S3: Geriatric mental health care and training in India – A critical review of progress and future directions

Authors: Sivakumar Palanimuthu Thangaraju, MD, Krishna Prasad Muliyala, Thirumoorthy A

Population ageing is occurring rapidly in India with the proportion of older adults (aged 60 years and above) estimated to reach 20% by the year 2050 from the existing 10%. The prevalence of mental health problems in older adults is also expected to increase significantly due to population ageing. Nearly 20% of older adults have at least one mental health condition including the subsyndromal conditions. The data from National Mental Health Survey (NMHS), Longitudinal Ageing Study of India (LASI) and the recent LASI-Diagnostic Assessment of Dementia have estimated the national prevalence of Psychiatric disorders like depression and dementia. 30.2% of older adults have significant depressive symptoms and 8.3% have major depressive disorder. The prevalence of dementia is estimated as 7.4% with an estimate of 8.8 million persons with dementia in 2016 and projected increase to 16.8 million in 2036.

More than 90% of older adults with mental health problems in India remain undiagnosed and untreated. Access to non-pharmacological interventions for older adults with mental health conditions as well as their caregivers are very limited. Mental health problems in older adults are often considered as normal for ageing by older adults, family caregivers as well as health care professionals. Dedicated and specialized clinical services for geriatric mental health care is not available in most of the mental health care institutions.

This symposium will present a critical review of the progress in geriatric mental health care services across India by summarizing the initiatives to promote geriatric mental health care and training. The need for comprehensive psychosocial care and psychiatric rehabilitation along with the acute geriatric mental health care will be addressed by experts involved in geriatric mental health care and training.

The symposium will have the following presentations.

1. Geriatric mental health care in India- scope, challenges and innovative initiatives: Prof. Sivakumar Palanimuthu Thangaraju, Professor of Psychiatry & Head, Geriatric Psychiatry Unit, Department of Psychiatry, National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India
2. A review of the initiatives for the training to promote the workforce for geriatric mental health care in India: Prof. Krishna Prasad Muliyala, Professor of Psychiatry & Head, Psychiatric Rehabilitation Services, Department of Psychiatry, National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India
3. Psychosocial interventions for geriatric mental health care- Scope and challenges: Prof. Thirumoorthy A, Professor & Former Head, Department of Psychiatric Social Work, National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India

S4: The LatAm-FINGERS Initiative: The First Non-Pharmacological Randomized Controlled Trial to Prevent Cognitive Decline Across Latin America

Authors: Gustavo E. Sevlever, Lucía Crivelli, Rosa Maria Salinas, Ana Charamelo, Carolina Delgado

Overview: Gustavo E. Sevlever

Approximately 40% of global dementia cases in high-income countries are attributed to potentially modifiable risk factors, whereas in Latin America, this figure rises to 56%. This difference underscores the importance of initiating

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preventive trials in the region. LatAm- FINGERS is the first non-pharmacological multicenter randomized clinical trial in Latin America, involving 12 countries: Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Ecuador, Mexico, Puerto Rico, the Dominican Republic, and Uruguay. The trial aims to prevent cognitive impairment through a multidomain lifestyle intervention. It evaluates the feasibility and efficacy of these interventions in enhancing cognitive function among 1,200 participants over two years. The lifestyle intervention, modeled after the Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER), encompasses nutrition, physical exercise, cardiovascular risk factor management, cognitive training, and socialization. Harmonization processes have ensured consistency with FINGER and the U.S. Study to Protect Brain Health through Lifestyle Intervention to Reduce Risk (U.S. POINTER) across Latin America. Since recruitment commenced in December 2021, 1,867 participants have been screened, with 1,186 enrolled. The cohort is predominantly female (73.8%), with an average age of 67.41 years, representing diverse ethnic backgrounds. LatAm-FINGERS has established the largest dataset on dementia risk in the region, evolving into a comprehensive database for cognitive, imaging, biomarker, and genetic research. It aims to promote collaborative efforts in dementia prevention across Latin America.

In this session, we will provide an overview of the trial's Objectives and outcomes, the basis for the multidomain interventions, and describe the recruitment and adherence strategies implemented. We will conclude with results regarding the association of cardiovascular risk factors with social determinants of health.

