BRAIN AGEING AND DEMENTIA IN LMICS 2024

GLOBAL EPIDEMIOLOGY, GENETICS, RISK FACTORS, BIOMARKERS, DEMENTIA CARE, POLICY

Programme & Abstract Book

3rd-6th December, 2024

Safari Park Hotel, Nairobi, Kenya

Registration
Email: advascular@ncl.ac.uk
Website: https://conferences.ncl.ac.uk/advascular/

Brain Ageing and Dementia in LMICs 2024

"Brain Ageing and Dementia in LMICs"
Symposium, 3rd - 6th December 2024
Safari Park Hotel, Nairobi, Kenya; Tel: (+254-20) 3633000
Email: advascular@ncl.ac.uk
Website: https://conferences.ncl.ac.uk/advascular/

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BRAIN AND MIND INSTITUTE

GLOBAL BRAIN HEALTH INSTITUTE

AfDC African Dementia Consortium

Newcastle University

UNIVERSITY OF NAIROBI

Brain Ageing and Dementia in LMICs 2024

Welcome!

Karibuni!

Dear Colleagues and Friends,

*We welcome you to this year's stimulating symposium on "**Dementia in Low and Middle Income Countries (LMICs) 2024**". We host this major symposium in Kenya for the sixth time! A symposium of its own kind at the African Paradise – the Safari Park Hotel since 2001. In recent years, numerous advances in the epidemiology and understanding of dementia have come forth. It is now time to review the progress and consider recent advances!*

The distinctive three-day conference will include presentations from established and early career researchers (ECRs) on important issues related to dementia and brain health including modifiable risk factors, movement disorders, Down Syndrome, HIV, genetics, biomarkers, cognitive testing and diagnosis, and dementia care and policy in LMICs.

The programme has engaged speakers from The Americas, Europe, Asia and Africa who have wide experience in dementia research as well as bearing first hand knowledge of stroke, aphasia and dementia. The expertise of the speakers and ECRs should deliver a high quality meeting and their contributions and outputs for the symposium will be invaluable.

The symposium is made possible by grants from the Alzheimer's Association (USA) and the International Brain Research Organization (IBRO), with support in kind from Newcastle University, University of Texas Rio Grande Valley (UTRGV), University of Nairobi, University of Miami, Brain Mind Institute-Aga Khan University, and the Global Brain Health Institute (GBHI).

We take this opportunity to offer our sincere appreciation to several organisations for their backing without which the symposium would not have been possible. We are indebted to numerous colleagues who have spent much effort to making this pace-setting symposium a great success.

This symposium is co-ordinated by the African Dementia Consortium (AfDC) and constitutes educational and training activities of the Alzheimer's Association's ISTAART, IBRO, Aphasia, Dementia and Cognitive Disorders (ADCD) Speciality Group of the World Federation of Neurology (WFN) and African Institue of Mental and Brain Health Research (AFRIMEB).

On behalf of the Symposium Convenors, Sponsors and Chairs
Gladys Maestre (USA-Venezuela)
Raj Kalaria (UK-Kenya)

USEFUL INFORMATION FOR DELEGATES

The Republic of Kenya

Country: Kenya, Republic of Kenya or Jamhuri ya Kenya lies across the equator in east-central Africa, on the coast of the Indian Ocean and has a land area of 569,250 square km. As Africa's original 'Safari Capital', Kenya still boasts some of the greatest and most varied wilderness adventures. From the great wildebeest migration in the Masai Mara to the less explored corners of Tsavo and Samburu to some of Africa's most beautiful beaches. And with the magnificent Great Rift Valley, it is one of the most spectacular countries on Earth!

City: Nairobi is the capital and largest city in Kenya and lies in the Central South of the country. In just 100 years, Nairobi has grown from a murky swamp to a booming economic capital of much of eastern and central Africa. It is a transit point for thousands of African tourists, Nairobi serves as the regional headquarters of numerous multinational companies and major aid organisations, and the global or regional headquarters of the UNEP, UN-HABITAT and UNESCO. Nairobi has one of the most pleasant climates in the world, and – in its residential suburbs at least – retains a noticeably green, pollution- free environment. The city's status as regional capital has also helped to create one of Africa's most cosmopolitan leisure spots, with some of the continent's finest hotels, restaurants, and modern and cultural entertainments.

Population: The population of close to 55,339,003 (est. in 2023) is divided into numerous ethnic groups: Kikuyu, Luhya, Luo, Kalenjin, Kamba, Kisii, Meru, other African and Asian, European, and Arab minorities. The majority of Kenyans are Christian – some 45% are Protestant and another 33% Roman Catholic – while Muslims make up about 15% of the population.

Government: In the last 18 years Kenya's government has adopted a multi-party political system, with over 25 registered political parties. There are three arms of Government: the Legislature, which enacts laws, the Executive, and the Judiciary, which acts as an arbitrator.

Languages: The official language is English, but the national spoken language is Kiswahili. There are also several other indigenous languages.

Local Time: Kenyan time is three hours ahead of the Day Light Savings Time or Greenwich Mean Time: DST + 03:00 hrs.

Visas and Destination Information

All applicants are advised to apply for Electronic Travel Authorisation prior to travel. Applications should be made at https://evisa.go.ke/evisa.html

For more information on visas, please refer to the Kenyan Department of Immigration website: www.immigration.go.ke

Money

The official currency is the Kenya shilling.
Exchange rate from 08/11/2024
1 USD = 129.05 KES. . .1000 KES = 7.75 USD
1 EUR = 138.92 KES. . .1000 KES = 7.20 EUR
1 GBP = 167.03 KES. . .1000 KES = 5.98 GBP

Banks and Exchange Bureaux: There are several banks (Barclays, Standard Chartered Banks) and exchange bureaus (Forex) at the Jomo Kenyatta International (JKI) airport, in Nairobi city, Nairobi Westlands and major cities. Money can also be cashed at several ATMs placed in foyers of major banks. The ATMs are open 24 hours. Telephone numbers can be obtained in the yellow pages or from the operator.

Climate and clothing
Kenya enjoys a tropical climate. It is hot and humid at the coast, temperate inland and very arid in the north and northeast parts of the country. The sun shines almost all year round and summer clothes are worn (see also 'Clothing'). The average annual temperature for the coastal town of Mombasa is 28-32°C maximum and 21-24°C minimum, and for the capital city, Nairobi 21-26°C maximum and 13-16°C minimum. However, it is usually cool at night and in the early morning. The rainfall is sometimes heavy and when it does rain, this often happens in the afternoons and evenings. The hottest period is from February to March and the coldest in July and August. The long rains occur from April to June and short rains from October to December. For the weather forecast click on: http://www.worldweather.org/
Early December 2024 forecast: Temp 25-26°C with some clouds.

Clothing: Visitors should not walk in towns or public areas in their swimwear. Nude bathing is not allowed. Visitors are advised to show respect to the local people, their culture and traditions. As for Safari-clothing the best is the 'onion philosophy', i.e. dress in layers. Safari clothing can be comfortable, light and loose, mainly cotton or linen. Light clothes are worn in the heat of the day and a sweater is added in the cool and sometimes chilly nights.

Communications
Mobile/Cell phones are very commonly used. Timecards with codes can be purchased at the Airport (just after Customs) or from supermarkets, shops and corner kiosks for use on the Safaricom, Safaricell and other systems. Timecards can be purchased in denominations of KShs 100, 200, 500 and 1,000. One can also purchase the SIM cards for use locally.

Telephones: International calls can be made direct or operator-assisted by dialling 0195 and 0196. Public telephones which work with coins or with phone cards are available in the major towns. Many hotels also offer a phone service, but they usually charge much more than the providers.
Country Calling Code: The international country calling code for/to Kenya is +254.

Internet: Local connection and WI-FI is available at the venue hotel.

Transportation
Transfers from JKI Airport: Speakers and delegates can be picked up at the airport if prior arrangement has been made with the Secretariat. In the event the designated driver does not meet you on arrival, please take a reputable Taxi (see below) to the Safari Park Hotel, Nairobi. It is a 30-40 minute ride from the International Airport.

As well as Kenya's major means of transport, the narrow-gauge railway, Kenya also has numerous highways, waterways, ports and airports. The main airports are Nairobi and Mombasa. Nairobi maintains strong air links with Europe and the rest of Africa, with major airlines flying from the city's JKI Airport. The major airlines such as Kenya Airways, KLM, British Airways, SN Brussels, Emirates, etc. operate more than 15 flights daily to Europe, the Middle East and Far East.

The JKI Airport is also a hub for connections to major cities in Africa. Local airlines including Kenya Airways, AirKenya and Safari Link fly to the major capitals in Eastern and Southern Africa and the main national parks.

All public transport within Nairobi is by public bus (Kenya Bus, City Hoppa) or large minibuses (Metro Shuttles). JKI Airport +254 2 822111; Wilson Airport +254 2 501943

Taxis: Taxi cabs are available at all times of the day and night and are just a phone call away. Most of the taxi cabs can be seen parked outside hotels, restaurants, at the airport and in the city centre. If you decide to take a taxi, it is important to agree the fare before setting off as rates vary widely. Some taxi companies are Pewin cabs - www.pewin.co.ke Tel: +254 716 623919 JATCO - www.jatcotaxis.com +254 2 444 6096 or +254 722 648383. From the Airport take yellow cabs. Cost is approx. $30 to the Safari Park Hotel.

Emergency Numbers
Nairobi Hospital - +254 722 204 117; Kenyatta National Hospital- +254 722 829 500; St. John Ambulance- +254 224066; Police – 999; Fire - 999

Vaccination
It is important that you contact your local doctor regarding the recommended vaccinations and malaria risk assessment before you travel to Kenya.

Photography
Photo/image, film/video, screen capture, audio, or other recording in any medium of any of the programs, talks or data/posters/slides is prohibited, unless the presenting author grants explicit permission or there is demonstrated prior consent. Sharing your experience on social media is encouraged - however, please make sure to obtain an individual's permission prior to taking or posting a photo. Sharing images on social media that contain discernible research data (i.e. image of a poster or slide) is prohibited, unless explicit verbal or written permission is granted by the presenter of that research.

Useful Links
Kenya Tourist Board: www.magicalkenya.com; About Kenya**:** www.wikitravel.org/en/Kenya; About Nairobi**:** http://www.kenya.rcbowen.com/cities/nairobi.html; Government of Kenya: www.kenya.go.ke

SYMPOSIUM Venue: Safari Park Hotel
Safari Park Hotel & Casino, Nairobi is located on Thika road. 15 minutes from the city centre and 30-40 minutes from JKI Airport. A Five Star Deluxe of two storey buildings beautifully spread over 64 acres of landscaped gardens.
P.O. Box 45038, Nairobi 00100, Kenya
Tel: 254-020-3633000, 3633137
Fax: 254-020-3633919, 8561584
Email: sales@safariparkhotel.co.ke
Website: http://www.safaripark-hotel.com

Dropping Zone: Revlon Professional Plaza, 2nd floor, P.O. Box 7543 Nairobi 00300
Tel: 254-020-211474/5; Fax: 254-020-211476

OTHER ACCOMODATION (close to Venue Hotel)
Windsor Golf Hotel & Country Club:
Windsor Hotel is a Kenyan 5-star hotel resort with a cluster of impressive Victorian style buildings. Their greatest asset is space and an awesome ambience.
Kigwa Road, off Kiambu Road, along the Northern Bypass
P. O. Box 45587 – 00100
Nairobi, Kenya
Phone: +254 20 8647003/4
Mobile: +254 722 203 361/2/3/4, +254 733 333 217/8
Fax: +254 20 233 8093/6
E-mail: reservations@windsor.co.ke
Website: www.windsorgolfresort.com

ICIPE Guest Centre:
The Guest House is a 3-star accommodation facility, which may be booked directly. Single Room costs $80 per person with breakfast. ICIPE is situated opposite the Safari Park Hotel. A short taxi ride across the highway is the best way to get to the venue. If walking across, take extra care over the busy roads.

International Centre for Insect Physiology and Ecology (ICIPE)
Duduville, Kasarani
P.O. Box 30772-00100
Nairobi, Kenya
Tel: +254 (20) 8632000

Fax: +254 (20) 8632001/8632002
E-mail: icipe@icipe.org
Website: http://www.icipe.org

Electricity
The electrical supply in Kenya is the same as in Europe: 220-240 volts at 50 cycles, mostly using 13-amp three-pin square sockets.

Tipping
Usually 10% at hotels and about 100-200 KShs to doorman, waiter, taxi driver, etc.

Information on Safaris for Delegates
There is a range of prices for mid-range tented camps: 271 Private Masai Mara Safari Tours (Offered by 46 Tour Operators) (safaribookings.com) but it is advisable you book with the Kenyan operator directly (more reasonable) rather than any US or European provider. In the past, our delegates have been 'out in bush' so to speak for 2-3 nights, which means essentially you need 3-4 full days, respectively and the pick-up and drop off are from the hotel (conference venue).
Safaris – Magical Skies [Quotes being sent, estimate USD 800-1000 pp for 2 nights to Maasai Mara]
BOSCO DREAM TOURS, Nairobi (254721208892) (vymaps.com) [see quotes attached for Maasai Mara - these are quite reasonable for 4 and 5 star tented camps in Maasai Mara]
Both operators above can take you to Maasai Mara. You may need to determine to stay 2 or 3 nights but depending on how much time you have; 2 nights would be sufficient with 4 drives. Also note it is a long (~5 hr max) dusty ride via the spectacular even iconic Rift Valley… driver/guides are flexible (personalise) to take you on more or fewer drives and to a Maasai village if they do not have to await other clients in the group.

Nairobi and Environs: Day visits can be made in Nairobi suburbs e.g. Giraffe Centre, Karen Blixen House, Nairobi National Park, Animal Orphanage, etc.

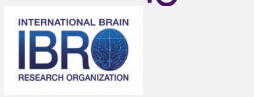
Please contact Ms Eva Lee at the Symposium Secretariat on site.

Security
It is important to be aware of your surroundings, ensure your own personal safety and never to leave valuables (briefcases, laptops, electronic equipment) unattended.

