increase in Latin America because of rapid population ageing; the increase might accelerate if risk factors continue to rise. When the start-up phase of LatAm-FINGERS begins in November, Latin America will carry the baton forward in dementia prevention. ■ *The Lancet Neurology*

For more on **Alzheimer's disease research in Colombia** see **Editorial** *Lancet Neurol* 2012; **11**: 567

For more on **AAIC 2020** see https://www.alz.org/aaic/overview.asp

For the **FINGER trial** see **Articles** *Lancet* 2015; **385**: 2255–63

For the **PreDIVA trial** see **Articles** *Lancet* 2016; **388**: 797–805

For the **MAPT trial** see **Articles** *Lancet Neurol* 2017; **16**: 377–89

For more on **World Wide FINGERS** see **Editorial** *Lancet Neurol* 2017; **16**: 677

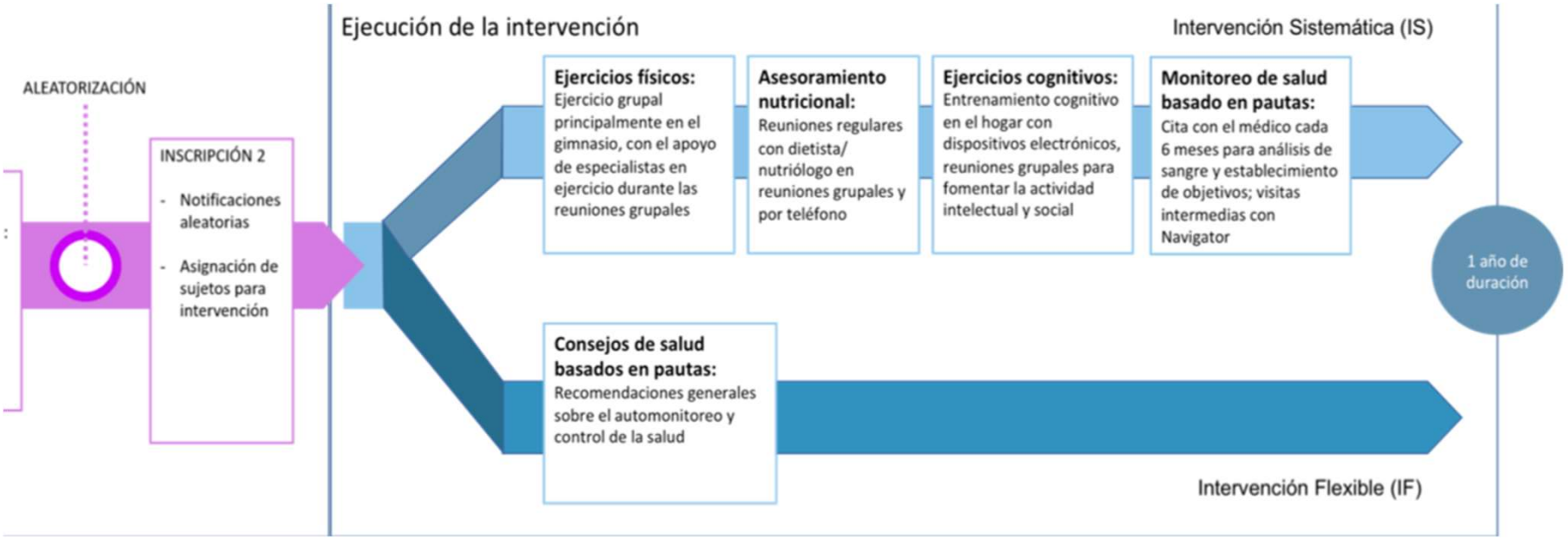
For the **MIND-diet guidelines** see https://foodinsight.org/what-is-the-mind-diet/

For more on **Dementia prevention, intervention, and care** see **The Lancet Commissions** *Lancet* 2020; **396**: 413–46

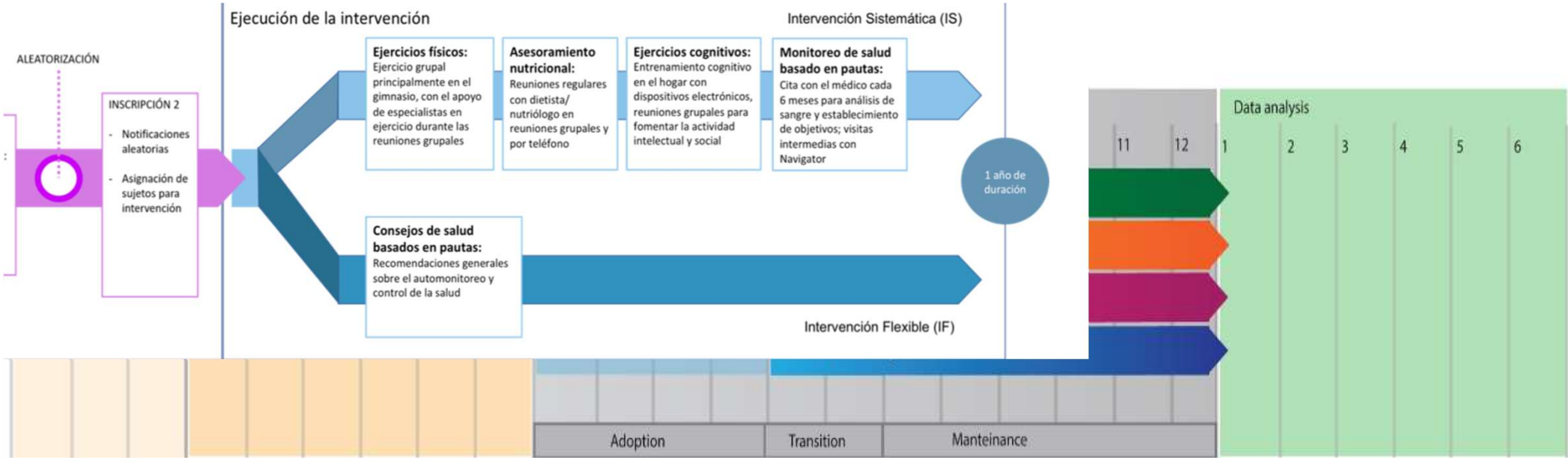
For more on **dementia in Latin America** see *J Glob Health* 2020; **10**: 010362

Start-up programa FINGERS-LATAM. 13 countries-

LatAm Fingers



LatAm Fingers



Durante la fase de Startup se constituyeron 4 grupos de trabajo.