ABSTRACT 1: Lucía Crivelli

LatAm-FINGERS: Establishing Eligibility and Outcomes for Effective Research Across Latin America

Objectives: LatAm-FINGERS is the first non-pharmacological, multicenter randomized clinical trial in Latin America, involving 12 countries and aiming to prevent cognitive impairment. The trial's primary Objectives is to assess the feasibility and efficacy of a multidomain lifestyle intervention in improving cognitive function among 1,200 participants over two years. Additionally, this study aims to evaluate the validity properties of cognitive outcomes within the LatAm-FINGERS cohort.

Methods: To ensure consistency, the study employed harmonization processes with the original FINGER trial and the U.S. POINTER trial as part of the Worldwide FINGERS initiative. Eligibility criteria were standardized using normative z-scores. The Latin American Neuropsychological Battery (LatAm-NTB) was developed, including tests such as the Free and Cued Selective Reminding Test, Logical Memory, Digit Span, Stroop Test, Concept Shifting Test, Trail Making Test, Symbol Digit Modalities Test, and semantic and phonological fluency. A multivariate regression model was used to evaluate the validity of the LatAm-NTB.

Results: Since recruitment began in December 2021, 1,186 participants have been enrolled. The mean age is 67.41 years (SD = 4.65), with an average educational level of 12.9 years (SD = 3.7) and an average Mini-Mental State Examination (MMSE) score of 27.2 (SD = 2.17). Women comprise 73.8% of the cohort. A multivariate regression model, which included sociodemographic variables, non-modifiable risk factors, and cardiovascular risk, was constructed to explain cognitive performance. This model demonstrated better fit parameters (BIC: 734.649, AIC: 793.661) compared to the reduced model (BIC: 1041.591, AIC: 1051.426). Higher education ($\beta = 0.04$, SE = 0.003, $p < .001$), younger age ($\beta = -0.01$, SE = 0.002, $p < .001$), and a lower Framingham Risk Score ($\beta = -0.01$, SE = 0.003, $p < .001$) were associated with better cognitive performance. Being male was not significantly associated with cognitive outcomes ($\beta = -0.01$, SE = 0.02, $p = 0.57$).

Conclusions: Eligibility criteria were adequate to select the targeted population. The results suggest that the LatAm-NTB has promising validity indicators for assessing cognition in a follow- up clinical trial in Latin America.

ABSTRACT 2: Ana Charamelo

Design and Harmonization of Interventions, barriers, and challenges

Background: The Objectives of this analysis is to show how an intervention in Latin American lifestyles to prevent cognitive deterioration was initiated, its design, and what harmonization strategies were used, taking into account the multiculturalism of this population, constituted by 12 countries throughout the continent. It is the first randomized, multicenter, non- pharmacological clinical trial conducted on this continent.

Methods: The design of the Interventions includes (1) physical activity, (2) nutrition, (3) cognitive stimulation, (4) control of cardiovascular factors, and (5) socialization. The feasibility of the intervention in Latin America and its effectiveness, especially in the cognitive variables, were considered. An external harmonization of them was carried out with those used in the Fingers study (Finland), and Pointers (USA). In turn, an internal harmonization between the 12 participating countries was made to ensure viability. The work was carried out in groups in each of the domains, composed of representatives from each of the 12 countries and members of the Scientific Committee, and was approved by the Steering Committee. The barriers and challenges are evaluated, affording different cultures and diverse eating habits. A barrier was the intensity of the physical intervention (that became a real challenge) and the different eating habits. In the last case, the LatAm-Mind diet was created after a multicultural work without moving away from the Mind and Mediterranean. In the accessibility to the technological devices to use the Brain H Q, which was the cognitive stimulation platform used, there were countries where access to a computer device or the Internet was normalized. In some countries, the exercises had to be applied in paper and pencil format. A high rate of metabolic syndrome was found (39%).

Conclusions: The study is feasible, comparable and agreed upon in the 12 countries, considering their ethnic diversity (56% are mestizo), geographical differences, eating habits, access to the internet, and digital technology. LatAm-FINGERS met the challenge to combine the diversity of the region into a multi-domain risk reduction intervention feasible across Latin America while retaining the original design of FINGERS.

ABSTRACT 3 - Rosa Maria Salinas

Recruitment Strategies in the LatAm FINGERS Trial: a multicultural effort to prevent dementia across Latin America.