KEY
(LOCATION)

- BIRD WATCHING
- FIRE ASSEMBLY POINT

① MAIN RECEPTION/LOBBY CAFE/LOBBY SHOP
② SHOPPING VILLAGE
③ KING SOLOMON'S MINE SLOT MACHINES
④ LA PIAZETTA
⑤ PALM GARDEN
⑥ CATS CLUB / PIANO BAR
⑦ PAVILION BALLROOM
⑧ WINNERS PAVILION
⑨ CHIYO RESTAURANT
⑩ TENNIS COURTS
⑪ SQUASH COURT
⑫ HEALTH CLUB
⑬ BOGORIA
⑭ BUSINESS CENTER
⑮ JAMBO CONFERENCE CENTER
⑯ HEMMINGWAYS
⑰ MOUNT ELGON
⑱ MOUNT KENYA (A,B,C,D)
⑲ BARINGO ROOM
⑳ KUMBAYA HALL
㉑ PARADISE A
㉒ PARADISE B
㉓ APARTMENTS
㉔ JOGGING TRACK

Programme At-A-Glance	Monday 02 Dec, 2024	Tuesday 03 Dec, 2024	Wednesday 04 Dec, 2024	Thursday 05 Dec, 2024	Friday 06 Dec, 2024
"2024 SYMPOSIUM ON "BRAIN AGEING AND DEMENTIA IN LMICs"	***Pre-Symposium Meetings***	***AfDC and READD-ADSP Sessions***	***Global Burden, Biomarkers and Treatment***	***Dementia Types, Prevention and Care***	***Genes and Dementia***
3rd-6th DECEMBER 2024, Venue: Safari Park Hotel, NAIROBI, KENYA	***8.00 – 10.50*** *(by invitation only)* Pre-Symposium Meeting*	***8.00 – 10.50*** *(by invitation only)* **READD-ADSP Session I**	***9.00 – 10.30*** **II. Global Burden of Dementia and Risk**	***9.00 – 10.30*** **VI. Non-AD Neurodegenerative Dementias**	***9.00 – 10.30*** **X. Modifiable Risk Factors: Prevention**
	Coffee Break 10.50 – 11.15	**Coffee Break 10.50 – 11.15**	**Coffee Break 10.30 – 11.00**	**Coffee Break 10.30 – 11.00**	**Coffee Break 10.30 – 11.00**
(Sponsors/Partners):      	***11.15 – 13.00*** *(by invitation only)* Pre-Symposium Meeting*	***11.15 – 13.00*** *(by invitation only)* **READD-ADSP Session II**	***11.00 – 13.00*** **III. Vascular and Emerging Factors in Dementia Poster Blitz Session I**	***11.00 – 13.00*** **VII. Aphasia and Dementia Assessment (WFN ADCD) Session Poster Blitz Session II**	***11.00 – 12.30*** **XI. Genetic Factors** ***12.30 – 14.00*** **Poster Bltz Session IV XII. ECRs - Dementia Projects in LMICs Poster Blitz Session IV** **CLOSE/ADJOURN**
	Lunch 13.00 – 14.00	**Lunch 13.00 – 14.00**	**Lunch 13.00 – 14.00**	**Lunch 13.00 – 14.00**	**Lunch 14.00 – 15.00**
	14.00 – 16.00 *(by invitation only)* Pre-Symposium Meeting*	***14.00 – 15.00*** *(by invitation only)* **READD-ADSP Session III** ***15.00 – 16.00*** **AfDC General Assembly – All Welcome**	***14.00 – 16.10*** **IV. Biomarkers and Biobanking in Dementia VI. Trials in Dementia** ***16.40 – 18.40*** **Vii. Trials in LMICs: FINGERS AFRICA Launch**	***14.00 – 15.30*** **VIII. Expanding research in Down syndrome and Dementia in LMICs**	***15.00 – 16.15**** **COSMIC Meeting** **HIV, Brain Health and Policy NU Workshop I**
	Tea Break 16.00 – 16.30	**Tea Break 16.00 – 16.30**	**Tea Break 16.10 – 16.40**	**Tea Break 15.30 – 16.00**	**Tea Break 16.15 – 16.30**
Hosted by AfDC, NU, UoN, AA, IBRO, ADCD-WFN Group ***Email:*** ***advascular@ncl.ac.uk*** ***Website:*** ***https://conferences.ncl.ac.uk/advascular/***	***16.30 – 17.15*** *(by invitation only)* Pre-Symposium Meeting*	***16.30 – 18.30*** **I. Opening Welcome Session: PA & Dementia Reps: AA, UoN, ADCD, BMI (AKU)**	***16.40-18.40*** **V. Trials in LMICs: AFRICA-FINGERS Launch** *Chair: Chi Udeh-Momoh and Zul Merali*	***16.00 – 18.30*** **Poster Blitz Session III IX. Dementia Care, Policy and Engagement Capacity Building Special Session**	***16.30 – 17.30**** **HIV, Brain Health and Policy NU Workshop II**
Hotel & Venue Website: ***http://www.safaripark-hotel.com/?page=home***	***Ambulatory Research in Cognition – Down Syndrome in African Countries**	**18.45 – 20.45 WELCOME DINNER - POOLSIDE SPH**	**18.45 –21.00 WWFINGERS Drinks Reception and Speakers Dinner (*By Invitation Only*)**	**20.00 – 22.30 SYMPOSIUM DINNER - NYAMA CHOMA RANCH, SAFARI PARK HOTEL**	***15.00 – 17.30 Brain Health and Ageing in HIV Parallel Session and Workshop**

Dementia and Brain Ageing in LMICs 2024
Final Scientific Programme

3-6 December, 2024
Nairobi, Kenya
All times are in East Africa Time (EAT)

Venue: The Pavilion (unless specified), Safari Park Hotel

Monday, 02 December

8:00 h – 17.15 h **Ambulatory Research in Cognition – Down Syndrome in African Countries: Kick-off Meeting** *(Pre-Symosium Meeting by invitation only)*

- Welcome and Introductions…

Tuesday, 03 December

8:00 h – 10:50 h **READD-ADSP Session I** *(by invitation only)*

- Welcome and Introductions – Dr. Rufus Akinyemi
- DAWN Update – Dr. Margaret Pericak-Vance and Dr. Anthony Griswold
- READD-ADSP site updates (5 minutes each)
  - Established sites
    - **USA**: (Margaret Pericak Vance)
      - **Miami** (Margaret Pericak Vance)
      - **Case** (Jonathan Haines)
      - **Wake** (Goldie Byrd)
      - **Columbia African ancestry** (Christianne Reitz)
      - **Columbia Hispanic** (Giuseppe Tosto)
    - **Ethiopia:** (Yared Zenebe))
    - **Ghana, Accra** (Ruth Laryea)
    - **Ghana, Kumasi** (Shadrack Ossei Asibey)
    - **Kenya:** (Christine Musyimi i
    - **Tanzania:** (Judith Boshe)
    - **Uganda:** (Kamada Lwere)
    - **Mozambique:** (Deise Haua Da Silva)

- **Cameroon** (Yembe Njamnshi)
- **Nigeria:**
  - **Ibadan** (Fisayo Elugbadebo)
  - **Lagos** (Njideka Okubadejo)
  - **Zaria** (Reginald Obiako)
- **DRC:** (Jean Ikanga)

- Introduction to new sites
  - **Tunisia** (Riadh Gouider)
  - **South Africa** (Dana Niehaus)

10:50 h – 11:15 h ***Coffee Break***

11:15 h – 13:00 h **READD-ADSP Session II** *(by invitation only)*

- Guest Speaker: Dr. Eden Martin: GWAS Studies of AD Age-at-Onset (AAO) in US individuals of African Ancestry
- Overview of Community Engagement : Outreach, Recruitment and Retention (ORR) Strategies
  - Community Engagement and Outreach
    - **US African ancestry:** (Goldie Byrd)
    - **Africa:** (Oyedunni Arulogun)
    - **US Hispanic:**
      - **Columbia** (Giuseppe Tosto)
      - **Miami** (Larry Adams)

- Retention Strategies Discussion (Margaret Pericak-Vance and Adesola Ogunniyi)
- Consensus Diagnosis, Adjudication and Harmonization (Jeff Vance, Stella – Maria Paddick and Pedro Mena)
- Projects 1 and 2 Analysis Update (5 min): Will Bush and Giuseppe Tosto

13:00 h – 14:00 h. ***LUNCH Break***

14:00 h – 15:00 h **READD - ADSP Africa Session III** *(by invitation only)*

- Biological Sample Management (Larry Adams, Patrice Whitehead, Kazeem Akinwande)
- DATABASE UPDATE: Brian Kunkle
- Genetics and CVD and Plasma Biomarker Updates (Anthony Griswold)
- Manuscripts in Preparation (Rufus Akinyemi and Margaret Pericak-Vance)
- General Discussion, Summary and Wrap Up (Raj Kalaria and Jonathan Haines)

15:00 h – 16:00 h **African Dementia Consortium (AfDC) General Assembly**
Chairs: Rufus Akinyemi (Nigeria), David Ndetei (Kenya), Raj Kalaria (UK-Kenya)

All Welcome!

- Brief Introductions
- AfDC Mission statement
- Projects
- General Discussion

16:00 h – 16:30 h ***Tea Break***

16:30 h – 17:30 h **I. Welcome and Opening Session**
Welcome address by convenors Gladys Maestre (UTRGV) and Raj Kalaria (UK), followed by opening remarks (~5 min each) by:
Prof Adesola Ogunniyi (AfDC),
Prof Julius Ogeng'o (University of Nairobi),
Dr Mercy Karanja (MoH Kenya Government),
Dr Claire Sexton (AA,USA),
Prof Zul Merali (BMI AKU, Kenya),
Prof Aida S-Gonzalez (WFN ADCD, UK),
Ms Elizabeth Mutunga (ADOK, Kenya),
Prof David Ndetei (AFRIMEB- local host, Kenya)
Dr Andrew Singelton & Dr Sara Bandres Ciga, Center for Alzheimer's Disease and Related Dementias (CARD), NIA, NIH, USA

17:30 h – 18:45 h **Keynote I**
Richard Brown, Dalhousie University, Canada
Unlocking The Mysteries of the Brain: The contributions of Brenda Milner

Keynote II
Urko Sanchez or Jaime Velasco, Architects, Spain-Kenya
Swahili Architecture for the Disadvantaged

Keynote III
Eliud Kipchoge, Laikipia University, Kenya
Physical Activity, Mental Health and Life

18:45 h – 20:45 h **Welcome Reception/Dinner**
Poolside, Safari Park Hotel, Nairobi

Wednesday, 04 December

8:00 h – 9:00 h **Survival Skills Breakfast I: Meet the Experts- Mentoring**
One on one time with mentors over breakfast
Chair: Jose Cavazos (USA/Mexico)
Mentors: Adesola Ogunniyi, Peggy Pericak-Vance, Masafumi Ihara, Ingmar Skoog, Njideka Okubadejo

9:00 h – 10:30 h **II. Global Burden and Dementia Risk**
An overview of aging and dementia in LMIC across the globe, including cultural considerations, strengths in knowledge, emerging challenges and opportunities for collaboration.
Chairs: Maelenn Guerchet (Benin), Ameenah Sorefan (Mauritius)
Panelist: Adesola Ogunniyi (Nigeria)

Presenters:
Cyprian Mostert, Brain and Mind Institute, AKU, Kenya
Brain Economics, Global Cost and Dementia

Giancarlo Logroscino, GBD and Center for Neurodegenerative Diseases and Aging Brain, University of Bari, Italy
Global Burden LMICs versus HICs

Noeline Nakasujja, Makerere University, Uganda
Aging and Dementia from Ugandan Perspective

Riadh Gouider, AD Centre, University of Tunis, Tunisia
FAD in Tunisia and Africa

Fisayo Elugbadebo (ECR), University of Ibadan, Nigeria
Dementia, Cognitive Impairment in Oldest Old Nigerians: A 20-year follow up of survivors of Ibadan Study of Ageing Cohort

Lingani Mbakile Mahlanza (ECR), University of Botswana, Faculty of Social Sciences, Psychology Department, Botswana
TBI and Risk of Dementia in the Botswana population

10:30 h – 11:00 h ***Coffee*** **Break and Posters**
Poster presentations of submitted abstracts.

11:00 h – 12:30 h **III. Vascular and Emerging Factors in Dementia**
Chairs: Ingmar Skoog (Sweden), Lingani Mahlanza,(Botswana)

Presenters:
Thomas Issac, National Institute of Mental Health and Neurosciences, India
Vascular Risk Factors ad Cognitive Decline- An Indian Context

Majon Muller, VUmc, Free University of Amsterdam, The Netherlands
Cardiovascular Instability in the elderly and Consequences

Ingmar Skoog, Center of Health and Aging (AgeCap), Institute of Neuroscience and Physiology, Sahlgrenska Academy at the University of Gothenburg, Sweden
Preclinical vascular dementia. The H70–studies

Simon Chen, University College London, UK and China
Air Pollution, Cardiovascular Disease and Dementia

Yared Zedwe (ECR), Addis Ababa University, Ethiopia
Vascular Dementia and Risk Factors in Ethiopia, Africa

Chinedu Udeh-Momoh (ECR), Brain and Mind Institute, AKU, Kenya
Cardiometabolic Risk Factors and Cognitive Function: Under-diagnosis and its Association with cognitive impairment and dementia in multi-ethnic African Cohorts in Kenya and Nigeria

12:30 h – 13:00 h **Poster Blitz Session I**
Short presentations (2 min) by first or last author of the posters – Session A (surnames of presenting author from A - Ca)
Chairs: Majon Muller (The Netherlands), Sonu Bhaskar (Japan)

13:00 h – 14:00 h ***LUNCH Break***

13:00 h – 14:00 h **Networking Lunch I for ECRs: Work and Life Balance**
Chair: Jose Cavazos (USA/Mexico)
Mentors: Stella-Maria Paddick (UK), Godwin Ogbole (Nigeria), Morris Freedman (Canada)
Discussions about how PIs survive with relevant representatives over lunch.

13:00 h – 14:00 h **Book Launch and Lunch: Design for Dementia: Living Well at Home**
By Bill Halsall, Michael Riley and Eev Hogervorst.
Commenters: Eef Hogervost (UK) and Omar Oropeza (USA/Mexico)

14:00 h – 15:30 h **IV. Biomarkers and Biobanking in Dementia**
Chairs: Thomas Issac (India), Elisabet Englund (Sweden)

Presenters:
Jean Ikanga, University of Kinshasa, DRC and Atlanta, USA
Assessing Biomarkers of Dementia in DRC

Henrik Zetterberg, University of Gothenburg, Sweden
Blood Biomarkers: Democratizing Neurodegenerative Disease Diagnostics

Barbara Bendlin, University of Wisoconsin Maddison, USA
Neuroimaging: Portable MRI in Dementia

Bernard Fongang, University of Texas Health Sciences San Antonio, Glenn Biggs Institute (USA)/Cameroon
The gut microbiome in preclinical Alzheimer's disease

Oludotun Olalusi (ECR), University of Ibadan, Nigeria
Relationship Between Hand Grip Strength and Cognitive Impairment Amongst Indigenous Elderly Africans in Ibadan, South-West Nigeria: Data from the VALIANT Study

Christopher Musembi (ECR), University of Nairobi, Kenya

Ageing and Dementia: Insights from non-canonical animal models

15:30 h – 16:10 h **Vi. Trials in Dementia**
Chairs: Dana Niehaus (South Africa), Peter Hedera (USA)

Presenters:
Masafumi Ihara, National Cerebral and Cardiovascular Centre (NCVC), Osaka, Japan
Drug trials in Dementia: Cilostazol in amyloid removal

Felix Potocnik, University of Stellenbosch, South Africa
Overview, Policy, Care and Future Directives of South African Dementia Patients

16:10 h – 16:40 h ***Tea* Break and Posters**
Poster presentations of submitted abstracts

16:40 h– 18:40 h **Vii. AFRICA-FINGERS LAUNCH**
Chairs: Chinedu Udeh-Momoh (Kenya), Zul Merali (Kenya)
Launch of WW FINGERS-AFRICA Project
[see full programme on a separate page]

18:45 h – 21:00 h **Networking Reception** hosted by BMI AKU and Sponsored by The FINGERS Brain Health Institute and WorldWide FINGERS

Thursday, 05 December

8:00 h – 9:00 h **Skills Breakfast: Journals and Publishing**
One on one time with global editors from leading dementia journals, over breakfast.
Chair: Jose Cavazos (USA/Mexico)
Mentors: Peter Hedera, Thomas Bak, Dana Niehaus, Gladys Maestre, Jean Ikanga

9:00 h – 10:30 h **VI. Non-AD Neurodegenerative Dementias**
Chairs: Richard Walker (UK) & Njideka Okubadejo (Nigeria)

Presenters:
Njideka Okubadejo, University of Lagos, Nigeria
Genetic Architecture of Parkinson's Disease in Africa: current status, gaps and prospects

Peter Hedera, University of Louisville, KY, USA
Practical approach to dementia associated with movement disorders

Richard Walker, Newcastle University, UK
NIHR Global Health Research on Transforming Parkinson's Care in Africa (TraPCAf)

Elisabet Englund, University of Lund, Sweden
Clinical Features and Pathophysiology of Frontotemporal Dementias

Albert Stezin Sunny (ECR), Centre for Brain Research, Indian Institute of Science, India
Digital Biomarkers in Dementia

Rafi Haddad (ECR), Rambam Health Care Campus, Haifa, Israel; Global Brain Health Institute, San Francisco, USA
LARK mutations and PD Dementia

10:30 h – 11:00 h ***Coffee* Break and Posters**
Poster presentations of submitted abstracts.