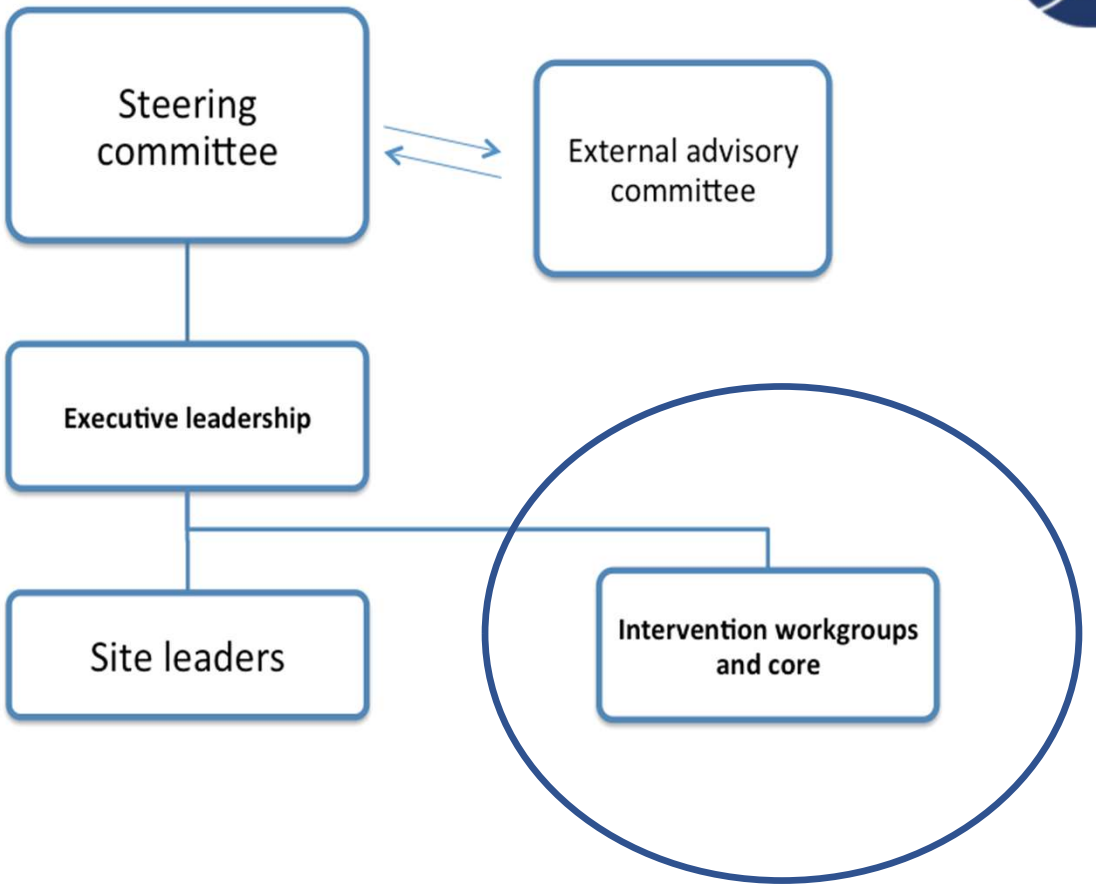
- Intervención Física
- Intervención sobre la Nutrición
- Intervención Cognitiva
- Intervención sobre el Control de la Salud

- Cada grupo de trabajo está conformado por al menos un integrante de cada uno de los 12 países participantes.
- Cada grupo de trabajo eligió un repersentante que fue quien tuvo contacto directo con el Comité ejecutivo

Objetivos de los Grupos de Trabajo

- Los grupos de trabajo colaboraron intercambiando ideas y perspectivas para:
- Diseñar un protocolo de intervención adaptado al COVID-19 que respete las reglas de distanciamiento social y medidas sanitarias necesarias para evitar el contagio
- Escribir un manual de procedimientos detallado con una descripción detallada de los de su área de intervención.
- Instrumentar capacitaciones para el personal que trabajará en cada área específica del protocolo.

LatAm Fingers



Nutrition
Physical Exercise
Cognitive
Health Control

LatAm
Fingers

Prof. Suzana Shahar

Primary Investigator of AGELESS, the FINGER-like intervention study in Malaysia

Multi-domain Intervention for Reversal of Cognitive Frailty: Towards a Personalized Approach (AGELESS Trial)

Principle Investigator:

Suzana Shahar *(BSc, MMed Sci, PhD)*
Professor in Nutrition and Dietetics

How Did We Secure Funds?

Internationally Reputed Centres

Cumulative H-index: 357

Ministry of Higher Education of Malaysia: Long Term Research Grant Scheme (LRGS) (5 years)

LRGS TUA (2012-2017): RM5 millions (USD 1.1 millions)- Neuroprotective Model for Healthy Longevity of Malaysian Older adults (2200 samples, 5 year follow up)

-Prevalence, Incidence and Risk Factors of MCI

LRGS AGELESS (2020-2025): RM6 Millions (5 projects, networking/ collaboration of 5 universities)

AGELESS Trial: Collaboration with FINGERS, 3 areas (representatives), longer duration (2 years), 1 year follow up.

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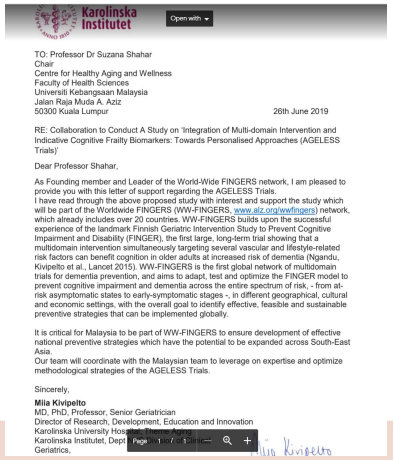
How Did We Secure Funds?

WHO | WHO headquarters, Geneva

Guideline development group meeting for the WHO guidelines on risk reduction of cognitive decline and dementia, July 2-3, 2018, WHO, Geneva.



Karolinska Institutet

TO: Professor Dr Suzana Shahar
Chair
Centre for Healthy Aging and Wellness
Faculty of Health Sciences
Universiti Kebangsaan Malaysia
Jalan Raja Muda A. Aziz
50300 Kuala Lumpur

26th June 2019

RE: Collaboration to Conduct A Study on 'Integration of Multi-domain Intervention and Indicative Cognitive Frailty Biomarkers: Towards Personalised Approaches (AGELESS Trials)'

Dear Professor Shahar,

As Founding member and Leader of the World-Wide FINGERS network, I am pleased to provide you with this letter of support regarding the AGELESS Trials.
I have read through the above proposed study with interest and support the study which will be part of the Worldwide FINGERS (WW-FINGERS, www.alz.org/wwfingers) network, which already includes over 20 countries. WW-FINGERS builds upon the successful experience of the landmark Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER), the first large, long-term trial showing that a multidomain intervention simultaneously targeting several vascular and lifestyle-related risk factors can benefit cognition in older adults at increased risk of dementia (Ngandu, Kivipelto et al., Lancet 2015). WW-FINGERS is the first global network of multidomain trials for dementia prevention, and aims to adapt, test and optimize the FINGER model to prevent cognitive impairment and dementia across the entire spectrum of risk, - from at-risk asymptomatic states to early-symptomatic stages -, in different geographical, cultural and economic settings, with the overall goal to identify effective, feasible and sustainable preventive strategies that can be implemented globally.

It is critical for Malaysia to be part of WW-FINGERS to ensure development of effective national preventive strategies which have the potential to be expanded across South-East Asia.
Our team will coordinate with the Malaysian team to leverage on expertise and optimize methodological strategies of the AGELESS Trials.

Sincerely,

Mila Kivipelto
MD, PhD, Professor, Senior Geriatrician
Director of Research, Development, Education and Innovation
Karolinska University Hospital
Karolinska Institutet, Dept
Geriatrics,

Support letter

Dr Francesca came over to Malaysia

16 May 2019

Nov. 2019

2–3 July

27 June 2019

22 Nov. 2019

Call for proposal, 2.40 pm contacted Mia; replied 7.44am.