Background: LatAm-Fingers is the first non-pharmacological multicenter randomized clinical trial to prevent cognitive impairment in Latin America (LA). The trial congregates the efforts of 12 Countries, including Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Peru, Puerto Rico, and Uruguay. The main aim is to investigate the feasibility of a 24- month multi-domain lifestyle intervention and its efficacy on the cognition of 1200 participants.

Methods: Recruitment strategies differed across countries and regions because they were adapted to the idiosyncrasies of the local populations. Recruitment from medical center databases was found insufficient to provide a diverse cohort. Alternative strategies included social media posts with infographics and videos. A novel and successful strategy was in-person talks for older adults in local city halls and local nongovernmental organizations. The use of positive colloquial language was found to be much more effective in reaching underserved populations than scientific language (e.g., focusing on brain health vs. clinical trials). A significant recruitment source in Peru, Bolivia, and Ecuador low-income regions was the promotion within non-Catholic religious organizations. Appealing to the religious leaders' endorsement was crucial for generating trust and

interest in different communities. In Mexico, one successful recruitment strategy involved performing physical exercises in local parks in low- income neighborhoods to demonstrate the intervention in-vivo, which attracted interested people from the area. Overall, in-person contact with participants and time dedicated to explaining the trial's rationale in lay language was the most important strategy.

Results: We enrolled 1,186 participants in the study. The mean (SD) age is 67.41 (4.9) years, 73.8 % are female, 43.7% of participants have more than 16 years of schooling , and the MMSE score is 27.2 (2.2). To date, 51% of the population self-reports as mestizo (mixed race), and 31% as Caucasian. Other ethnicities represented include Native American (1.5%), Mulato (4%), Black (2%), and other (6%).

Conclusions: The LatAm-FINGERS trial recruited participants from a wide range of diverse populations. Our results support the decisive role of tailored and idiosyncratic strategies in reaching different communities and ensuring the representativeness of the study sample.

ABSTRACT 4 - Carolina Delgado

Cardiovascular health is associated with social determinants of health in the LatAm-FINGERS cohort

Background: Cardiovascular risk factors (CVRF) are among the main modifiable risk factors for dementia in Latin America (LA). Therefore, improving cardiovascular health (CVH) is one of the main Objectives of the LatAm-FINGERS trial, the largest non-pharmacological (lifestyle improvement) randomized trial in LA. But, to fully comprehend CVH it is necessary to explore its relation with the social determinants of health (SDH), that are closely associated with lifestyle.

Methods: LatAm-FINGERS is an initiative to develop a joint regional intervention protocol to prevent cognitive deterioration in 12 LA countries. Participants (between 60-77 years old) should have high dementia risk (CAIDE > 6), were evaluated clinically and cognitively at baseline and every 6 months for 2 years. At baseline, we measured the CVRF according to the Framingham risk score and the CVH with the "Life's Essential 8 cardiovascular health index" (CVHI), a composed score that includes lifestyle's (diet, physical activity, nicotine exposure, sleep health) and metabolic variables (body mass index (BMI), blood lipids, blood glucose, and blood pressure). Each score ranges from 0 to 100, with higher values meaning a healthier profile. SDH was measured by years of education, race, and occupation. Occupation categorical data was transformed into an ordinal scale using the Hollingshead score. For an exploratory analysis we did partial correlations (controlled by age and sex) between CVHI and SDH measures.

Results: Preliminary data from 1,024 participants were analyzed, age = 67 ± 5 years, education = 13 ± 4 years, 72% women, 87% had high CVRF. The CVHI (60 ± 16) was obtained with 7 of the 8 variables, excluding sleep health. Diet (39 ± 13) and physical activity (37 ± 39) were the unhealthiest scores, while blood glucose (75 ± 26) was the healthiest one. There were significant correlations between CVHI with years of education ($r = 0.179$, $p < 0.001$) and occupation score ($r = 0.169$, $p < 0.001$). Moreover, CVH individual components correlated with SDH, except for blood lipids.

Conclusions: In the LatAm-FINGERS cohort, better socioeconomic position is associated with a healthier cardiovascular index at baseline, being important to explore the role of SDH in CVH modification across the trial.