11:00 h – 12:30 h **VII. Aphasia and Cognitive Assessment (WFN ADCD Session)**
Chair: Aida Suarez Gonzalez (UK), Kamada Lwere (Uganda)

Presenters:
Thomas Bak, University of Edinburgh, UK
The Implications of Linguistic Diversity for Aphasia Assessment & Treatment

Aida Suarez Gonzalez, University College London, UK
Reducing cognitive disability in people living with dementia

Morris Freedman, University of Toronto, Canada
Opportunities for Telemedicine in Dementia in LMICs including Africa

Elena Tsoy, Global Brain Health Institute, UCSF, USA

Digital cognitive markers for diagnosis and prognosis of Alzheimer's disease and related dementias

Stella-Maria Paddick, Newcastle University, UK
Verbal Fluency in Cognitive Assessment

Panagiotis Alexopoulos (ECR), University of Patras, Greece
Practical Approaches to Evaluating Auditory Function in Individuals with Dementia and Hearing Loss

12:30 h – 13:00 h **Poster Blitz Session II**
Short presentations (2 min) by first or last author of the posters – Session B (surnames of presenting author from Co - Ki)
Chairs: Eef Hogervorst (UK), Christine Musyimi (Kenya)

13:00 h – 14:00 h ***LUNCH Break***

13:00 h – 14:00 h **Networking Lunch II for ECRs: Funding and Capacity Building**
Chair: Victor Valcour (USA)
Mentors: Gladys Maestre, Riadh Gouider, Shireen Javendel, Zul Merali
Discussions about how PIs survive with relevant representatives over lunch.

14:00 h – 15:30 h **VIII. Expanding research in Down syndrome and Dementia in LMICs**
Chairs: Jason Hassenstab (USA), Kirti Ranchod (SA)

Presenters:
Juan Fortea, Hospital of Sant Pau, Barcelona, Spain
Contextualising Down syndrome related Alzheimer's disease

Ayda Tefera, UCSF, San Francisco, USA
Perspective from clinician and family member on Down syndrome in Ethiopia

Kirti Ranchod, Johannesburg, South Africa; **Eimear McGlinchey**, Dublin, Ireland
Down syndrome initiatives across Africa

Atholl Kleinhans, SMU, South Africa
Lessons from a Down syndrome awareness project in South Africa

Tamlyn Watermeyer, Northumbria University, UK
Neuropsychological assessment for people with Down syndrome

Rachel Maina (ECR), AKU, Nairobi, Kenya
Supporting people with Down syndrome in Kenya

15:30 h – 16:00 h ***Tea* Break and Posters**
Poster presentations of submitted abstracts.

16:00 h – 17:30 h **IX. Dementia Care, Policy and Engagement**
Chairs: Victoria Mutiso (Kenya), Louise Robinson (UK)
Panelist: Felix Potocnik, *Quality Standards on Human Rights for Services in Dementia Care*

Presenters:
Sonu Bhaskar, NCVC, Japan and Global Health Neurology Lab, Australia
Optimizing Care for Cognitive Decline and Dementia in LMICs: Clinical Strategies and Innovations for Patient-Centered Care

Ameenah Sorefan, Président of the Association Alzheimer & Dementia, Mauritius
Dementia Diagnosis and Post Diagnosis Support in Mauritius

Louise Robinson, Newcastle University, UK
Research on dementia care, policy and engagement in LMICs: lessons from the UK NIHR Global Health DePEC Group

James Kahn, GBHI, San Francisco, USA
Economics and Brain Health

Faith Simushi (ECR), University of Lusaka, Zambia
Care giving, stigma and education of the public

Rachel Alinaitwe (ECR), Makerere University, Kampala, Uganda
Reliability of Community Health Workers in Detecting and Referring Older Persons with Cognitive Impairment for Care in the Community

17:30 h – 18:00 h **Poster Blitz Session III**
Short presentations (2 min) by first or last author of the posters – Session C (surnames of presenting author from Ko - Og)
Chairs: Joshua Akinyemi (Nigeria), Pedro Mena (USA)

18:00 h – 18:30 h **IXi. Capacity Building Special Session: Resources and Neuropsychometric Assessment**
Panel: Shireen Javendel (USA), Jeremy Tanner (USA), Tamlyn Watermeyer (UK), Stella-Maria Paddick (UK)

20:00 h – 22:30 h **Symposium Safari Banquet**
Nyama Choma Ranch

Friday, 06 December

8:00 h – 9:00 h **Survival Skills Breakfast: HIC-LMIC Collaborations**
One on one time with global leaders in dementia research to discuss best practices for collaboration, over breakfast.
Chair: Maelenn Guerchet (Benin)
Mentors: Rufus Akinyemi, Sonu Bhaskar, Peggy Pericak-Vance, Richard Walker

9:00 h – 10:30 h **X. Modifiable Risk Factors: Prevention**
Chair: Noeline Nakasujja (Uganda), Philip Adebayo (Tanzania)

Presenters:
Sebastian Walsh, Cambridge Public Health, University of Cambridge, UK
A population-level approach to dementia risk reduction (PLADRR)

Eef Hogervorst, Loughborough University, UK & Yuda Turana Atma Jaya University, Indonesia
The dulling of the senses and Alzheimer's disease

Bernard Mbwele (ECR), Mbeya, Tanzania
Community Priority Setting in Dementia Risk Reduction in Rungwe District, Mbeya Tanzania: Learning from Akili Mali Project

Joaquin Migeot (ECR), Latin American Brain Health Institute (BrainLat), Universidad Adolfo Ibañez, Chile
Social exposome and brain health outcomes of dementia across Latin America

Maureen Tshuma (ECR), Brighton and Sussex Medical School, UK
An intervention for people with cognitive impairment: Adaptation of the Cognitive Stimulation Therapy Manual for use across Zimbabwe

10:30 h – 11:00 h ***Coffee* Break and Posters**
Poster presentations of submitted abstracts.

11:00 h – 12:30 h **XI. Genetic Factors**
Chairs: Peggy Pericak-Vance (USA), Rufus Akinyemi (Nigeria)

Presenters:
Margaret Percak-Vance, University of Miami, USA
Global Genetics and the READD-ADSP Study

Jeffery Vance, University of Miami, USA
Updates on the protective loci for APOE4 in Africans

Diego Sepulveda-Falla, University of Hamburg, Germany and Colombia
Lessons from Autosomal Dominant Alzheimer Disease in Colombia

Nicholas R Ray (ECR), Columbia University, NY, USA
Genetic covariance analysis of Alzheimer's disease and stroke implicates PHLPP1 as a shared locus in individuals of African ancestry

Karen Nuytemans (ECR), JP Hussman Institute for Human Genomics, University of Miami, USA
Functional Analysis on African Ancestry Loci

12:30 h – 13:00 h **Poster Blitz Session IV**
Short presentations (2 min) by first or last author of the posters – Session D (surnames of presenting author from Om - W)
Chairs: Thomas Issac (India), Yared Zwede (Ethiopia)

13:00 h – 13.45 h **XII. Early Career Researchers (ECRs) Session**
Short presentations from ECRs on their best dementia research
Chairs: Gladys Maestre (USA), Victor Valcour (USA)

Presenters:
Damas Mlaki (ECR), Directorate of Medical Services, Mirembe National Mental Health Hospital, Dodoma, Tanzania**,**
Development and suitability of neuropsychological tests among older adults in Tanzania: Implications of the findings of the Tanzania 2022 Population and Housing Census

Christine Musyimi (ECR), Africa Mental Health Research and Training Foundation, Kenya
Dementia stigma reduction in an African setting: A call to policy action

Marija Taneska (ECR), University College London, UK and the Institute for Alzheimer's Disease and Neuroscience, N.Macedonia
Collaborating for Improved Dementia Care in the Balkans: Insights from North Macedonia's START and NOMAD Projects

Wambui Karanja (ECR), Brain and Mind Institute, AKU, Kenya
Understanding Risk of Dementia: Using Life-course Approach Through the African Brain Health Dashboard

13:45 h **Close of Symposium and Farewell**

14:00 h – 15:00 h ***LUNCH Break***

14:00 h – 15:00 h **Networking Lunch III for ECRs: ISTAART**
Short presentations about opportunities with the International Society to Advance Alzheimer's Research and Treatment.
Panel: Claire Sexton (USA), Henrik Zetterberg (Sweden), Derick Mwangi Muturi (Kenya)

14.00– 14.30 **Networking lunch – Brain Health and Ageing in HIV, a focus on East Africa**.
Informal introductions with community partners, NGO representatives and reseacherrs participating in the Brain Health and Ageing in HIV workshop

15:00 h – 16:15 h **COSMIC Consortium Meeting (Chairman's Room)**
Chair: Maëlenn Guerchet (Benin)
Brief overview of the Cohort Studies of Memory in an International Consortium (COSMIC) by its lead Professor Perminder Sachdev (online). This session aims at

introducing the consortium and its work, and is also designed to gather feedback on the training opportunities that could be developed in LMIC during the next 4 years.

15:00 h – 17:30 h **Brain Health and Ageing in HIV, a focus on East Africa**
Parallel session and workshop

This is a co-produced session with academic researchers and representatives of patient advocacy groups in East Africa on brain health research priorities and how we might co design future brain health interventions. All conference attendees are welcome to attend, particularly those engaged in HIV and cognitive impairment research.

Chairs: Stella-Maria Paddick (UK), Jaime Vera (UK), Elijah Mwega (Karika Kenya), Kenly Sikwese (AfroCAB)

HIV, Brain Health and Ageing – a brief overview (Jaime Vera)
ECR presentations

Upal Roy, University of Texas Rio Grande Valley, Texas, USA
Dolutegravir and Tenofovir Alafenamide Have Associated with More Depressive Symptoms and Premature Aging in People with HIV: A Possible Implication for Low and Middle-Income Countries (LMIC)

Deo Benyumiza, Mbarara University of Science and Technology, Uganda
Prevalence of dementia and its association with central nervous system infections among older persons in Northern Uganda – Cross sectional study

Workshop – brainstorm and consensus discussion of research priorities
Question 1
Question 2

16:15 h – 16:30 h ***Tea Break***

16:30 h – 17:30 h ***HIV,* Brain Health and Ageing workshop continues**

Workshop – brainstorm and consensus discussion of research priorities
Question 3
Question 4

Africa FINGERS Launch Programme, supported by the Brain and Mind Institute, Kenya and The FINGERS Brain Health Institute, Sweden

December 4, 2024: Safari Park Hotel, Nairobi Kenya| 4.40 PM to 6.40 PM, EAT

Session Moderator: Dr Rachel Maina, Programme Coordinator, Africa-FINGERS

Time (EAT)	Session	Details
4:40 pm	**Guest Arrival & Welcome Reception**	- Arrival, registration, and networking.
4:45 pm – 5:00 pm	**Welcome and Introductions**	- Icebreaker activity: Futbol Mas.
		- Remarks by Prof. Zul Merali, Founding Director, Brain & Mind Institute, and AKU Leadership.
5:00 pm – 5:15 pm	**Keynote: Professor Miia Kivipelto, Leader WorldWide FINGERS**	- Presentation on the global approach to dementia risk reduction and prevention.
		- Overview of the World-Wide FINGERS initiative, with a focus on addressing dementia prevention in LMICs.

Time (EAT)	Session	Details
5:15 pm – 5:30 pm	**Study Overview Presentation – Dr. Chi Udeh-Momoh, Leader Africa-FINGERS**	- Overview of Africa FINGERS, including the study's premise, rationale, and innovative approaches.
5:30 pm – 5:50 pm	**Core Leads Presentations**	- 5-minute presentations from Africa FINGERS core lead:
		- WP1: Anthropology – Dr Adedoyin Ogunyemi
		- WP2: Interventions (RCT) – Dr Celeste de Jager Loots
		- WP3: Health Economics – Dr Dominic Trepel
		-WP4: Implementation & Communications – Dr Laz Eze
	Q & A Session	- Q&A session
5:50 pm – 6:00 pm	**Audience Interaction: Live Polling**	- Interactive polling on dementia prevention in Africa, with link/QR code provided. - Poll questions: - Q1: What approaches would be most effective for dementia prevention in the African context? - Q2: What feedback do you have on the current RCT plan?
6:00 pm – 6:10 pm	**Icebreaker Activity**	- Physical activity led by Futbol Mas to promote brain health
6:10 pm – 6:30 pm	**Guest Speakers Address & Official Launch**	- Keynote address by an official from the Ministry of Health, Kenya.
		- Official launch of the Africa FINGERS study by the Chief Guest
6:30 pm – 6:40 pm	**Closing Remarks & Group Photo**	- Closing remarks by Dr. Chi Udeh-Momoh, Principal Investigator, Africa FINGERS.
		- Group photo with Chief Guest, PI, site PIs, Executive Committee, Trial Steering Committee, core leads, and Scientific and Operational teams.
6:40 pm	**Press Briefing & Cocktail Reception**	Media briefing - High Tea
		- Guests depart at their leisure.

Africa-FINGERS: Empowering Healthy Aging through Science and Community Engagement

About the Brain & Mind Institute (BMI)
The Brain and Mind Institute (BMI) at the Aga Khan University, operates in East Africa and Central/South Asia. BMI's ethos is to span from neuron to the neighbourhood and across multi-country campuses. The operational model is to empower and strengthen neuroscience and mental health research and interventions through capacity building and partnerships, connecting the rich tapestry of academics, research entities, stakeholders, and communities of lived experience. BMI facilitates interdisciplinary research, education and innovation in mental health and neurosciences. Through transdisciplinary research approaches, BMI aims to impact the lives of people who are affected by debilitating neurological and mental health problems. Whether it is uncovering the causes of illness or advancing breakthrough research into treatments or interventions, BMI's approach is always mindful of the local needs of the people and communities at risk.

About Africa-FINGERS
Dementia is rapidly becoming a major health crisis in Africa, driven by rising life expectancy and an increasing prevalence of modifiable lifestyle risk factors. The Africa-FINGERS program is a pioneering multinational initiative aiming to reduce dementia risk across the continent through culturally tailored, preventive lifestyle interventions.
With dementia cases projected to surge across Sub-Saharan Africa by 2050, Africa-FINGERS represents a proactive step in addressing this challenge. Led by Principal Investigator Dr. Chi Udeh-Momoh, the study focuses on participants over 50 in both rural and urban areas of Kenya and Nigeria. It seeks to co-create culturally informed, multimodal interventions, conduct randomized controlled trials, and promote community-centered health strategies.
Beyond dementia prevention, Africa-FINGERS is establishing crucial research infrastructure, including culturally tailored interventions and the validation of dementia biomarkers suited to Africa's unique health landscape. The initiative also targets modifiable risk factors—such as physical inactivity, poor diet, cardiovascular health, social engagement, and limited cognitive activity—that the Lancet Commission and the World Health Organization identify as key to lowering dementia risk.
Aligned with the Worldwide-FINGERS network and incorporating insights from the Alzheimer's Disease Neuroimaging Initiative (ADNI), Africa-FINGERS is poised to deliver scalable, sustainable, and impactful dementia prevention. Through participatory research and community-based efforts, the project aims to curb dementia's spread and enhance cognitive health and quality of life for aging populations across Africa.

Sites
Kenya- Aga Khan University (AKU) Brain and Mind Institute - Nairobi & Kilifi County
Nigeria- The College of Medicine University of Lagos (CMUL) and the affiliate Lagos University Teaching Hospital (LUTH)

- Research Center for Ageing Cognition and Psychological Health (RCACPH), Nnamdi Azikiwe University Awka (NAU).

– Lagos, Anambra, Ibadan and Yobe.

Focus areas
Africa-FINGERS unites research and community engagement to prevent dementia through practical, multi-faceted strategies.