Grant approved (unofficial)

Figure 11: AGELESS Trials as part of World Wide FINGERS Network

LRGS TUA

9.0% were physically pre-frail and 61.0% were physically frail (Badrasawi et al. 2017)

16.0-21.0% had mild cognitive impairment (Shahar et al. 2016)

37.4% were cognitively pre-frail and 2.2% had Cognitive Frailty (Rivan et al. 2019)

Predictors (Rivan et al. 2019)

Increasing age

Vitamin D deficiency

Coexistence of depression and frailty

Reduced processing speed

Reduced functional mobility

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LRGS AGELESS- Transforming Cognitive Frailty to Later Life Self-Sufficiency (AGELESS)

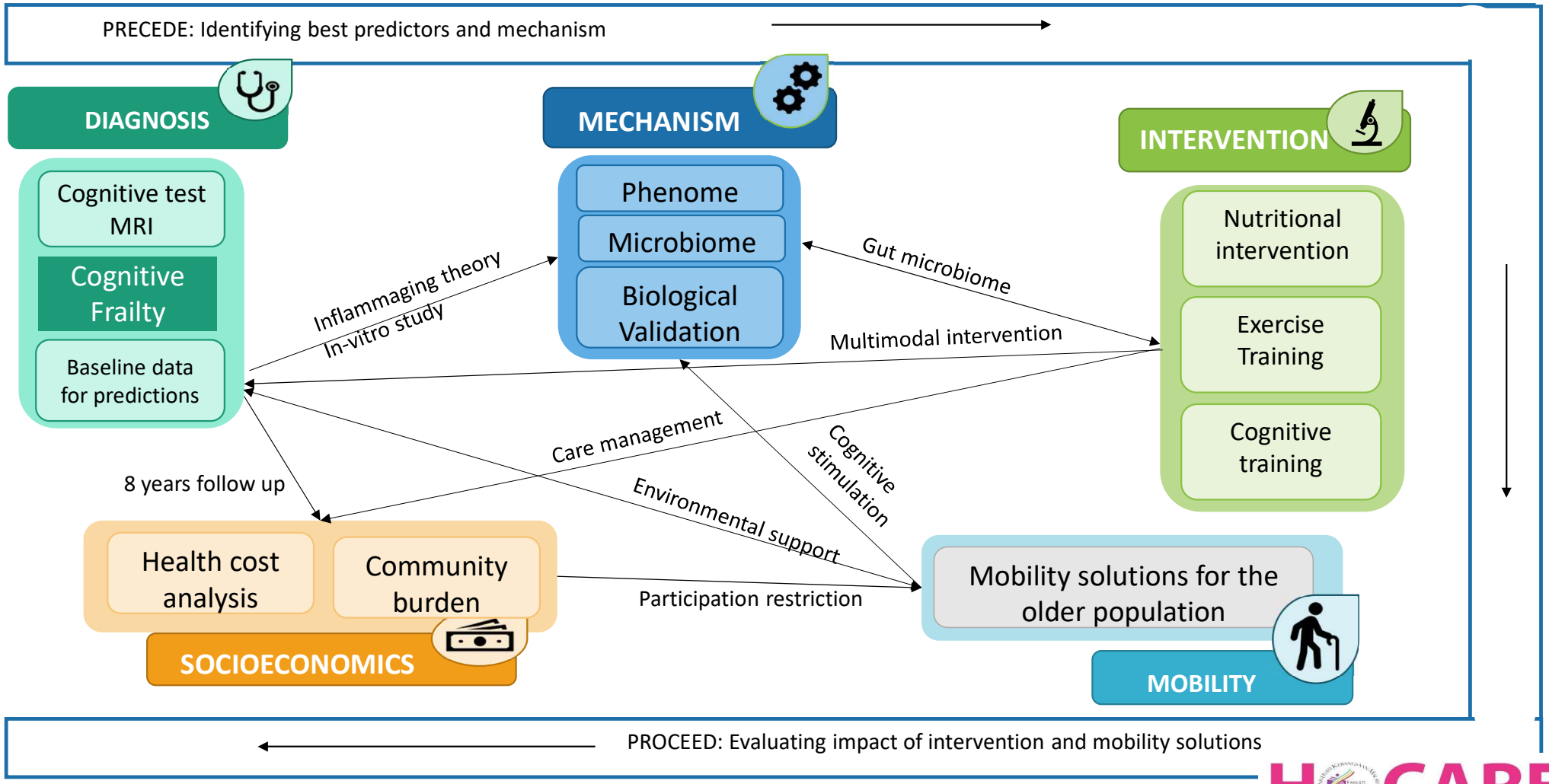
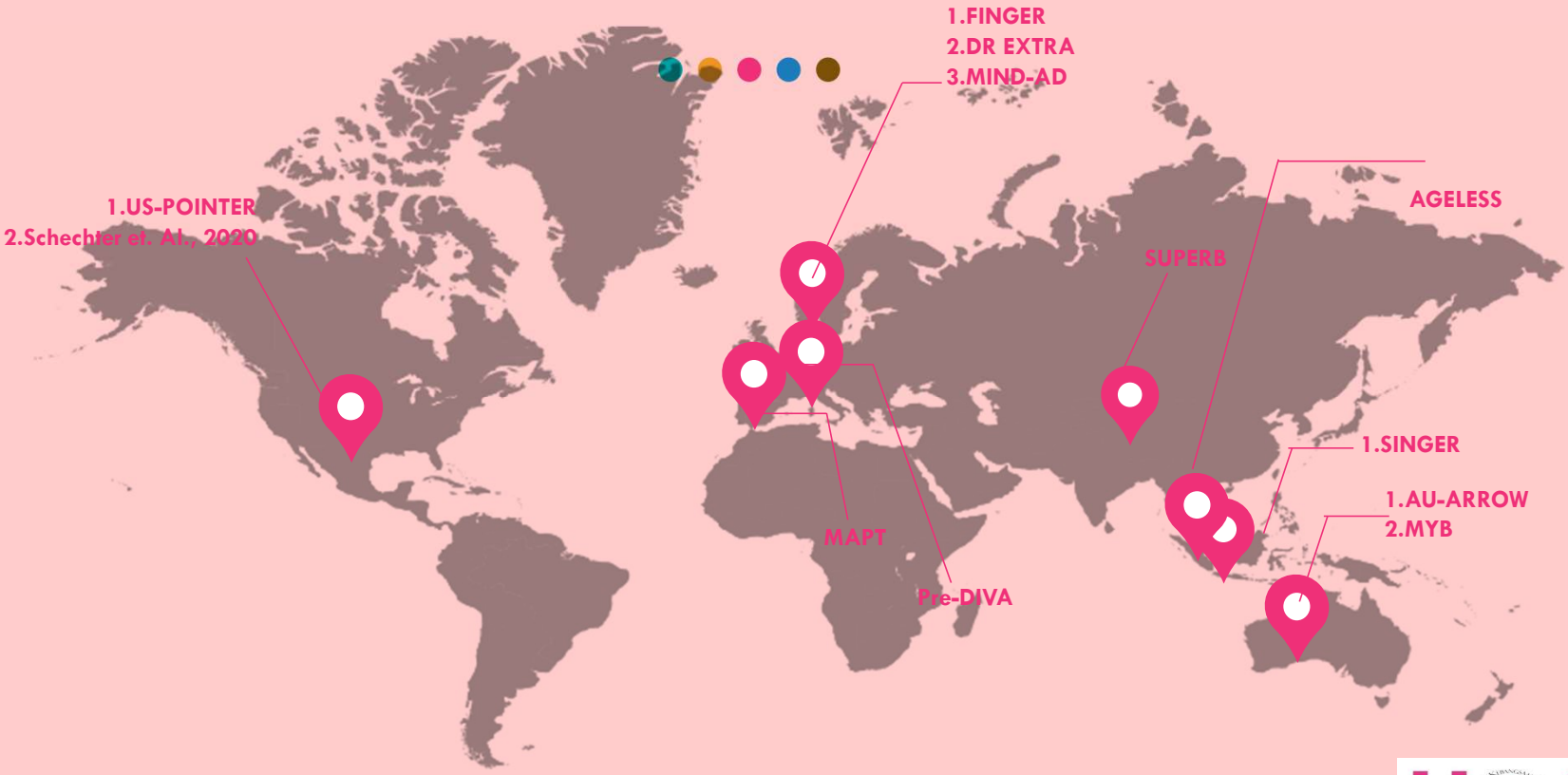