1. Conduct trials to adapt proven dementia prevention strategies for African populations
2. Create culturally tailored programs that address local health beliefs and needs
3. Develop sustainable brain health programs that integrate into regional health systems
4. Build local healthcare capacity to support dementia prevention and care long-term

Objectives

- Design dementia prevention programs aligned with community needs, using locally relevant resources and practices.

- Establish an approach that can be scaled across African health systems, benefiting communities with limited healthcare access.
- Equip professionals with the skills to prevent and manage dementia, building sustainable local expertise.
- Promote long-term lifestyle changes including habits like healthy eating, physical activity, stress management social interactions and cognitive exercises to protect brain health over time.

Why this matters
Dementia care is costly and can strain families and healthcare systems. Preventative steps reduce both the personal and economic impacts of dementia, supporting healthier communities.
Africa-FINGERS emphasizes community involvement and lasting strategies, setting a new standard for dementia prevention in Africa.

Partners
Funded by the Medical Research Council (MRC) and in collaboration with the Worldwide FINGERS, Africa Dementia Consortium, Davos Alzheimer's Collaborative, Global Brain Health Institute, Alzheimer's Disease International and Global Dementia Prevention Program.
BMI contact info

OPENING SESSION PRESENTATION

Keynote: Unlocking The Mysteries of the Brain: The Contributions of Brenda Milner

Richard E Brown[1].

1) Dalhousie University, Halifax, Nova Scotia, Canada.

Brenda Milner (née Langford) was born in Manchester England on 15 July 1918 (making her 106 this year). In 1939 she graduated with a B.A. degree in experimental psychology from Cambridge University, having worked with Oliver Zangwill. At the start of WW2, her MSc project with Sir Frederic Charles Bartlett, the professor of psychology at Cambridge University, she began to develop perceptual tasks for the selection of aircraft pilots. Later she studied the accuracy of radar operators in identifying enemy aircraft. In 1944 she took a job teaching Psychology at the University of Montreal. She began to attend graduate classes in psychology taught be Donald O. Hebb at McGill University, and soon signed up to be his PhD student. For her thesis research, Brenda studied the effects of medial temporal lobe damage with Hebb and the neurosurgeon, Wilder Penfield, and in 1954 she published a review on the Intellectual function of the temporal lobes in the Psychological Bulletin, (1954, 51, 42–62). This led to her introduction to patient H.M. and her research with him led her to identify two types of memory which had different neural pathways: the loss of recent memory due to damage to the hippocampus, and the ability to retain motor memories, but with no conscious awareness of having done the task before. She continued to study the neural basis of cognitive functions in normal subjects and patients with brain damage and was one of the founders of cognitive psychology (see Milner, Squire and Kandel. 1998. Neuron, 20, 445–468). Brenda Milner wrote an autobiographical chapter (now outdated) in The History of Neuroscience in Autobiography edited by Larry R. Squire, 1998, Vol. 2, 276-305. She continues to be a member of the Montreal Neurological Institute and has won numerous awards for her work.

SPEAKER AND ECR PRESENTATIONS

(in alphabetical order by first author)

Relationship Between Hand Grip Strength and Cognitive Impairment Amongst Indigenous Elderly Africans in Ibadan, South-West Nigeria: Data from the Valiant Study.

Rufus O Akinyemi, MBBS, PhD[1-3], Oladotun V Olalusi, MD[1,2], Gabriel O Ogunde, MSc[3], Tolulope O Akinyemi, MSc, FMLSCN[4], Joseph O Yaria, MBBS, MSc[2], Eniola O Cadmus, MBBS, PhD[3], Femi O Popoola, MBBS, PhD[5], Mayowa Ogunronbi, MPH[1], Dorcas Olujobi, MSc[1], Olaoluwa Famuyiwa, BSc[1], Joshua O Akinyemi, PhD[5], Mayowa O Owolabi, DSc[2,3], Roman Romero-Ortuno, MD, PhD[6], Brian Lawlor, MD[7-9], Raj Kalaria, DSc[10] and Adesola Ogunniyi, MD, FAS[2,3,11].

1) Neuroscience and Aging Research Unit, Institute of Advanced Medical Research and Training, College of Medicine, University of Ibadan, Ibadan, Nigeria; 2) Department of Neurology, University College Hospital, Ibadan, Oyo, Nigeria; 3) College of Medicine, University of Ibadan, Ibadan, Oyo, Nigeria; 4) Lead City University, Ibadan, Oyo, Nigeria; 5) Department of Epidemiology and Medical Statistics, College of Medicine, University of Ibadan, Ibadan, Nigeria; 6) Global Brain Health Institute, Trinity College, Dublin, Ireland; 7) Global Brain Health Institute, Trinity College Dublin, Dublin, Ireland; 8) Trinity College Institute of Neuroscience, School of Psychology, Trinity College Dublin, Dublin, Ireland; 9) St James Hospital, Dublin, Ireland; 10) Centre for Brain Ageing and Vitality, Institute for Ageing and Health, Newcastle University, Newcastle Upon Tyne, United Kingdom; 11) AfDConsortium, Ibadan, Nigeria.

Background: By 2050, the prevalence of dementia is projected to triple with the greatest increases anticipated in Africa and Asia – largely attributable to population growth and cardiometabolic disorders. Hand-grip strength (HGS) is a known predictor of cardiometabolic and cognitive health. The relationship between HGS and cognitive impairment (CI) among elderly West Africans is not known. We examined the relationship between HGS and cognitive impairment among older adults in an urban slum in Ibadan, South West Nigeria. **Methods:** The Vascular heAlth, fraiLty and cognition in Ageing Nigerians (VALIANT) Study is an ongoing longitudinal community-based cohort study aimed at exploring the association between cardiovascular health, cognition and frailty in Nigeria. One thousand participants have been recruited via a multistage, stratified cluster random sampling method recruited from a rural community in Ibadan and taken through a battery of cardiovascular, cognitive and frailty assessment tools. Data on HGS, obtained using a digital hand dynamometer, was available for 480 men and women aged ≥50 years. Clinical frailty was assessed using the Rockwood's clinical frailty scale (CFS) score. The relationship between cognitive impairment (using MoCA <19) and HGS was examined using a multivariable adjusted logistic regression analysis. All associations were reported as aORs with the corresponding 95% confidence intervals (CI). **Results:** The mean age of study participants was 64.5 (±11.8) with predominant females (65%). Most participants (62.2%) were hypertensive while only a few (22.9%) were obese. The mean MOCA score in males and females were 21.28± 5.7 and 16.98 ± 6.4 respectively. Using a MOCA score cut-off of <19, approximately 49% had cognitive impairment. The mean HGS was higher among males (22.86 ± 10.1) than in females (16.26 ± 6.1) (p<0.001). There was a significant positive correlation between HGS and MoCA 0.45 (p <0.001). The independent determinants aOR (95%CI) of cognitive impairment were age≥65 years 2.59 (1.50 – 4.46), female gender 1.26 (0.67 – 2.36), primary education 0.16 (0.08 – 0.31), secondary education 0.09 (0.04 – 0.21), tertiary education 0.01 (0.01 – 0.17), HGS 0.95 (0.91 – 0.98), CFS score - vulnerable 1.04 (0.42 – 2.58), CFS score - frail 4.65 (0.84 – 25.47), and social network score 0.97 (0.95 – 0.99). **Conclusions:** Besides older age, attainment of any form of education, and social isolation, HGS was independently associated with cognitive impairment among elderly Nigerians. Further exploration of the link between HGS and early clinical/neuroimaging biomarkers of dementia is desirable.

Practical Approaches to Evaluating Auditory Function in Individuals with Dementia and Hearing Loss.

Panagiotis Alexopoulos[1], Antonios Demertzis[1], Panagiotis Biris[1], Polychronis Economou[1], Eric Frison[1], Piers Dawes[1] and Iracema Leroi[1].

1) Department of Psychiatry, University of Patras and Global Brain Health Institute/Trinity College Dublin.

Background: Hearing impairment in older people is a significant risk factor for cognitive decline and dementia, while it is a source of bias in the diagnostic workup of cognitive complaints. Early detection and intervention are critical, yet audiometric equipment is not universally available particularly in low-resource settings. Objective: This study aims (i) to develop brief accurate instruments for capturing hearing loss severity based on items of the 25-item Hearing Handicap Inventory for the Elderly (HHIE) and its counterpart the Hearing Handicap Inventory for the communication partner (HHIE-SP) and (ii) to compare their usefulness as well as that of the 10-item screening version of HHIE (HHIE-S) in detecting hearing loss severity in people with dementia and hearing loss to HHIE and HHIE-SP.
Methods: Data of the European Sense-Cog Trial were analyzed. Eight different proportional odds logistic regression models (POLR models) were computed to study the relationship between the pure-tone audiometry screen results and different versions of the HHIE. Stratified repeated random subsampling was employed to create two new HHIE models. All models were assessed by calculating the Mean Squared Deviation (MSD) over 1,000 splits into 90% training and 10% test set.
Results: The model including HHIE-S and demographic data demonstrated the highest performance (MSD = 6.818), followed by the model including HHIE-SP and demographic data (MSD = 7.065) and the model which included HHIE-2, consisting of two items, and age (MSD = 7.254). The model including HHIE was the least reliable (MSD = 9.220).
Conclusions: HHIE-S and HHIE-2 are practical and efficient tools for assessing hearing loss severity in people with dementia and hearing impairment. Particularly the ultra-brief HHIE-2 may be feasible for use in community healthcare settings in different countries across the globe since it is not affected by the country of residence of the individual with dementia.

Use of community health workers in screening for cognitive impairment among older persons in Wakiso district, Uganda.

Racheal Alinaitwe[1], Seggane Musisi[1], David Mukunya[2], Yvette Wibabara[3], Byamah B Mutamba[3] and Noeline Nakasujja[1].

1) Department of Psychiatry, Makerere University College of Health Sciences; 2) Department of Community and Public Health, Busitema University; 3) Clinical Epidemiology Unit, Makerere University; 4) Butabika National Referral Mental Hospital.

Background: In Uganda, cognitive impairment in older persons aged ≥60 years is often undiagnosed due to inadequate appreciation of the condition compounded with limitations of trained human resource able to conduct appropriate cognitive evaluations. Use of Community Health Workers (CHWs) can be an important link for older persons to the health facilities where they can receive adequate evaluations and interventions for cognitive challenges. The aim of the study was to assess the feasibility of screening for cognitive impairment among older persons and referral by CHWs in Wakiso district, Uganda.
Methods: This was a sequential explanatory study. The CHWs received a one-day training on causes, signs and symptoms, and management of cognitive impairment and screened older persons ≥60 years for cognitive impairment using the Alzheimer's Disease scale 8 (AD8). Psychiatric clinical officers (PCOs) administered the AD8 and the Mini-Mental State Examination to the older persons after assessment by the CHWs who then referred them for appropriate clinical care. We conducted Kappa statistic for agreement between the CHWs and PCOs and compared raw scores of the CHWs to Experts scores using Bland Altman and pair plots and corresponding analyses.
Results: We collected data from 385 older persons. We involved 12 CHWs and 75% were females, majority were married (58.3%) with at least a secondary education (66.7%). There was 96.4% (CI 94.5% to 98.2%) agreement between PCOs and CHWs in identifying cognitive impairment. Of the 58 identified to have cognitive impairment by the CHWs, 93.1% were referred for care. The average difference between the score of the expert and that of the CHW was -0.042 with a 95% CI of -1.335 to 1.252. Corresponding Bland Altman and pair plots showed high agreement between the measurements
Conclusion: CHWs can be trained to identify and refer older persons with cognitive impairment in the communities.

Dementia, Cognitive Impairment in Oldest Old Nigerians: A 20-year follow up of survivors of Ibadan Study of Ageing Cohort.

Olusegun Baiyewu MD[1], **Olufisayo Elugbadebo MBBS[1]**, Sujuan Gao PhD[2], Michael L Cuccaro PhD[3], Jeffery M Vance MD[3], Temitope H Farombi MBBS[4], Kathleen A Lane MS[2], Pedro Mena MD[3], Farid Rajabil PhD[3], Rufus Akinyemi PhD[5], Adesola Ogunniyi MD[5], Akin Ojagbemi PhD[1], Agboola J Adigun MBBS[4], Hugh C Hendrie DSC (Med)[6] and Margaret A Pericak-Vance PhD[3].

1) Department of Psychiatry, College of Medicine, University of Ibadan, Nigeria; 2) Department of Biostatistics and Health Data Science, Indiana University School of Medicine, Indianapolis IN. USA; 3) The John P. Hussman Institute for Human Genomics, University of Miami Miller School of Medicine, Miami, FL, USA; 4) University College Hospital, Ibadan, Nigeria; 5) Department of Medicine, College of Medicine; University of Ibadan, Nigeria; 6) Department of Psychiatry, Indiana University School of Medicine Indianapolis IN. USA.

Background: The percentage of oldest-old individuals is low globally, especially in Low- and Middle-Income Countries (LMICs). Dementia research on this group of people has some challenges including representativeness of the sample as well as ascertainment of cognitive and functional status. This study aims to evaluate cognitive and functional impairment among surviving participants from our original Indianapolis-Ibadan Dementia Study and assign diagnosis as well as determine the characteristics of those who remain cognitively normal.
Methods: Survivors of the Ibadan arm of the Indianapolis-Ibadan Dementia Project who were enrolled in 1992 or 2001 were re-examined between 2021 and 2022. Assessments included the CERAD neuropsychological battery, informant interviews, and clinical exams by cognitive disorder specialists. Diagnoses were determined by consensus between psychiatrists and neurologists using ICD-10, DSM-IV, and NINCDS-ADRDA criteria for Alzheimer's disease. T-tests and Fisher's exact tests were used to compare cognitively impaired participants with those classified as cognitively normal. Multiple logistic regression model was developed using backwards selection, with age, sex, and school attendance as covariates.
Finding: One hundred and thirty-five of the original 4425 persons ever recruited were re-evaluated. Mean age was 93·0 ±2·8 years (range 89-106 years; 103 (76%) are females, 29 (21%) were diagnosed dementia, 25 (18%) had AD, 44 (32·6%) had diagnosis of Mild Cognitive Impairment (MCI) and 62 (45·9%) were cognitively normal. Cognitive score (Odds Ratio (OR)=0·94, p=0·024), diastolic blood pressure (OR=1·04, p=0·015) and alcohol use (OR=0·42, p=0·041) were associated with 20-year prevalence of cognitive impairment after adjusting for age, sex, and education. ApoE4 allele was not a risk factor for Cognitive Impairment in this group.
Conclusion: Cognitive impairment was associated with worse cognitive performance in this oldest old survivor cohort, higher diastolic blood pressure, and no use of alcohol 20 years before. ApoE genotype was not a risk factor for cognitive impairment in this group.

Prevalence of dementia and its association with central nervous system infections among older persons in Northern Uganda – Cross sectional study.

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Background: Dementia is a condition in which there is deterioration in cognitive function beyond what might be expected from the usual consequence of biological aging. Few studies have been conducted on dementia and its association with central nervous system (CNS) infections among older persons in African settings. This study assessed the prevalence of dementia and its association with CNS infections among older persons in, northern Uganda.
Methods: A cross-sectional community-based study in northern Uganda conducted in March 2022 among 434 older persons aged 50 and above years, selected by multistage sampling. Data were collected using an interviewer-administered questionnaire supplemented with information from participant's medical records and a brief community screening instrument for dementia. The instrument classifies dementia into unlikely, probable or possible dementia. Data was analysed using SPSS version 23.
Results: We found almost one in four (23%) of the older persons in northern Uganda were suffering from dementia. Our study found that older persons with a positive history of central nervous system infections (CNS) had nearly five times higher odds of having dementia compared to their counterparts (cOR: 4.5; 2.76-7.23; $p \leq 0.001$). Being in advanced age of 70 + years (aOR: 2.6; 1.6-4.3; $p \leq 0.001$), positive history of CNS infection particularly Herpes simplex virus-1 (aOR: 5.4; 1.4-20.5; $p = 0.013$), chronic headache (aOR: 1.9; 1.1-3.1; $p = 0.019$) were independent predictors of probable or possible dementia among participants in this study.
Conclusion and recommendations: Dementia is a common condition among older persons in northern Uganda. A positive history of CNS infection, Having advanced age, cerebral malaria, Herpes simplex virus - 1 (HSV-1) infections, and chronic headache were independent predictors for dementia. These results imply that health assessment for the risk of dementia should include screening for history of CNS conditions particularly cerebral malaria, HSV-1 and chronic headache.

Optimizing Care for Cognitive Decline and Dementia in LMICs: Clinical Strategies and Innovations for Patient-Centered Care.

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Low- and middle-income countries (LMICs) face an escalating challenge with cognitive decline and dementia, as cases are projected to triple by 2050. Despite this rapid rise, limited resources, a shortage of specialized healthcare providers, and cultural stigmas around mental health complicate patient care. This talk addresses these critical barriers, focusing on clinical strategies tailored to LMIC contexts and innovative, cost-effective approaches that prioritize patient-centered care. We will explore best practices in early diagnosis, culturally sensitive intervention models, and scalable care solutions designed for resource-limited settings. Insights will be presented into adaptable training frameworks for healthcare providers, community-led support initiatives, and the latest research on non-pharmacological interventions that enhance quality of life. By fostering collaboration across borders and specialties, this talk aims to empower practitioners, policymakers, and caregivers to build sustainable, evidence-based dementia care frameworks that are also culturally resonant, helping to reshape dementia care for vulnerable populations and create a more inclusive future in global health.

Frontotemporal dementia (FTD).

Elisabet Englund[1].

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In the early 1980's the concept of a new neurocognitive condition with associated brain changes slowly and gradually emerged. It was new and different from the well-known entities of Alzheimer's disease and Vascular dementia. FTD and the neuropathological counterpart frontotemporal lobar degeneration (FTLD) has many specific subtypes and different protein pathologies. Many of the subtypes have a high level of heredity and several disease-causing mutations are recognized. Whereas the clinical spectrum ranges from personality changes and sometimes offensive behavior to aphasia and language impairment, the FTD-FTLD disorders pose a problem for the caregiving society and relatives. The structural brain changes are also highly variable, being a challenge for the neuropathologists to map and understand. The different FTD-FTLD disorders will be presented from a clinical and neuropathological perspective, including diagnostic markers, and individual cases will be described.

Practical approach to dementia associated with movement disorders in low- and middle-income countries settings.

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Noncommunicable diseases are becoming a leading cause of death in sub-Saharan Africa and other regions with low- and middle-income status. Parkinson's disease (PD) is the second most common neurodegenerative disorder and the fastest growing neurological disorder globally. Hallmark of PD is a progressive movement disorder with rigidity, bradykinesia and tremor, resulting in a progressive movement disorder with impaired mobility and risk of falls. PD is now recognized as a systemic disorder with many neuropsychiatric aspects, including dementia that emerges at least one year after the onset of movement disorder. Current epidemiologic data from the sub-Saharan Africa suggest a lower incidence of PD than in developed countries, but definite prevalence and incidence data is not available. The prevalence of dementia in PD patients from this region is also unknown. Characterization of frequency of dementia in these PD patients will provide additional insights into its pathogenesis and the role of modifiable risk factors, including cerebrovascular and nutritional factors versus genetic factors. Even less is known about the prevalence of other Parkinsonian syndromes, such as progressive supranuclear palsy (PSP, multiple system atrophy (MSA) and Lewy body dementia (LBD) in sub-Saharan Africa and other low- and middle-income countries. Detailed epidemiologic data from these regions will likely highlight the various contribution of genetic and environmental factors. We also provide an overview of recognition and management of dementia associated with PD and differentiation from parkinsonism plus syndromes, especially in the low- and middle-income countries settings. These recommendations are also based on author's work in the University Teaching Hospital in Lusaka, Zambia.

The dulling of the senses and Alzheimer's disease.

Eef Hogervorst[1], Ahmet Begde[1], David Maidment[1,2], Thom Wilcockson[1] and Maria Goodwin[1,2].

1) Loughborough University, UK; 2) Yuda Turana Atma Jaya University, Indonesia.

Loss of smell has long been described as potential early indicator of dementia https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7519881/ In this talk, I will discuss the work of David Maidment and Maria Goodwin on hearing loss and the various models to explain associations with dementia risk https://pubmed.ncbi.nlm.nih.gov/37423474 Factors associated with odour identification in older Indonesian and white Australian adults Among older adults, olfactory dysfunction is associated with cognitive impairment, lower quality of life, and increased mortality. While age is a risk factor for olfactory dysfunction, other risk factors are less well understood, and may vary between ... www.ncbi.nlm.nih.gov I will also go into the work of our PhD Ahmet Begde on vision loss. We implemented our visual sensitivity test in the EPIC Norfolk study in 2004. In those without dementia poor performance on this test gave an increased risk for dementia on average 10 years before a formal diagnoses was done. https://pubmed.ncbi.nlm.nih.gov/38424122/ Again various models could explain why these associations exist. The question remains whether interventions based on stimulation of the senses can delay, or even treat dementia risk.

Possible effects of cilostazol in amyloid removal as a congestion reliever.

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The concept of mild cognitive impairment (MCI) was first introduced for the purpose of identifying individuals in an intermediate state between no cognitive impairment and Alzheimer's disease (AD). Recently, the heterogeneity of MCI has attracted attention as it has become clear that other diseases, such as cerebrovascular disease can also cause mild cognitive deficits, prompting a redefinition of MCI. Heterogeneity of MCI has been confirmed by neuropathological examinations. Most MCI patients not only possess amyloid plaques and neurofibrillary tau tangles, but also cerebral vascular pathology such as arteriosclerosis and cerebral amyloid angiopathy (CAA). CAA induces cerebral infarcts or haemorrhage of varying size and type, attributing to further cognitive impairment. Sporadic AD and CAA has been suggested to be the consequence of amyloid beta elimination failure, mainly caused by disturbance of the intramural periarterial drainage system. Since severe CAA is an independent risk factor for dementia, facilitation of amyloid beta clearance has been suggested as a potential treatment of AD and MCI. We previously found that cilostazol promoted amyloid beta clearance in a mouse model of CAA, and that OPC-13015, a metabolite of cilostazol (phosphodiesterase III inhibitor), is a predictive biomarker of cilostazol treatment for AD, leading to our investigator-initiated clinical trial called COMCID study for MCI. The COMCID study showed that cilostazol facilitated amyloid beta clearance from the brain into the blood but did not suppress cognitive decline. This outcome may be attributable to the possibility that the participants in the present study were in advanced stages of MCI, particularly late MCI (mean age, 75.6 [5.2] years; mean [SD] baseline MMSE scores, 25.5 [1.9] and mean [SD] baseline CDR-SB scores, 2.6 [1.0]). Since cilostazol is established to be effective for stroke patients, neurovascular approaches by use of cilostazol or other compounds may therefore hold promise for the treatment of dementia in an era of preventive neurology.

Understanding Risk of Dementia: Using Life-course Approach Through the African Brain Health Dashboard.

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Introduction: Some proportion of dementia may be preventable at a population level by intervening at different times in the life course. Little is currently known about the burden and distribution of established and emerging dementia risk factors in countries in Africa, and the lack of readily available information and data impedes research and policy efforts to design and implement contextually appropriate interventions to mitigate risk.
Methods: We utilized the World Health Organization's (WHO) framework for optimizing brain health across the life course to create an interactive African Brain Health dashboard. This public-facing tool visualizes available epidemiological data on dementia risk factors and brain health determinants for each country. We integrated 12 well-established, potentially modifiable risk factors for dementia, as identified by the 2024 Lancet Commission on Dementia, into this framework. Additionally, we included emerging and regionally significant risk factors, such as HIV and undernutrition. The dashboard was developed using a co-design approach, actively involving end-users to ensure it meets their needs. It features interactive visualizations and downloadable data, highlighting the prevalence of the 12 modifiable dementia risk factors and region-specific risks like HIV and undernutrition. The development process has been iterative, with continuous improvements based on user feedback, ensuring the platform remains adaptable and responsive.
Results: Routinely collected surveillance data, such as indicators monitored under countries' commitments to the Sustainable Development Goals, offer a valuable resource for understanding brain health at the national level. To promote the use of these data, we created the African Brain Health Dashboard. Using open-source software, the dashboard integrates and visualizes data from multiple public sources, turning fragmented information into actionable insights. This approach simplifies complex data, making it more accessible and user-friendly. As a result, stakeholders—including policymakers, researchers, and advocates—can easily grasp and respond to brain health trends.

Lessons from a Down Syndrome Imbizo: Insights for Brain Health and Dementia Care in South Africa.

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Introduction: In South Africa, individuals with Down syndrome (DS) face significant disparities in healthcare, education, and social inclusion. Supported by the Atlantic Institute, a project was launched to engage the DS community in identifying key priorities for research, care, and policy. This initiative sought to uncover gaps in support and explore how factors such as education, employment, and access to healthcare influence brain health and dementia outcomes over the life course.
Methods: An Imbizo (community gathering) brought together individuals with DS, their families, healthcare professionals, traditional healers, non-profit organizations, and government officials. The goal was to establish priorities and identify gaps in research, care, and policy that impact the DS community, with relevance to brain health and dementia care.
Results: Key lessons emerged in five areas: Advocacy and Awareness, Inclusion, Education, Data and Research, and Collaboration. Employment and education were identified as critical areas of concern, emphasizing the need for better opportunities and support across the lifespan. These factors are linked to lifelong brain health and dementia outcomes. Improved access to healthcare and the need for more research on DS, especially in relation to dementia care, were highlighted. The role of traditional healers was also acknowledged as vital to developing culturally appropriate healthcare interventions.
Conclusion: The Imbizo underscored the importance of engaging communities to address the needs of individuals with DS. Community engagement is essential for shaping effective, culturally relevant research and care strategies. These insights will guide future efforts to improve brain health and dementia care for people with DS in South Africa.

Ageing and Dementia: Insights from Non-Canonical Animal Models.

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In the past few decades, many potential drug candidates for the treatment of Alzheimer's (AD) have shown promising anti-AD effects in preclinical animal models but failed in clinical trials. One of the reasons for this finding may be partially attributed to the inappropriate choice and attributes of classical animal model species. Most research on mechanisms of aging and dementia is conducted in a limited number of classical model species, i.e., mice, rats, common fruit fly and roundworms. Other animal models such as killifish, naked mole rats (NMRs), planarian flatworms, tortoises etc. are increasingly being to investigate certain aspects of ageing and dementia. They exhibit unique attributes such as exceptionally long lifespans and resist age-related pathologies and therefore they could complement classical models research findings and significantly enhance our understanding of ageing and dementia pathophysiology. This review aims to explore key research findings about ageing and dementia as gathered from non-canonical animal models. NMRs and testudines offer unique slow-ageing system to study modulators of amyloid and tau aggregation. NMRs brains contain high concentrations of amyloid beta (Aβ) peptide from a young age, remarkably, they do not accumulate amyloid plaques and seemingly maintain neuronal integrity. Phenotypic aging appears virtually absent in the NMRs despite the animals sustaining high levels of phosphorylated tau and long lifespan. Testudines exhibit slow or negligible senescence and may reduce senescence in response to improvements in environmental conditions. Such findings are important for deciphering ageing mechanisms and the pathophysiology of dementia. Furthermore, studying a wide range of animal models for ageing and dementia provides insights that are context specific because animals evolve unique mechanisms of longevity that are shaped by the ecology and genetics of each species.

Community Priority Setting in Dementia Risk Reduction in Rungwe District, Mbeya Tanzania: Learning from Akili Mali Project.

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Background: The burden of dementia is increasing with an estimated 55 million people living with the disease with sub-Saharan Africa more affected by associated societal burdens. We aimed to identify the most common and top risk factors for guiding policymakers and governments in their response to the prevention of dementia in Tanzania.
Methods: A cross-sectional study to collect the ranked opinions on risk factors was conducted in Makandana, Kiwira and Ikuti wards of Rungwe district, Mbeya, Tanzania. Community engagement was done by Vijiji Tanzania a non-profit organization in Mbeya Tanzania. Participants included healthcare workers, community leaders and regular community members aged >60 years. A special app to rank the priorities called the "Vijiji App" was used after adapting the James Lind Alliance methodology. The 14 modifiable dementia risk factors from the 2024 Lancet Commission report were discussed and ranked alongside additional factors identified by the community.
Results: A total of 116 participants were recruited with a mean age of 60.7 years (SD 16.2) ranging from 25 years to 93 years with 40 being female (34.8%) and 75 being male (65.2%). There were 10 community leaders (8.6%), 84 regular participants aged >60 (72.4%) and 22 health workers 19.0. The priorities ranking as per the Lancet report of 2024 were ordered as alcoholism, low education, gonorrhoea, head injury, social isolation, visual impairment, smoking, inactivity, diabetes, hypertension, obesity, cholesterol, eye problems, deafness and pollution [employment category ($p<0.001$), level of education ($p<0.001$), and marital status ($p<0.001$)]. The risk factors proposed and ranked by local participants by the order were bereavement, low level of education, poverty, alcoholism, depression, marriage problems, and frequent diseases [employment category ($p<0.001$), level of education ($p<0.001$), and marital status ($p<0.001$)].
Conclusion: These priorities are setting-specific and guide future dementia prevention initiatives among older people in Tanzania.

Development and suitability of neuropsychological tests among older adults in Tanzania: Implications of the findings of the Tanzania 2022 Population and Housing Census.

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Background and Objectives: Dementia is a global public health problem and third largest contributor of neurological disability adjusted life years (DALYs). Currently, dementia affects over 55 million people across the world and over two-thirds live in low-and-middle-income countries (LMICs) where over 75% (24.8million) remains undiagnosed. The identification of dementia using valid and reliable measures of cognitive impairment is crucial for the development of effective preventive interventions, treatments and care plans. Cognitive performance is markedly affected by demographic, educational and cultural factors. We reviewed the 2022 Population and Housing Census report in Tanzania to highlight the factors that may influence development and suitability of neuropsychological assessment batteries among older adults in Tanzania.
Methods: Enumerators and supervisors were recruited and trained to collect data using digital census instruments that were developed in accordance with the United Nations Census recommendations. We report here data for the adults aged 60+years on literacy, numeracy and disabilities (memory, sensory, and communication impairments).
Results: Adults aged 60+ constituted 5.7% (3,491,983) of the population. Literacy and numeracy rates were 59.7 % and 67.7 % respectively in those aged 60+ and decreased with age. Disabilities in hearing, vision, memory and communication were reported by 1.1%, 0.6% ,3%, and 0.6% of the population, respectively, and increased with age.
Conclusion: Literacy and numeracy decrease with increasing age in those over 60. Communication, hearing and visual problems are predominant noted disabilities in older adults. Our findings may inform the development and suitability of neuropsychological assessment batteries among older adults in Tanzania.

Dementia stigma reduction in an African setting: A call to policy action.

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In Africa, dementia is considered normal part of ageing and/or associated with stigmatizing beliefs such as witchcraft, resulting in inconsistent health seeking behavior. We aim to describe plans to ascertain the long-term effectiveness of a locally developed Dementia Anti-Stigma Intervention (DASI) in order to establish a community resource that will improve dementia understanding, reduce stigma and improve health behaviour. To achieve this, we will first generate representative data about what dementia stigma looks like and who is likely to hold these beliefs using a survey of 600 adults in a Kenyan rural setting. These findings will be fed into the DASI, to better tailor it to the needs of the local people. We will then determine the effectiveness of the DASI among members of the general public, through a stepped wedge cluster randomized trial. The DASI consists of four psychoeducation sessions and is contextually developed for delivery by lay providers in a group setting, with each session ranging between 1.5 to 2 hours. It has shown short-term benefits in reducing negative beliefs in Kenya. In order to ascertain whether some beliefs that are deeply ingrained in the communities can improve in the long-term, we will test the effectiveness of the DASI in Kenya with funding from the Alzheimer's Association. Evaluation will be performed by reporting the change in dementia-related knowledge, attitudes behavior changes at 6-and 12 months after the intervention. Given the expected increase in the number of people with dementia by 2050, approaches that raise awareness will provide a route to improve the lives of 100,000s of people with dementia in Kenya by tackling stigma. These findings will contribute to understanding dementia-related stigma in Kenya, how to reduce it, and ultimately provide mechanisms to minimize health inequality while promoting dementia prioritization and a dementia-inclusive society in policy planning.