Figure 10: Conceptual Framework of AGELESS Trials

AGELESS TRIAL PART OF WORLD WIDE FINGERS MULTIDOMAIN INTERVENTION



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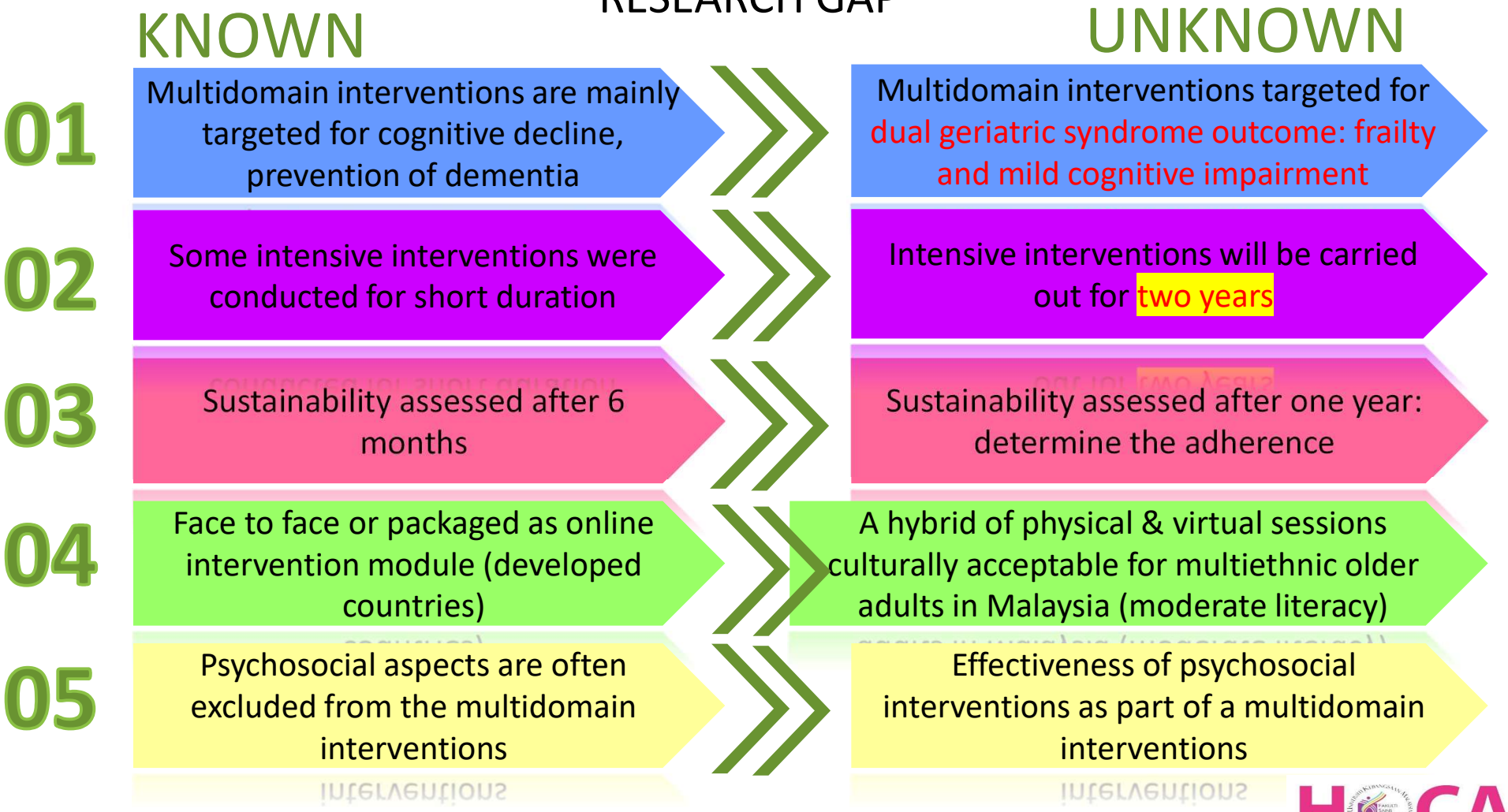
INTRODUCTION
RESEARCH GAP



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MAIN OBJECTIVE

To determine the impact of a comprehensive multidomain intervention (nutrition, exercise, cognitive, psychosocial and vascular risk factors management) on cognitive frailty; and factors influencing adherence towards the intervention, cost benefit and sustainability.

1. To determine and quantify the impact and cost benefit of multidomain intervention on physical and cognitive indicators of older adults with cognitive frailty

2. To differentiate secretome (gut microbiomes), physiological, vascular health and nutritional profile according to outcomes of multidomain intervention among older adults with cognitive frailty

3. To determine the underlying environmental and psychosocial factors mitigating outcomes of multidomain intervention among older adults with cognitive frailty

4. To develop a model of integrative multidomain personalised approaches towards reversing cognitive frailty among older adults.

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THEORETICAL FRAMEWORK

Based on Medical Research Council (MRC)

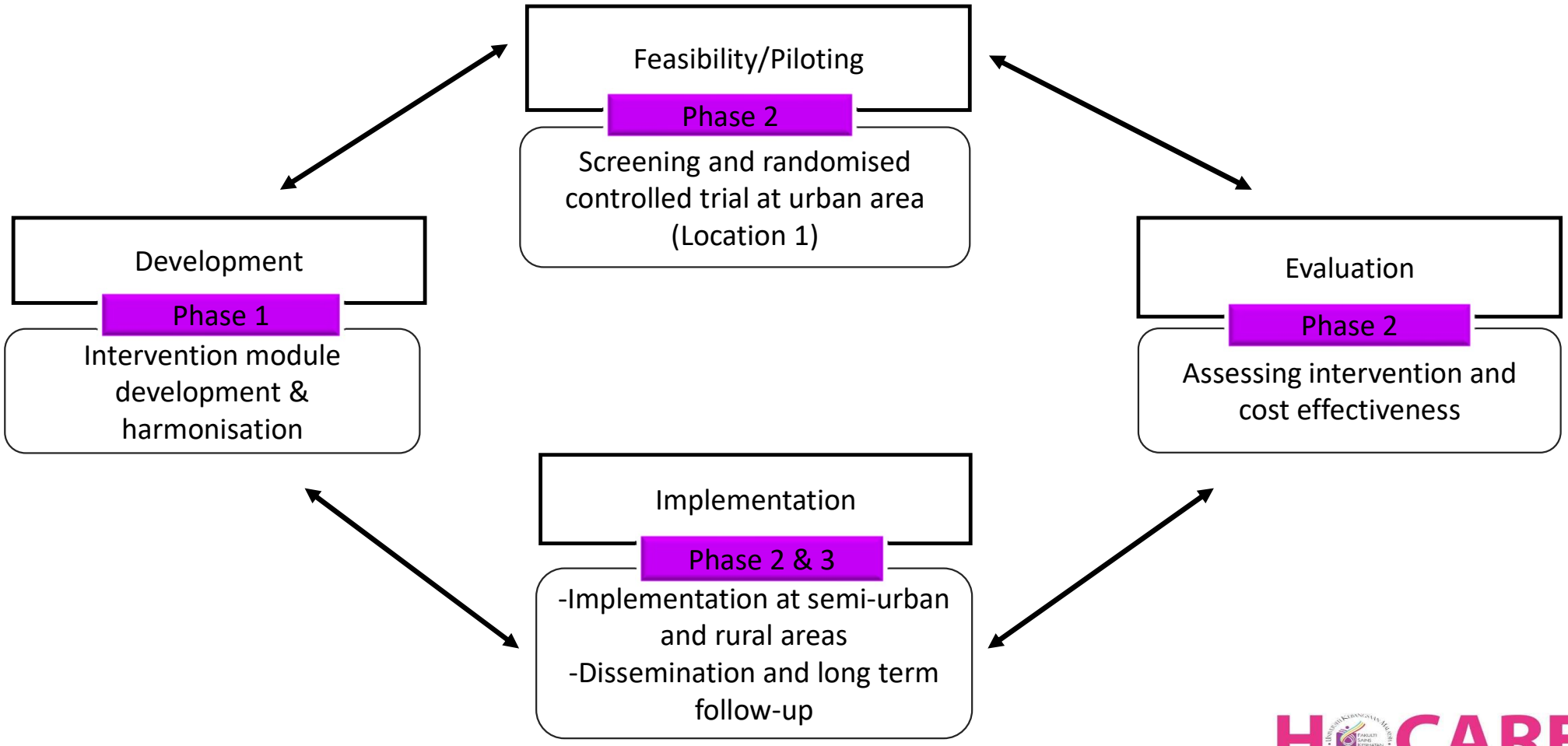

Figure 1 : Theoretical Framework

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Perception, Needs, Acceptance: Module (April 2021)