An African-origin protective haplotype for Alzheimer's disease.

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Recently, our group described a protective locus from African origin (rs10423769_A) that has a statistical interaction with APOEε4 reducing the risk of AD up to 75% in APOEε4 homozygotes. The locus is located 2 MB upstream from APOE in an area of segmental duplication (SD) in a cluster of pregnancy-specific glycoproteins (PSGs) and a lncRNA. The aim of this study was to get insights into the mechanism of protection involved in this locus using long read sequencing and genome assembly techniques to resolve the area of SD. We used whole-genome sequencing (WGS) with the Oxford Nanopore PromethION in carriers and non-carriers rs10423769_A (n=38), followed by local genome assembly of reads with TREAT/Otter. We are also performing PacBio Revio WGS (n=9), followed by assembly using hifiasm, and building of pangenome graphs and structural variation (SV) calling with minigraph. Nanopore data indicated that the protective allele is associated with an expanded variable number of tandem repeats (VNTR) region 32 kb of rs10423769_A. Motif analysis showed that the 29bp repetitive sequence, which occurs in a significantly higher number with the protective allele, carries predicted binding sites motifs for the MEF2 family of transcription factors, which are involved in neuronal development. PacBio sequencing and genome assembly confirmed the co-occurrence of the expanded VNTR with the protective allele, and overall detected a higher number of SVs in the 1 mb SD region surrounding the A haplotype when compared to the reference, which are currently under investigation. We speculate that the differences identified between the protective and reference haplotype contribute to changes in binding of regulatory elements or chromatin structure, which could directly change APOEε4 expression or the expression of intermediaries.

Harmonisation of neuropsychological assessment for Alzheimer's disease diagnosis across diverse African settings: A Pilot Study from the African Dementia Consortium (AfDC).

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Background: Most cognitive assessment batteries for Alzheimer's Disease (AD), are developed in high income countries (HICs), where most international dementia collaborations and data originate. These batteries and initiatives may not be representative of the majority of people living with dementia worldwide who reside in low and middle income countries, including sub-Saharan Africa (SSA). The African Dementia Consortium (AfDC) is a new scientific collaboration network currently participating in the Recruitment and Retention for Alzheimer's Disease Diversity Genetic Cohorts in the Alzheimer's Disease Sequencing Project (READD-ADSP). This pilot study investigated pilot of a cognitive battery adapted from the US Uniform Data Set Version 3 (UDS3) alongside SSA specific measures where available, in diverse cultural contexts of the AfDC during the process of protocol design.
Methods: The recruitment target was 24 individuals (12 with >12 years education, 12 with < 12 years education) aged over 60 years per site. Recruitment tool place in Nigeria (3 sites), Tanzania, Kenya, Ghana, Mozambique, Benin and Ethiopia, using convenience sampling. Feasibility data included time taken for completion, proportion of 'complete failure' on individual items, language and translation challenges.
Results: Data were available from 10 sites across 7 countries. Mean scores on some US measures (MINT, Benson figure copy, word list recall) with minor adaptations, were similar to US norms. In contrast, other tests appeared highly challenging (e.g., Trail Making Test, Craft Story) with median scores well outside the HIC range and a high rate of 'total failure' (Trails B). Cultural adaptations were necessary and unexpectedly challenging including sound selection and categorical conceptualisation for verbal fluency tasks and protocolising for bilingualism. Median scores varied by site and education, highlighting the need for appropriate local normative values. All adaptations and modifications were carefully documented and will be used by the ADSP-Phenotype Harmonization Consortium to integrate AfDC cognitive test data with other ADSP cohort data.
Conclusion: Further work should outline required steps for cross cultural harmonisation across countries, especially in SSA as a guideline for other collaborations. Capacity building in neuropsychological assessment is likely to be of benefit in future AfDC collaborations due to the expected need for harmonization. The publication of normative values for frequently used AD cognitive measures specific to diverse SSA sociocultural contexts of SSA is needed.

Genetic covariance analysis of Alzheimer's disease and stroke implicates PHLPP1 as a shared locus in individuals of African ancestry.

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Aims: Neuropathological and neuroimaging studies indicate that cerebrovascular disease (CVD) is a major risk factor for Alzheimer's disease (AD) with a significant subset of AD cases also presenting vascular disease. The molecular mechanisms underlying the correlation between CVD and AD remain unclear. To elucidate the mechanistic relationship between the two phenotypes, the current study examined the genetic correlation between stroke and AD in individuals of African ancestry.
Methods: Capitalizing on the results from recent genome-wide association studies (GWAS) on AD (2,844 cases; 6,521 controls; Ray et al., 2024) and stroke (3,961 cases; 20,030 controls; Mishra et al., 2022) in individuals of African ancestry, genetic correlation analysis was conducted using LAVA, which partitions the genomes based on LD structure and estimates local genetic covariance within each resulting partition to detect regions of shared genetic association between traits of interest.
Results: Genetic covariance analysis identified a locus shared between AD and stroke on chromosome 18q21.33 that includes the PHLPP1 gene (ρ = .77, P = 2.41×10-6). Examination of the LD structure and genetic association patterns identified an identical disease-associated haplotype exerting an effect in the same direction in both traits. PHLPP1 is strongly expressed in the brain, is differentially expressed in AD cases vs controls, and has a moderately high AD risk score of 3.27 according to Agora (agora.adknowledgeportal.org).
Conclusions: Pleckstrin Homology domain Leucine-rich repeat Protein Phosphatases (PHLPP) are regulators of multiple cellular processes involved in neurodegenerative diseases including memory formation, neuronal survival, and neuronal glucose metabolism. Identification of shared etiological mechanisms between AD and CVD in diverse populations will aid in elucidating the underlying etiologic mechanisms and inform the development of more effective and personalized treatment and prevention strategies for both disorders.

Dolutegravir and Tenofovir Alafenamide Have Associated with More Depressive Symptoms and Premature Aging in People with HIV: A Possible Implication for Low and Middle-Income Countries (LMIC).

Upal Roy[1], Avery Matthews[2,3], Asante R Kamkwalala[4], Ankita Garg[5], Hansapani Rodrigo[1], Beau Ances[5], David B Clifford[5], Benjamin B Gelman[6], Christina M Marra[7], Susan Morgello[8], Leah Rubin[4], Donald Franklin[9], Robert K Heaton[9], Jue Lin[10], Ronald J Ellis[9] and Scott L Letendre[9].

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People with HIV (PWH) are at high risk of age-related diseases even while receiving antiretroviral therapy. This premature aging may be reflected by biological aging biomarkers such as telomere length. Likewise, Integrase strand transfer inhibitors (InSTIs) dolutegravir (DTG), have been linked to neuropsychiatric adverse events but few reports have used standardized assessments of depression that influence age and antidepressant use. We investigated the impact of tenofovir (TFV) and DTG on aging, and depressive symptoms in PWH taking ART over 12.4 years in the CHARTER project. Telomere length was measured in blood-derived cells by qPCR and was analyzed as the telomere to beta-globin single copy gene (T/S) ratio by mixed effects models that are adjusted for demographic and disease characteristics as well as leukocyte count and duration of follow-up. For the DTG study, the Beck Depression Inventory (BDI)-II and four subscales were compared to demographic characteristics, use of InSTIs and antidepressants, and clinical biomarkers in a cross-sectional design by multivariable linear regression. The result indicated that the T/S ratio of PWH who used TFV, either disoproxil fumarate (TDF) or alafenamide (TAF), declined more over time than of those who did not use TFV. The interaction analyses with the DTG cohort identified that DTG was associated with worse BDI-II principally among those older than 60 years and those who were not using antidepressants. Therefore, these two studies concluded that PWH who use TAF have a greater decline in telomere length than PWH who do not use TAF, even after accounting for demographic and disease characteristics. In addition, DTG use may increase depressive symptoms in older PWH and also those who do not use an antidepressant. Considering the recommendation of TAF and DTG use in LMICs, this observation will provide important information regarding the long-term effect of these drugs in PWH in LMICs.

Unmet Care Needs Among People with Dementia and their Informal Caregivers in Zambia.

Faith Simushi[1,2], MBChB, MMED, Jeremy Tanner[3], MD, MPH, Stanley Zimba[2], MBChB, MMED, STP-Neurology and Deanna Saylor[1,4], MD, MHS.

1) Department of Internal Medicine, University of Zambia, Zambia; 2) School of Medicine, University Teaching Hospital, Lusaka, Zambia; 3) Glen Biggs Institute of Alzheimer's and Neurodegenerative Diseases, University of Texas Health, San Antonio, TX, USA; 4) Department of Neurology, Johns Hopkins University, School of Medicine, Baltimore, MD, USA.

Objective: To assess the prevalence of unmet care needs of community-based people with dementia (PWD) and their informal caregivers in Lusaka, Zambia. Background: With a growing number of PWD across the world, identifying a source of regular caregiving for PWD has become a routine practice. In lower-income settings, informal caregivers assume this responsibility and serve as an interface between PWD and health services. PWD together with their caregivers have needs that relate to care, services and support which increase the risk of undesirable health outcomes.
Design/Methods: This was a cross-sectional study of pairs of PWD and their primary informal caregiver. Participants underwent interviews to assess dementia related needs using the Johns Hopkins Dementia Care Needs Assessment. Bivariable and multivariable regression analyses were conducted to identify demographic, clinical, functional and quality of life correlates of unmet needs as well as identify the independent predictors of unmet needs among PWD and their informal caregivers.
Results: The mean proportion of unmet needs for PWD was 57% while that of caregivers was 62%. Significantly higher unmet needs were associated with having attained less than a tertiary education and having an unknown type of dementia. PWD had unmet needs in the domains of meaningful activities, legal issues and advance care planning, and resource referral while caregivers had the most significant unmet needs in the domains of community resources, respite, and mental health counselling.
Conclusion: The study identified that PWD in Zambia and their informal caregivers had a high prevalence of unmet care needs in multiple domains, highlighting the need for a more comprehensive and holistic approach to dementia care in resource-limited settings like Zambia. Future studies of locally contextualized interventions to improve care for PWD and their informal caregivers are urgently needed in Zambia and other similar settings.

Dementia Diagnosis and Post Diagnosis Support in Mauritius.

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Diagnosis at the five Regional Public Hospitals at the Early Dementia Diagnosis Clinic (EDDC), Diagnosis at the Private Clinics, Post Diagnosis Support at the Hospitals and in the Community. Association Alzheimer & Dementia (AAD) contribution. Ageing Population, the high risk of NCD's and the 14 risk factors for Dementia. Dementia diagnosis rate. Community health services and competencies for diagnosis. Education of the general population and inclusion of dementia in curricula of Universities, courses for medical, nursing and paramedical students, including Social Care workforce. ICOPE implementation in the different Area Health Centres in collaboration with MOHW and MSS. Referrals to the Dementia Diagnosis Clinics. Multidisciplinary teams, consist of Geriatrician, Neurologist, Psychiatrist, Medical Officer, Nurse, Psychologist and Social Worker. Use of adapted tools, MMSE, MoCA, DALY, PHQ9. All blood tests available except genetic studies, are done on special request. Brain Scan and MRI are done if required. Post Diagnosis support to the person living with dementia and to their families, by the health and Social Care professionals at the Dementia clinics and also by the health Professionals at private clinics. The AAD provides support individually to carers and parents of persons with dementia weekly at the Day Care Centre. Review of patients and families at the clinics on a regular basis. Started a course of "Training of Carers on how to care for persons living with dementia and AD" by AAD and the Mauritius Institute Training and Development. Setting up of a National Resource and Day Care Centre to implement our vision of support to PwD.

Collaborating for Improved Dementia Care in the Balkans: Insights from North Macedonia's START and NOMAD Projects.

Marija Taneska[1,2], Penny Rapaport[3], Gabriela Novotni[4,5,6], Andrea Ivanovska[4], Svetlana Iloski[4], Antoni Novotni[3,4,6], Julia Fischer[7], Vildan Dogan[7], Milos Milutinovic[4,6], Ljubisha Novotni[4], Shpresa Hasani[2], Timo Grimmer[7], Alexander Kurz[7] †, Vesna Dimitrova[8], Ivan Chorbev[8] and Boban Joksimoski[8].

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Dementia poses a significant global health challenge, disproportionately affecting Low- and Middle-Income Countries (LMICs), where two-thirds of individuals with dementia reside. In the Balkans, LMICs face numerous obstacles, including underdeveloped healthcare infrastructure, an aging population, reliance on family caregivers, and the absence of national dementia strategies. This presentation examines the opportunities and challenges encountered in two collaborative dementia care projects in North Macedonia: NOMAD (North Macedonia Interprofessional Dementia Care) and START (STrAtegies for RelaTives). These projects aimed to adapt and test innovative dementia care models through partnerships between local institutions and High-Income Countries (HICs). NOMAD evaluated a home-based case management model delivered by Memory Teams, in collaboration with the Technical University of Munich (TUM). START focused on adapting a psychoeducation program for caregivers, in partnership with University College London (UCL). The collaborations demonstrated the feasibility of HIC-LMIC partnerships in dementia care, highlighting the importance of integrating HIC expertise with local knowledge to ensure cultural sensitivity and high-quality implementation. However, challenges included limited healthcare infrastructure, lack of awareness and dementia-related stigma, inadequate dementia diagnosis, insufficient involvement of general practitioners, and difficulties in reaching underserved populations. Additionally, the lack of policy influence and system readiness raised concerns about the scalability of these interventions. This presentation will discuss these findings and suggest alternative implementation strategies, such as NGO partnerships, to enhance the sustainability and impact of dementia care in the region.

An intervention for people with cognitive impairment: Adaptation of the Cognitive Stimulation Therapy Manual for use across Zimbabwe.

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Cognitive stimulation therapy (CST) is an evidence-based, group intervention for people with dementia, using themed activities to stimulate cognitive function. The CST manual requires cultural and context specific adaptation, therefore we aimed to adapt the UK-developed CST manual to generate CST-Z for use in Zimbabwe by non-specialist trained lay community champions. The adaption process involved multiprofessional stakeholder interviews with (a) international stakeholders with experience of CST adaptation in African and Asian countries, (b) local dementia-focused charity workers, (c) 13 men and 12 women aged 60 years and older within the local community in Harare. Considerations included: scalability, cost, political and financial sensitivities, limited amenities, literacy, resources, cultural and contextual relevance. The manual was finalised with an old-age psychiatrist (SMP) experienced in use of CST in African contexts. The adaptations involved substituting European images and illustrations with culturally relevant African materials. All political discussions were omitted from the manual, and current affairs were replaced with community news. Electrical equipment was replaced with locally available resources and homemade materials. Additionally, opening and closing prayers were incorporated, the session on 'using money' was entirely revised, and a certificate of completion was introduced for participants who attended all sessions. In conclusion, after a successful structured adaptation process, we have produced a CST-Z manual ready for translation and use across Zimbabwe. The CST-Z manual will be used as part of a community-level intervention for older people in Harare beginning 2025.

Cardiometabolic Risk Factors and Cognitive Function: Under-diagnosis and its Association with cognitive impairment and dementia in multi-ethnic African Cohorts in Kenya and Nigeria.

Chinedu Udeh-Momoh[1,2,3,4,5], Jasmit Shah[1], Litha Musili[1], Harrison Kaleli[1], Cynthia Smith[1], Anne Njogu[1], Catherine Bikeri[1], Rachel Maina[1], Chiadi Onyike[6], Ozioma Okonkwo[7], Zul Merali[1], Rufus Akinyemi[8], Mansoor Saleh[1], Karen Blackmon[1] and Adesola Ogunniyi[8].

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Background and Objectives: Risk factors for dementia, such as hypertension and diabetes, are modifiable health conditions that are often underdiagnosed or undertreated, particularly in African populations. This study aimed to investigate the discrepancy between self-reported and objectively measured cardiometabolic risk factors (CMRFs) and their association with cognitive function and incident dementia in multiple indigenous African cohorts. Additionally, sex-specific differences in underdiagnosis were explored.
Methods: Data from three cohorts were analysed: the rural Yoruba ethnic group from the Ibadan Nigerian cohort of the Indianapolis-Ibadan Dementia study (n=4,353; mean age 74 years; 66% female), the Davos Alzheimer's Collaborative-funded AD-Detect Kenya project (n=51; mean age 55 years; 51% female), and the Wellcome Leap-funded Brain Resilience Kenya study (n=61; mean age 61 years; 61% female). Self-reported hypertension, diabetes, and dyslipidaemia/ hypercholesterolemia were compared to objectively determined values from systolic blood pressure (SBP), fasting blood glucose (FBG), body mass index (BMI), and total cholesterol. Associations between cardiometabolic risk index, cognitive function, and time to incident dementia were analyzed, including sex-specific interactions.
Results: In the Ibadan cohort, 7% developed dementia over a mean follow-up of 7±4 years. Incidence data are not yet available for the other cohorts. In all cohorts, significant associations were observed between older age, higher SBP, elevated FBG, history of stroke, smoking, and lower social engagement with increased dementia risk and poorer cognitive function. A notable discrepancy existed between self-reported hypertension and diabetes and objectively measured high SBP and FBG, suggesting significant underdiagnosis. Sex-specific differences in underdiagnosis were also observed.
Conclusion and Future Directions: This study highlights the underdiagnosis of cardiometabolic risk factors in African populations, particularly in relation to dementia risk. Addressing these gaps is critical for developing targeted interventions to improve early diagnosis and prevention strategies in African communities. Future research will explore longitudinal associations between cardiometabolic risks and cognitive decline across diverse African settings.

A population-level approach to dementia risk reduction (PLADRR).

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Aims: To define, summarise existing evidence for, and build the evidence base for population-level approaches to dementia risk reduction. Background Evidence from high-income countries shows a reduction in the age-specific incidence of dementia over recent decades. This suggests that the risk of dementia in the population can be reduced. Recent evidence has even suggested that greater prosperity and increased health behaviours across the lifecourse can lead to an absolute reduction in years lived with dementia despite greater life expectancy ('compression of morbidity'). This suggests that, though ageing of populations is forecast to lead to an increase in dementia prevalence, this could be mitigated at least in part by efforts to reduce dementia risk across the population.
Approach: Reducing dementia risk can be achieved by action on established modifiable risk factors. Broadly, this can be done either by encouraging individuals to understand and lower their own risk, or by changing the societies and environments in which people live and age such that they are more conducive to brain health. There are concerns that individual-level approaches will be ineffective and/or widen dementia inequalities, whilst the latter approach has received insufficient attention from the dementia research community.
Research: Mixed methods research including semi-structured interviews with policymakers in England to explore perspectives on, and barriers and facilitators to, individual- and population-level approaches to dementia risk reduction; reviews of population-level intervention theory, existing dementia risk reduction literature, and empirical population-level interventional evidence for action on dementia's modifiable risk factors; quantitative analysis of a population-based cohort in England to investigate whether Rose's prevention paradox and the compression of morbidity hypothesis can be empirically demonstrated for dementia; and policy analysis to investigate the focus (individual- or population-level) and agency of existing dementia risk reduction policy in England.

Developing inclusive and sensitive assessments for Alzheimer's disease detection in Down syndrome.

Tamlyn J Watermeyer[1-4], Joe Butler[3-5], Dale Metcalfe[1], Chinedu T Udeh-Momoh Brain[6-8] and Mario Parra-Rodrigues[4,9].

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Background: Despite their higher risk for, and earlier onset of, Alzheimer's disease (AD), there is a lack of innovation in neuropsychological assessment for people with Down syndrome. Novel digital measures which may be more sensitive to the earlier stages of Alzheimer's disease have yet to be adapted for this population. The Revolutionising Alzheimer's disease in Down syndrome (RAD) study aims to address these inequalities. A key digital measure that assesses conjunctive memory binding may be a good candidate as a sensitive measure to index AD earlier in this population.
Methods: This community-based project aims to recruit 40 participants with Down syndrome and their carers throughout the North of UK to pilot a suite of digital cognitive measures, assessing executive function and memory. IQ and traditional measures considered the gold-standard for AD assessment in Down syndrome populations are also used. The feasibility and acceptability of remote saliva ascertainment as a non-invasive alternative for possible AD detection is assessed. One experimental measure, the digital visual short-term memory binding test (dVSTMB), provides a binding-cost (BC) score metric that correlates with AB deposition across preclinical AD populations. BC scores for the sample were calculated and considered in the context of age, gender and IQ.
Results: To date, n=16 participants [mAGE 26.5 (5.3), 21-39: mIQ 56 (7.3), 43-82: 9M/7F] are enrolled. Of those that completed the dVSTMB test (n=13), n=6 (46.3%) showed BC scores meeting performance thresholds indicative of AD. Age, gender and IQ do not appear to influence performance on this task.
Conclusion: Due to the small sample size, caution is advised in the interpretation of these preliminary findings. Nonetheless, performance metrics on a novel task known to be sensitive to early AD processes, indicates that even in this relatively young sample of adults with Down syndrome some participants show comparable performance with people with early-stage AD. Recruitment is on-going. It is hoped that a larger pilot sample will fully consider performance on the dVSTMB in relation to background variables and other neuropsychological measures as well as performance on other novel digital tests.

RECORDED PRESENTATIONS

Mauritius super ageing and the centenarian's brain health risk factors and resilient factors for healthy living.

Geeta Devi Dorkhy[1,2], Master of Hospital Administration, MPH, MBBS, Atlantic Fellow for Equity in Brain Health.

1) Global Brain Health Institute, Mauritius; 2) Trinity College Institute of Neuroscience, Trinity College, Dublin, Ireland.

Mauritius has an ageing population with about 20% aged 60 years and above. It has 172 centenarian people. The prevalence of non-communicable disease, cardiovascular diseases, stroke and cancer are on rise. It is therefore crucial to understand the risk factors and the protective factors for brain health in super ageing and the centenarian groups in Mauritius. Super aging in Mauritius with study on the cognitive reserve and good physical health in Mauritius, is of researcher's interest. It is of the researcher's interest to develop a study based on risk factors and resilient factor in brain health to understand the super aging process and the lived experience of centenarians in Mauritius. The last report on centenarian dated in 2009. Ageing gracefully and respectfully for longevity is needed, especially since data is limited. Promotion of healthy ageing in Mauritius is essential. The health policies strategies should target the reversible and modifiable risk factors and the promotion of resilient brain risk factors to cater for healthy people in Mauritius. It is also an understanding of the unique characteristics of this group of people which focuses on specific strategies to living well and healthy among others. Brain health is a powerful mix of understanding between mental capacity and physical health together with changing environment and stressors. Healthy ageing for Mauritius is key to preserving beauty in diversity and unity.

Social exposome and brain health outcomes of dementia across Latin America.

Joaquin Migeot[1,2], Stefanie D Pina-Escudero[3,4], Hernan Hernandez[1], Raul Gonzalez-Gomez[1], Agustina Legaz[1,5], Sol Fittipaldi[1-3], Elisa Resende[3,6], Claudia Duran-Aniotz[1], Jose Alberto Avila-Funes[7], Maria I Behrens[8-10], Martin A Bruno[11], Juan Felipe Cardona[12], Nilton Custodio[13], Adolfo M García[3,5,14], Maria E Godoy[1,5], Kun Hu[15], Serggio Lanata[4], Brian Lawlor[2], Francisco Lopera[16], Marcelo Adrian Maito[5], Diana L Matallana[17], Bruce Miller[3,4], Jaime J Miranda[18], Maira Okada de Oliveira[3,19], Pablo Reyes[17], Hernando Santamaria-Garcia[17,20], Andrea Slachevsky[21-24], Ana L Sosa[25], Leonel T Takada[26], Jacqueline M Torres[27], Sven Vanneste[2,28,29] Victor Valcour[3,4], Olivia Wen[30], Jennifer S Yokoyama[3,4,27], Katherine L Possin[3,4] and Agustin Ibanez[1-3,5]*.

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The social exposome, which involves multidimensional factors associated with economic, health, and social disparities over the life course, can influence the prevalence, progression, and severity of dementia. Such factors are exacerbated in regions like Latin America. The negative impact of low education and low socioeconomic status (SES) on dementia is well known, nevertheless, the effects of multidimensional lifespan exposome on brain health is unknown. Here, we explore the association between the multidimensional social exposome and brain health outcomes of healthy aging and dementia. An extensive assessment of education, nutrition, financial status, assets, access to healthcare, childhood labor, subjective SES, childhood experiences, traumatic events, and relationship assessments, incorporating different facets of each domain (e.g., parental education, financial stress) were included across the lifespan (from birth to present). We cross-sectionally assessed 2,211 individuals, comprising healthy controls, persons with Alzheimer's disease (AD), and frontotemporal lobar degeneration (FTLD) from Latin America. Structural equation modeling of cumulative social exposome shown significant associations with poorer cognition in healthy aging, mainly modulated by variables related to education and socioeconomic status. In people with dementia, the more adverse the social exposome, the lower the cognitive functioning, functional ability, and increased neuropsychiatric symptoms. Nutrition, financial status, subjective SES, and access to healthcare across different life stages were the most critical predictors. Compared to the effect of individual predictors, the cumulative effect of social exposome was more robust in predicting clinical-cognitive phenotypes across groups. Brain structural and connectivity alterations were associated with more adverse social exposome in dementia-sensitive and cerebellar regions, particularly frontal and cerebellar hubs in AD, and fronto-temporo-limbic and cerebellar regions in FTLD. These findings underscore the extensive impact of multidimensional social exposome on brain health, calling for personalized models of biological-environmental interactions in underserved populations and tailored prevention efforts.

POSTER PRESENTATIONS I (WITH FLASH TALK)

(in alphabetical order by presenting author)

P-01 **Olufunto Omodele Adeleye**, Department of Anatomy, Faculty of Basic Medical Sciences, Ladoke Akintola University of Technology, Ogbomoso, Nigeria.
Rescue Role of Catechin and Oleanolic Acid in Drosophila Melanogaster Model of Lead-Induced Alzheimer's Disease.

P-02 **Olaleye Adeniji**, Department of Neurology, University College Hospital, Ibadan, Oyo State, Nigeria.
Subjective cognitive complaints and objective cognitive performance among a sample of Yoruba community-dwelling older persons from Southwest Nigeria: A cross-sectional study.

P-03 **Kazeem Akinwande**, Neuroscience and Ageing Research Unit, Institute for Advanced Medical Research and Training, College of Medicine, University of Ibadan, Nigeria.
Brain Banking in Low- and Middle-Income Countries: A Systematic Review.

P-04 **Rufus O Akinyemi**, Neuroscience and Aging Research Unit, Institute of Advanced Medical Research and Training, College of Medicine, University of Ibadan, Ibadan, Nigeria.
Determinants of Hand Grip Strength Amongst Older Nigerian Africans in an Urban Slum: Data from the Valiant Study.

P-05 **Rufus O Akinyemi**, Neuroscience and Aging Research Unit, Institute of Advanced Medical Research and Training, College of Medicine, University of Ibadan, Ibadan, Nigeria.
Exposure to Psychotropic Agents and Cognitive Dysfunction Among Community-Dwelling Older Nigerians: Insights from the Valiant Study.

P-06 **Udunna Anazodo**, McGill University, Canada.
The African Dementia Imaging Protocol (ADIP).

P-07 **Collins Otieno Asweto**, Department of Community Health, School of Nursing, University of Embu, Kenya.
Role of Suboptimal Health Status tools in dementia early detection and prevention to form future interventions in Africa.

P-08 **Oviosun Augustine**, Department of Anatomy, Faculty of Biomedical Sciences, Kampala International University, Western Campus, Ishaka-Bushenyi, Uganda.
Neuroprotective Role of Zingerone on Cadium Induced Cognitive Deficit, Neuroinflammation and Microglia Activation in the Hippocampus.

P-09 **Jacob Apibilla Ayembilla**, Department of Science Laboratory Technology, Faculty of Applied Sciences, Accra Technical University, Box GP561, Barnes Road, Accra, Ghana.
Predictive value of CSF fatty acids in differential diagnosis of Cognitive Healthy, Mild Cognitive Impairment and Alzheimer's Disease.

P-10 **Richard E Brown**, Dalhousie University, Halifax, Nova Scotia, Canada.
Synaptopathies in Neurodegenerative disorders: Neural and non-neural factors.

P-11 **Eniola O Cadmus**, Department of Community Medicine, College of Medicine, University of Ibadan of Ibadan, Oyo State, Nigeria.
Development and testing of a capacity-building programme for informal caregivers of community- dwelling older persons ageing in place.

P-12 **Eniola O Cadmus**, Department of Community Medicine, College of Medicine, University of Ibadan, Nigeria.

'They are mad and must be hidden or locked away': A Qualitative Survey of Community Member's Perception About Dementia from African Countries Participating in the READD – ADSP.

P-13 **Olga Castañer**, Cardiovascular Risk and Nutrition Research Group, Hospital del Mar Medical Research Institute (IMIM), Barcelona, Spain.
Protective Role of HDL-Mediated Cholesterol Efflux in Dementia Incidence Among Elderly Adults at High Cardiovascular Risk: Implications for Low- and Middle-Income Countries.

P-14 **Motunrayo M Coker**, Neuroscience and Ageing Research Unit, Institute for Advanced Medical Research and Training, College of Medicine, University of Ibadan, Nigeria.
A Comparative Analysis of DNA Methylation Patterns and Post-Stroke Cognitive Impairment in West African and UK populations.

P-15 **Aminette D'Souza**, Nuffield Department of Clinical Neurosciences, University of Oxford, UK.
Digital Cognitive and Gait Biomarkers for Ageing and Parkinsonian syndromes: The OxQUIP Study.

P-16 **Celeste de Jager Loots**, AGEing Epidemiology Unit, Imperial College London, London, UK.
The World-Wide FINGERS International Working Group on Cognitive Outcomes for Precision Prevention of Dementia and Alzheimer's Disease with a focus on LMICs.

P-17 **Bilal El-Mansoury**, Laboratory of Anthropogenic, Biotechnology and Health, Nutritional Physiopathologies, Neurosciences and Toxicology Team, Faculty of Sciences, Chouaib Doukkali University, Av. Des Facultés, El Jadida 24000, Morocco.
Memory impairment in chronic hepatic encephalopathy involving hippocampal microglia activation and synaptic dysfunction.

P-19 **Eliza Georgiou**, Department of Psychiatry, Faculty of Medicine, University of Patras, Greece.
DEMETRA (DEMEntia Tracking Risk Assessment): Global Distribution of Modifiable Dementia Risk Factors – A Situational Analysis by Geographical Subregions and Income Levels.

P-20 **Eliza Georgiou**, Faculty of Medicine, University of Patras, Greece; Dementia Trials Ireland, Trinity College Dublin, Ireland.
Mapping Brain Health in Southeastern Europe: Key Determinants and Regional Outcomes in Aging LMICs.