Need Assessment (FGD and IDI)

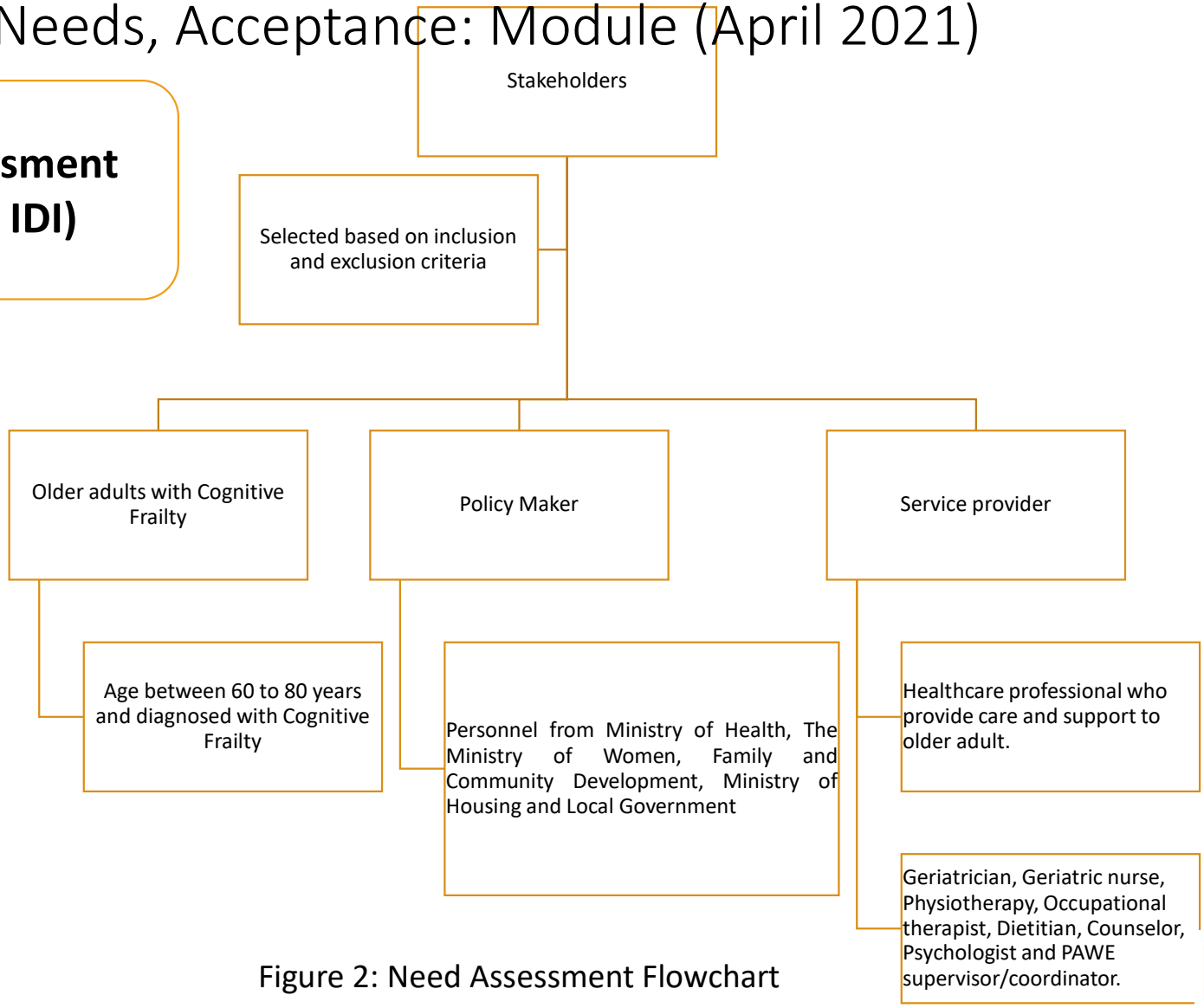


Figure 2: Need Assessment Flowchart

METHODOLOGY

Study Design Manuscript Submitted to Journal of Alzheimer's Diseases

Phase 1

Module Harmonization & Acceptance (Oct 2020- April 2021)

Psychosocial

Cognitive training

Nutritional advise

Physical exercise

Vascular management

Phase 2

Recruitment & Randomized Control Trial (May 2021- April 2024)

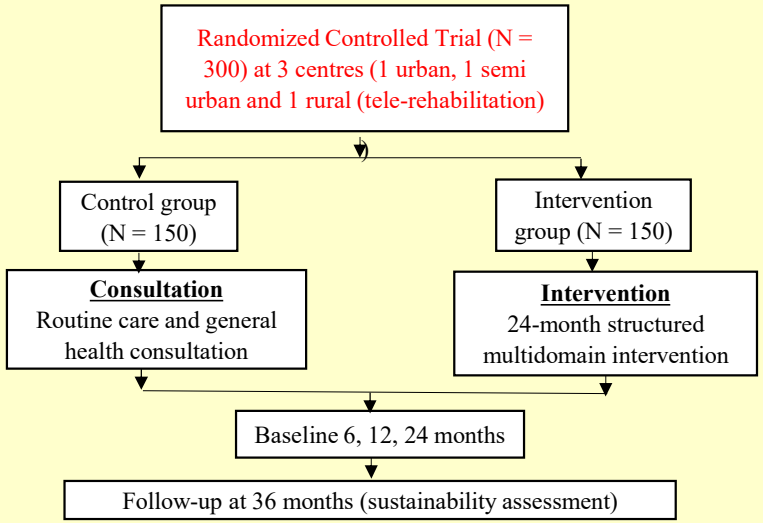
SCREENING (N = 1000)

1 

Sociodemographic, cognition, ICT literacy, dietary

2 

Fitness test, psychological assessment, frailty criteria



Phase 3

Personalised Rehabilitation Modelling to Reduce Risk of Cognitive Frailty (May 2024-Apr 2025)

Roundtable Discussions with stakeholders (unscaling)

Telerehabilitation

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METHODOLOGY
Outcome Measures

SCREENING

1. Mini-Mental State Examinations (MMSE) Clinical Dementia Rating Scale (CDR)
2. Beck Depression Inventory Physical Activity Scale for the Elderly (PASE)
3. Malnutrition Screening tool (MST)
4. Information and Communication Technologies (ICT) Literacy
5. Elderly Cognitive Assessment Questionnaire (ECAQ)
6. "Towards Useful Aging" (TUA) Wellness Questionnaire

BASELINE/FOLLOW-UP

Psychosocial:
1. Medical Outcome Social Support (MOSS)
2. BRIEF-Cope
3. UCLA loneliness scale
4. Resilience scale
5. General Self-Efficacy Scale (GSES)
6. University of Rhode Island Change Assessment (URICA) Psychotherapy version

Nutrition:
1. Diet History Questionnaire

Gut microbiome:
1. Faecal sample

Anthropometry:
1. Arm, calf, hip and waist circumference
2. Body composition

Physical:
1. Senior fitness test
2. Exercise Self-Efficacy Scale (ESES)
3. Maximum oxygen uptake (VO_{2max}).
4. WHO Disability Assessment Schedule (WHODAS)

Cognition:
1. Modified Neuropsychological Tests Battery (mNTB)

Brain Activation:
1. functional Magnetic Resonance Imaging (fMRI)

Vascular health:
1. Biochemical analysis- 30ml blood

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METHODOLOGY

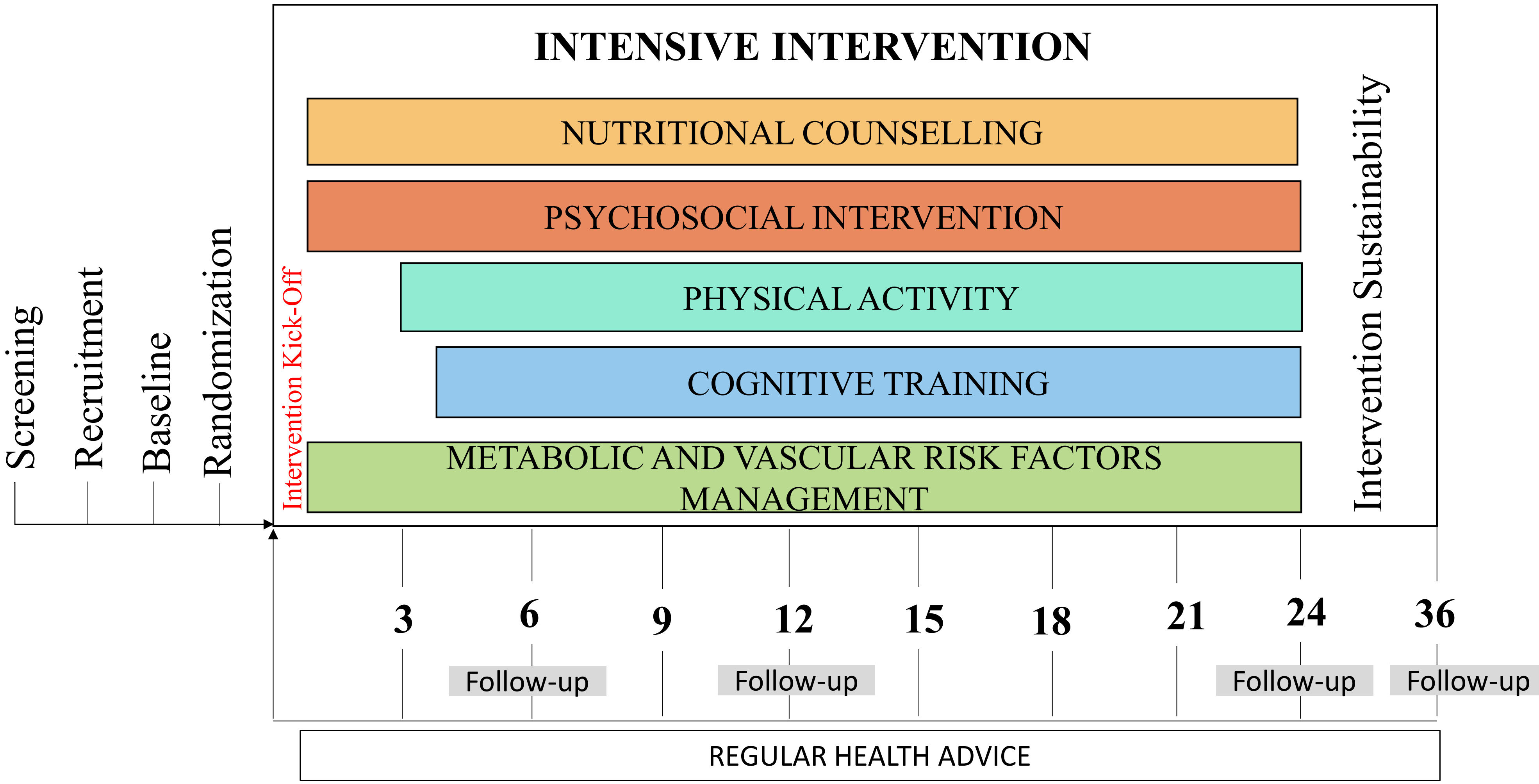
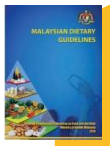


Figure 3: AGELESS Trials Protocol adapted and modified from Kivipelto et al (2013)

METHODOLOGY NUTRITION INTERVENTION MODULE



Based on:
Malaysian Dietary Guideline 2010
Recommended Nutrient Intake 2017

Consists of:
- Individual sessions (3 sessions)
- Group nutritional counseling (9 sessions)

Delivery Methods:
- Interactive/online games
- Video Presentation
- Gardening
- Cooking Demonstration

TIMELINE AND CONTENT

1 Know Your Needs

3 Strength Your Muscle

5 Evaluations of Recommendations

7 I Can Handle Myself

9 Evaluation of Recommendations

11 Choose Your Food Wisely

2 Malaysian Healthy Plate &Traffic Light DIY

4 Feed Your Brain

6 Eat and Digest

8 Keep It Safe

10 Make Your Own DIY

12 Read Smart Shop Smart

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Psychosocial Intervention

- AIM
- PSYCHOSOCIAL PARAMETER
- ACTIVITY
- SESSION
- INTERVENTION
- EXPECTATION

01 Promote new healthy behavior and increase adherence to the intervention

02 Depression, loneliness, coping skills, social support, resilience, self-efficacy, social participation

03 Talks, interactive activity, visit, gift-giving, problem solving therapy

04 3 individual sessions
9 group sessions

05 Psychologist, counselor, Doctor, trained facilitator

06 Improvement of cognitive function and psychosocial parameters

Mahathir Mohamad: World's oldest prime minister

His victory in elections marks return of nation's hero

Oldest Prime Minister records as Mahathir bin Mohamad becomes Malaysia's leader aged 92

Mahathir bin Mohamad has returned as Malaysia's Prime Minister aged 92 - Guinness World Records looks at some other veteran world leaders

BY DAVID STUBBINGS
May 12, 2019

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Exercise Intervention Module

EXERCISE
INTERVENTION

1. **AEROBIC EXERCISE**
   -Based on maximum oxygen uptake (VO2 max)
2. **RESISTANCE TRAINING**
   -Based on repetition maximum (RM) measurements
3. **BALANCE & COORDINATION**
   -Progressive
4. **FLEXIBILITY**

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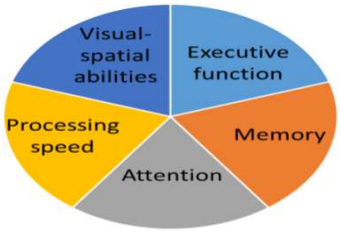
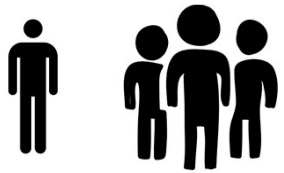
COGNITIVE INTERVENTION MODULE

1. Addressing cognitive domains



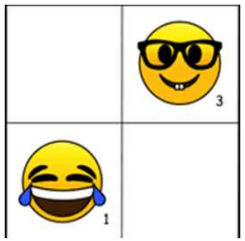
2. Individual and group sessions



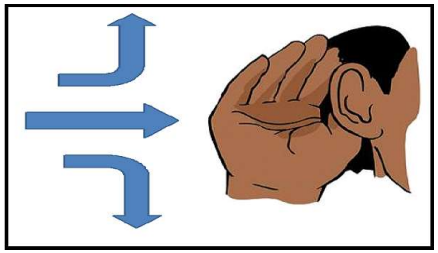
3. 3 times a week over a period of 20 months

4.

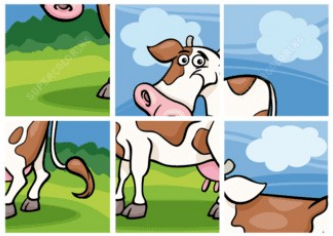
‘smiley-ku’



‘pasar malam effect’



‘jiggle the jigsaw’



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Metabolic and Vascular Risk Factors Management

MEDICATION

Medication adherence assessment and Review (if necessary)

WEIGHT LOSS

To promote ideal weight, Body Mass Index (BMI) < 23kg/m2 or at least 5-10% reduction in body weight over 1-2years

Smoking

To encourage smoking cessation

WESIHAT 2.0

Ten lifestyle-based memory enhancing guides

Web-based Health Education to Reduce Risk of Cognitive Impairment among Malaysian Older Adults

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AGELESS Trial Timeline: Challenges During Covid 19 Pandemic

GRANT APPROVAL

Ministry of Higher Education in Malaysia

January 2020

First wave

FUND RECEIVED

Procument of equipment

March 2020

Second wave

POSTGRADUATE INTAKE

5 Postgraduate students

October 2020

ETHICS APPROVAL

AGELESS Trials ethical approval from Research Committee of UKM

November 2020

Third wave

MODULE HARMONISATION

- Finalizing Multidomain intervention module Recruitment and screening to begin in January 2021

December 2020

LOCKDOWN

Lockdown announcement by the government. Recruitment and screening conducted via phone calls.
Physical sessions postponed to **April/ May 2021.**

January 2021

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1st December 2020- Launch of AGELESS Trial

RESULTS

Preliminary findings (n=19)

1. Sociodemographic Profile

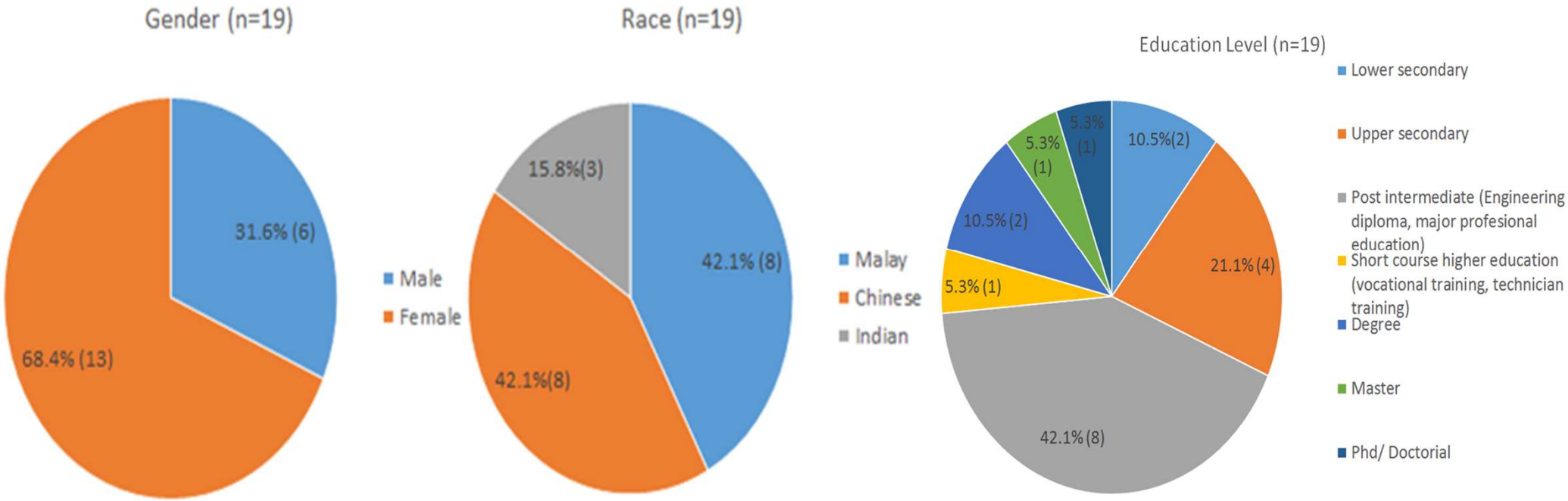

Figure 4: Sociodemographic details of participants

2. Medical Profile of Participants

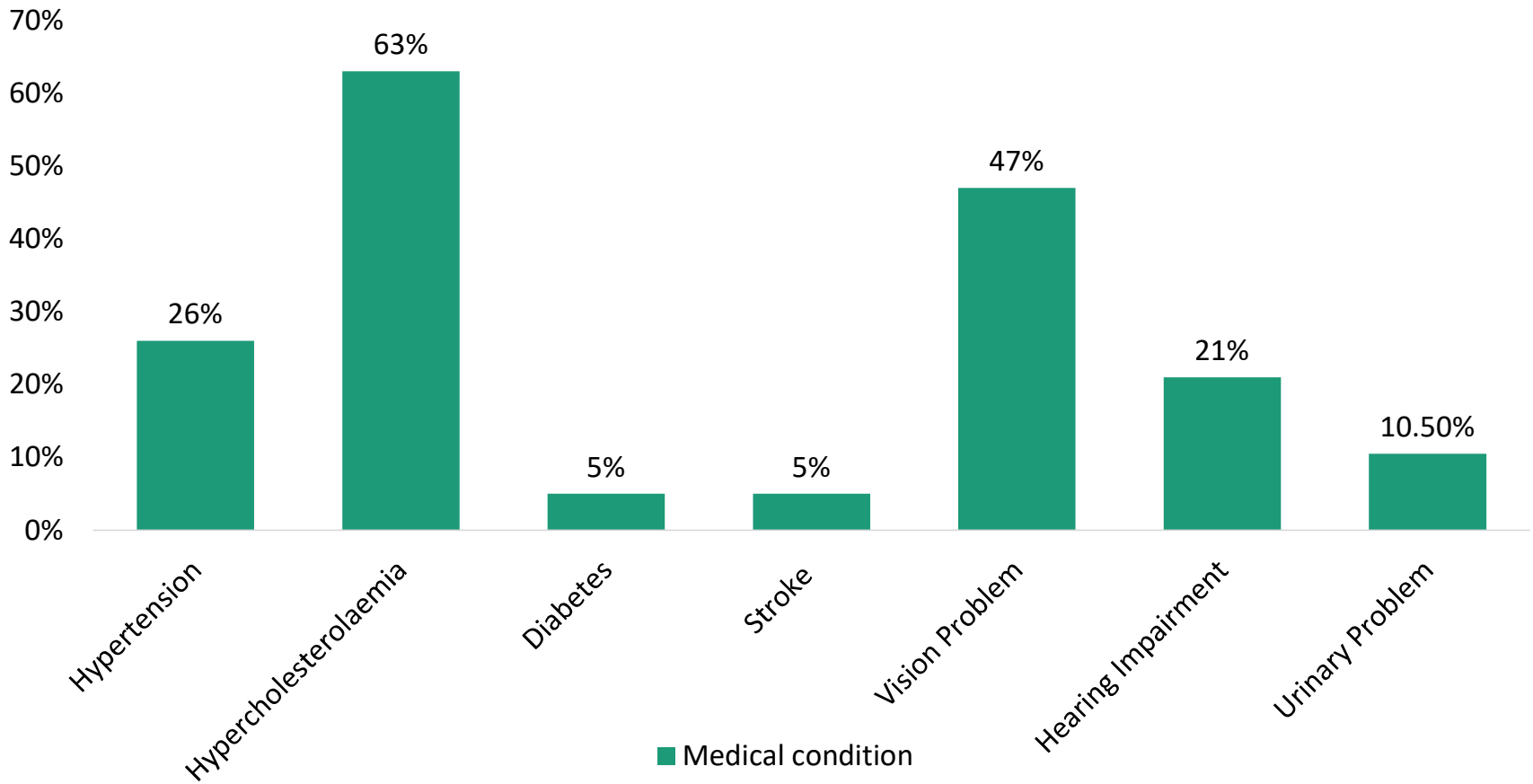

Figure 5: Medical profile of participants

3. Health Risk Factor & ICT Literacy

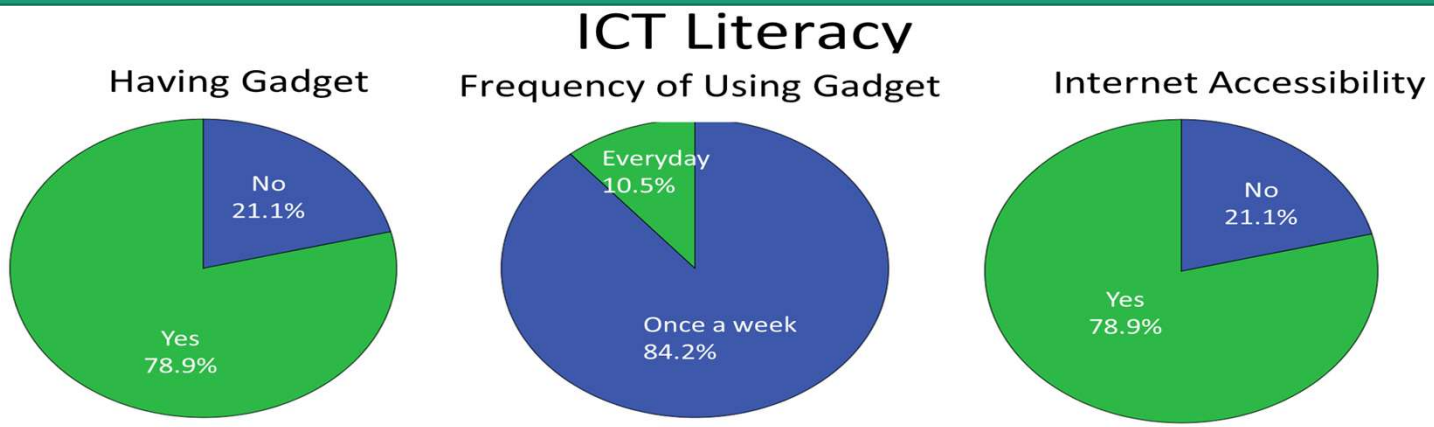

Figure 6: Information and Communications Technology (ICT) Literacy of Participants

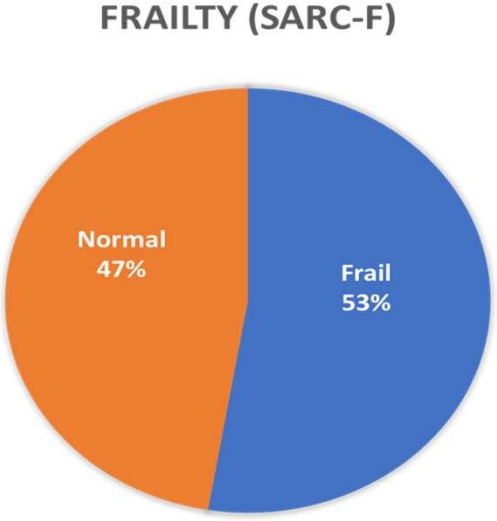

Figure 7: Frailty status of participants

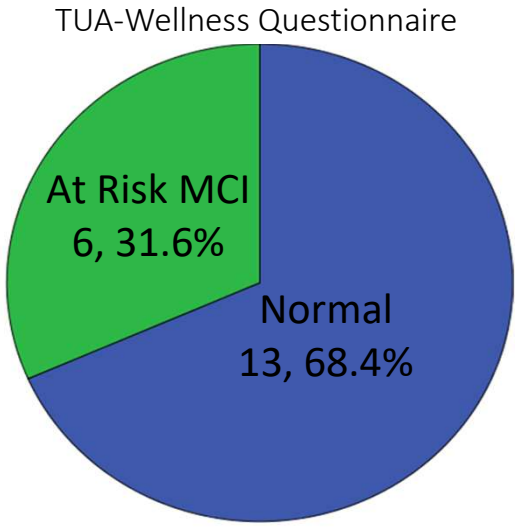

Figure 8 : Cognitive status of participants

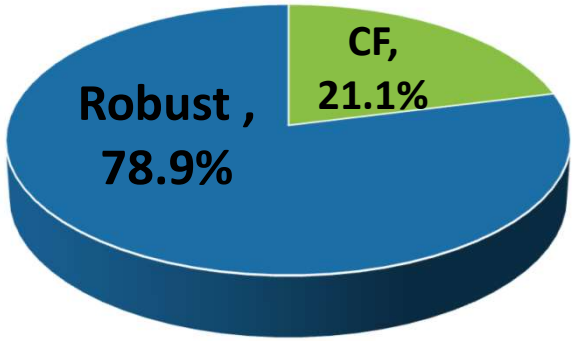

Figure 9: Cognitive frailty status of participants

RECRUITMENT FLYER !!

IMPACT OF THE STUDY

1. Potential reversibility of cognitive frailty

2. In line with 'Sustainable Development Goals': Ensure healthy lives and promote well-being for all at all ages

3. In line with World Health Organization (WHO) Global action for risk reduction of cognitive decline and dementia

4. Forefront of local efforts to develop effective and sustainable preventive interventions for the Malaysia population and countries with similar cultural and geographical settings

5. Consolidated in an ICT application: potential to be up scaled as a nationwide programme, in particular during this Covid-19 pandemic.

6. Cost effective geriatric rehabilitation approach

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Our Research Team

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LIST OF RESEARCHERS LRGS AGELESS TRIAL

No	Nama	Expertise
1	Prof. Dr. Suzana Shahar	Geriatric Nutrition and Epidemiology
2	Prof. Dr. Shahrul Azman Mohd Noah	Information Retrieval & Search Engine, Knowledge Representation, Ontology, Semantic, Database
3	Prof. Dr. Chin Ai Vyrn	Geriatric Medicine, Dementia, Stroke, Falls, Frailty
4	Assoc. Prof. Dr. Devinder Kaur Ajit Singh	Geriatric Physiotherapy, Analysis of Function, Spine and Aging, Community based Physiotherapy, Rehabilitation and emerging technology , Health promotion
5	Assoc. Prof. Dr. Nazlena Mohamad Ali	User Interaction and Evaluation, Persuasive Design, Digital Games, Human Computer Interaction
6	Assoc. Prof. Dr. Norhayati Ibrahim	Quality of life for chronic illness, Suicide behavior, coping and counseling
7	Dr. Arimi Fitri Mat Ludin	Exercise Physiology, Physical Activity Gerontology, Clinical Exercise, Epidemiology
8	Dr. Ponnusamy Subramaniam	Ageing & Dementia Studies, Geriatric Mental Health Services
9	Dr. Divya Vanoh	Sarcopenia, Geriatric Nutrition, Nutrition, Dietetics, Community and Clinical Nutrition, Geriatric Cognitive Health, Diet for bariatric surgery
10	AP Dr Hasnah Haron	Food Science
11	AP Dr Roslee Rajikan	Dietetic


Thank you!!
“Age is an issue of mind over matter. If you don't mind, it doesn't matter."
~Mark Twain

Summary in Spanish

Polls

Questions

@AlzDisInt
#ADIwebinar

World Alzheimer Report 2021 Survey

www.alzint.org/resource/world-alzheimer-report-2021/

THANK YOU.

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Visit our website: **www.alzint.org**