P-21 **Anthony Griswold**, Univ. of Miami, Miami, FL, USA.
The Multi-Ancestry Genomics, Epigenomics, and Transcriptomics of Alzheimer's (MAGENTA) Project: Understanding Alzheimer's Disease Risk through Multi-omic Approaches.

P-22 **Maëlenn Guerchet**, Laboratory of Chronic Diseases Epidemiology (LEMACEN), Faculty of Health Sciences, School of Health Sciences, University of Abomey-Calavi (UAC) Cotonou, Benin.
Helping Carers to Care: implementation of the 10/66 Dementia Research Group caregiver intervention in rural Benin.

P-23 **Joy Louise Gumikiriza-Onoria**, Makerere University College of Health Sciences, School of Medicine, Mulago Hill Road, P.O. Box 7072, Kampala, Uganda.
Common Dementia Symptoms and Indigenous Caregiving Techniques in Uganda: Insights from Family Caregivers.

P-24 **Zahra R Haji**, The Aga Khan University Nairobi, Kenya.
Understanding Distress & Resilience Of Newly Diagnosed Cancer Patients Through The Distress Assessment & Response Tool (DART): The Brain Resilience Study Kenya.

P-25 **Yusuf Olamilekan Hamza**, Department of Physiology, Faculty of Basic Medical Sciences, College of Health Sciences, University of Ilorin, Ilorin 240003, Kwara, Nigeria.
The Neuroprotective Effect of Betulin in Dementia: Insilico Approach.

P-26 **Cynthia N Ikeji**, Department of Biochemistry, Faculty of Basic Medical Sciences, College of Medicine, University of Ibadan, Nigeria.
Myricetin Protects Against Atrazine-Mediated LRRK2/UCHL-1 Gene Mutation, Neurodegeneration, and memory deficit in a Rat Model of Parkinson's Disease.

P-27 **Beatrice Kimono**, MRC/UVRI & LSHTM Uganda Research Unit, Entebbe, Uganda.
Ethical and Practical Methods for Recruiting Older Adults for Dementia Research in Rural Uganda: Insights from the DEPEND Study.

P-28 **Georgia Konstantopoulou**, Department of Educational Sciences and Social Work, University of Patras, Greece.
A pilot study of a pragmatic awareness raising campaign regarding brain health in primary schools of Greece: An exportable model?

P-29 **Brian Kunkle**, University of Miami Miller School of Medicine, John P. Hussman Institute for Human Genomics, Miami, FL, USA.
Sex-specific genome-wide meta-analysis in an ancestrally diverse dataset identifies novel candidate risk loci for Alzheimer disease.

P-30 **Kamada Lwere**, Department of Medical Microbiology, College of Health Sciences, Makerere University, Uganda.
Prevalence of APOE Alleles in Alzheimer's Disease Among Elderly Ugandans: A Case-Control Study.

P-31 **Pedro Mena**, University of Miami, Miami, FL, USA.
The DAWN Alzheimer's Research Study: Expanding Diversity in the Alzheimer's Disease Sequencing Project (ADSP).

P-32 **Levi Muyela**, Brain and Mind Institute, Aga Khan University.
Adaptation of an Olfactory Test Kit for Detection of Alzheimer's Disease and Related Dementias in Kenya: Preliminary Findings.

P-33 **Baraka G Mwahi**, University of Dar es Salaam Mbeya College of Health Sciences, Tanzania; Vijiji Tanzania, Block T, Mbeya, Tanzania.
Cultural Adaptation of the Cookie Jar Theft into Banana Theft Picture for Diagnosing Dementia in Africa: Innovation from the Akili Mali Project.

P-34 **Rheem Nakimbugwe**, Habib Medical School, Faculty of Health Sciences, Islamic University in Uganda.
Door-to-Door Community Recruitment of Older Adults with Alzheimer's Disease and Related Dementias (ADRD): A Case Study in Uganda.

P-35 **Pascalyne Nyamai**, Africa Institute of Mental and Brain Health, Nairobi, Kenya; World Psychiatric Association Collaborating Centre for Research and Training, Nairobi, Kenya.
Collecting blood samples in a rural African setting to build a genomic resource for dementia research: a case-control study.

P-36 **Anne Nyambura Njogu**, Brain and Mind Institute, Aga Khan University.
The Female Brain Health and Endocrine Research in Africa Study (FemBER-AFRICA)

Culturally Adapted Cognitive and Advanced Diagnostic Approaches to Assess Sex Specific Differences in an African Population.

P-37 **Karen Nuytemans**, University of Miami, John P. Hussman Institute for Human Genomics, Miami, FL, USA.
Functional characterization supporting candidate gene INSYN2B in chromosome 5q35 locus identified in African Ancestry population.

P-38 **Godwin Ogbole**, Department of Radiology, University College Hospital, Ibadan, Oyo State, Nigeria.
Development of a Standardized Framework for Reviewing Neuroimages from Multiple African Centers in the READD-ADSP Study: A Pilot Data Approach.

P-39 **John-Paul Omuojine**, Komfo Anokye Teaching Hospital, Kumasi, Ghana, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.
Risk factors and outcomes of delirium in hospitalized older Ghanaians.

P-40 **Alice Ondieki**, Brain and Mind Institute, Aga Khan University, Kenya.
Transcultural adaptation of the biopsychosocial assessments and tools through focused group discussions.

P-41 **Rademene S Oria**, Department of Human Anatomy, University of Cross River State, UNICROSS, Nigeria.
Neuroprotection by zingerone in AlCl3/D-galactose induced model of AD in mice involves modulation of BDNF, astrogliosis, cholinergic system and oxidative/apoptotic cascades.

P-42 **Josephine E Prynn**, MRC/UVRI & LSHTM Uganda Research Unit; King's College London.
Defining cognitive screening cut-points in a rural Ugandan population to enable recruitment to the DEPEND study.

P-43 **Nicholas R Ray**, Columbia University.
Associations of markers of endothelial function with blood-based biomarkers of Alzheimer's Disease in individuals of admixed ancestry.

P-44 **Ayodeji Salami**, Department of Pathology, College of Medicine, University of Ibadan, Nigeria.
Brain Banking In Africa – Preliminary Experience In The Ibadan Brain Bank Project.

P-45 **Grace A Saria**, Anderson Memorial Rehabilitation and Care Organisation (AMRCO), Tanzania.
Community co-production in dementia research: A case study from Tanzania as part of the Akili Mali study.

P-47 **Faith Simushi**, Department of Internal Medicine, University Teaching Hospitals – Adult Hospital, Lusaka, Zambia.
Identifying Reversible Causes of Dementia Among Zambian Adults Screening Positive for Cognitive Impairment.

P-48 **Roberta F Strasenburgh**, Newcastle University, UK.
Feasibility of a culturally adapted picture description task as a measure of cognition within the older adult population of Hai, Northern Tanzania. An Akili Mali study project.

P-49 **Cynthia N Tangban**, Department of Anatomy, College of Medicine, University of Ibadan, Ibadan, Nigeria.
Neuroprotective Effect of Omega3 oil against ALCL3 induced oxidative stress in the cerebellum of adult male rats.

P-50 **Patrice L Whitehead**, John P. Hussman Institute for Human Genomics, University of Miami Miller School of Medicine, Miami, FL, USA.
Whole Genome Sequencing of Alzheimer's Disease in African Populations: Insights from the DAWN Study.

P-51 **Laura Wright**, Newcastle University, Newcastle upon Tyne, UK.
Verbal fluency performance of older adults in rural Tanzania: A community-based pilot study.

POSTER PRESENTATIONS II

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P-52 **Rufus O Akinyemi**, Neuroscience and Aging Research Unit, Institute of Advanced Medical Research and Training, College of Medicine, University of Ibadan, Ibadan, Nigeria.
Modifiable Risk Factors for Cognitive Dysfunction Among 1036 Community-Dwelling Older Nigerian Africans: Data from the Valiant Study.

P-53 **Oge Peter Arinze**, University of Cross River State, Nigeria.
Neuroprotective Effect of Zingerone on ALCL3/D-Galactose Induced Neurodegeneration and Immunoexpression of BDNF in Prefrontal Cortex of Albino Wistar Mice.

P-54 **Diana Thakya**, Africa Institute of Mental and Brain Health (AFRIMEB), Nairobi, Kenya.
Recruitment approaches in genetic study participation for Alzheimer's disease and related dementias in Kenya.

P-55 **Ozioma C Okonkwo**, Department of Medicine and the Wisconsin Alzheimer's Disease Research Center, University of Wisconsin-Madison School of Medicine and Public Health, Madison, WI, USA.
Biomarkers of neurodegeneration and synaptic dysfunction differentiate cognitively unimpaired individuals with high levels of Alzheimer's disease (AD) neuropathology from individuals with AD dementia.

P-56 **Cynthia Smith**, Brain and Mind Institute, Aga Khan University, Kenya.
A systematic review on the sex and gender influences on Alzheimer's disease biomarkers: Insights from African populations.

POSTER PRESENTATIONS I

(in alphabetical order by first author)

Abstract 01 (Poster with Flash Talk)

Rescue Role of Catechin and Oleanolic Acid in Drosophila Melanogaster Model of Lead-Induced Alzheimer's Disease.

Olufunto Omodele Adeleye[1-3], Yasar Olalekan Sulaiman[1-3], Oluwalonimi Precious Williams[1-3], Iyanuoluwa Victoria Adejumo[1-3], Emmanuel Oluwagbenga Adejobi[1-3], Rukayat Adebayo Fatunwase[1-3] and Joshua Ayodele Yusuf[1-3].

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Alzheimer's disease (AD) is a prevalent neurodegenerative disorder characterized by cognitive decline, memory loss, and neuronal dysfunction. Environmental toxins, such as lead, exacerbate AD symptoms by inducing oxidative stress and neuronal damage. Catechin and oleanolic acid, known for their antioxidant properties, may offer neuroprotective benefits. This study examines their combined effects in a Drosophila melanogaster model of lead-induced AD, assessing neurobehavioral, biochemical, and microanatomical outcomes. Drosophila melanogaster were divided into six groups (n=6) and exposed to lead, catechin, oleanolic acid, or a combination for seven days. Neurobehavioral assays (geotaxis and crawling activity) were performed, and biochemical analyses measured acetylcholinesterase (AChE) activity, glutathione-S-transferase (GST) activity, total protein, and oxidative stress markers. Histological analysis of the optic lobe and mushroom body was conducted using H&E and Amyloid Beta (Aβ) immunostaining. Lead exposure caused significant motor impairments, oxidative stress, and neuroanatomical damage, including Aβ plaque aggregation. Co-administration of catechin and oleanolic acid enhanced antioxidant activity, reducing lead-induced toxicity. This was evidenced by improved motor function, reduced oxidative stress, and preservation of brain architecture. Immunostaining revealed increased synaptic density and decreased neuronal loss, restoring brain morphology closer to control levels. The combination of catechin and oleanolic acid effectively mitigated lead-induced neurotoxicity in Drosophila, preserving both behavior and brain structure. These findings suggest their therapeutic potential in treating toxin-induced neurodegenerative conditions like Alzheimer's disease.
Keywords: Alzheimer's disease, Oleanolic acid, Catechin, Memory impairment, Neuronal dysfunction, Oxidative stress, Amyloid beta, Neurodegeneration.

Abstract 02 (Poster with Flash Talk)

Subjective cognitive complaints and objective cognitive performance among a sample of Yoruba community-dwelling older persons from Southwest Nigeria: A cross-sectional study.

Olaleye Adeniji[1,2*], Gabriel Ogunde[2], Oladotun Olalusi[1,2], Joshua Akinyemi[7], Olufisayo Elugbadebo[3,6], Temitope Farombi[6], Akintomiwa Makanjuola[1], Yomi Olorunsogbon[2], Dorcas Olujobi[2], Mayowa Ogunronbi[2], Eniola Cadmus[2,4], Lawrence Adebusoye[5,6], Femi Olowookere[5,6], Akin Ojagbemi[3,6], Mayowa Owolabi[1,2], Olusegun Baiyewu[3], Goldie Bryd[8], Adesola Ogunniyi[1], Margaret Pericak-Vance[9] and Rufus Akinyemi[1,2,6*].

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Background: Subjective cognitive complaints are common in older populations and are estimated to occur between 25-50% of community dwelling older persons.
Objectives: To determine the frequency and predictors of cognitive impairment and dementia among Yoruba - speaking community dwelling older persons (65 years and above) from 2 communities in Oyo State, Southwest Nigeria who have Subjective cognitive complaints. Design: Prospective, cross-sectional, observational study. Setting: Two urban communities in Oyo State (Ogbomosho and Orita - Aperin, Ibadan), South West Nigeria. Participants: One fifty (150) consenting and voluntarily participating elderly participants aged 65 years and above with subjective cognitive complaints. Intervention: None. Measurement: Demographic and clinical data were obtained using a pro forma. Participants also had neuropsychological assessment using various tools and a focused clinical examination by a physician. Categorization following a process of consensus diagnosis was according to International Classification of Diseases version 11 (ICD-11) namely dementia, mild cognitive impairment and no cognitive impairment. **Results:** There were no statistically significant differences in the socio-demographic and cognitive performance scores on neuropsychological testing across sites. At final diagnosis, 4 participants had dementia (2.7%) while 15 participants (10%) had mild cognitive impairment. On logistic regression, only moderate-severe decline on the Clinical Dementia Rating Scale was significantly associated with higher odds of cognitive decline in this sample.
Conclusion: About 1 in 7 older persons in this study already had objective cognitive decline. Subjective cognitive complaints in older Yoruba Africans should prompt early screening. Prospective studies to identify the consistent predictors of cognitive decline in this population are needed.

Abstract 03 (Poster with Flash Talk)

Brain Banking in Low- and Middle-Income Countries: A Systematic Review.

Kazeem Akinwande[1,2], Ayodeji Salami[3], Mustapha Ajani[3], Olaoluwa Famuyiwa[1], Johnson Akande[3], Olujobi Dorcas[1], Modupe Esther Adenaike[3], Mayowa Ogunronbi[1], Oyedunni Arulogun[4], Michelle Nichols[5], Temitope Farombi[6], Olorunyomi Felix Olorunsogbon[1,4], Jeffery Vance[7], Mayowa Owolabi[8], Jacob McCauley[7], Adesola Ogunniyi[8], Margaret Pericak-Vance[7], William K Scott[7], Rufus Akinyemi[1,8] and Rajesh Kalaria[9].

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Background: Brain banking involves the storage of part or whole brain tissue, spinal cord or their biopsies and cerebrospinal fluid. Whereas well developed brain banks exist in high–resource settings, low- and middle-income countries (LMICs) have more recent, fewer and less developed brain banks. The aim of this review is to describe the current landscape of brain banking in LMICs and highlight the challenges and the possibilities and priorities of scaling up brain banking in these low resource regions.
Methods: We conducted a systematic search using the PRIMA guideline in PubMed and Google Scholar since inception to 2024, using related terms such as 'Brain Biobanking', 'Neurobiobanking', 'Brain Research', 'LMICs', to retrieve related articles. Biobanking institutions with available websites were also visited to extract relevant information.
Results: From 110 publications retrieved, 31 papers were shortlisted and 38 reviewed articles on existing brain banking efforts were included. Of over 145 institutions with brain banking facilities worldwide, seven countries in the LMICs, including Argentina, Brazil, Colombia, China, India, Mexico and Nigeria have institutions that engage in brain biobanking. Factors such as economic and infrastructural challenges, religious and cultural beliefs, the dearth of neuroscience researchers from LMICs to propagate neuroscience research, lack of funding and low awareness have been major challenges mitigating against brain biobanking in LMICs.
Conclusion: The wide genetic disparity and the concept of precision medicine has exposed the need for inclusion of the hitherto underrepresented communities in brain research. As brain health is influenced by several heterogenous factors, variability due to factors such as social determinants of health and socio-economic disparities play important roles. The need for brain banking in currently underrepresented communities in LMICs is high. Facilitators include adequate funding, creation of awareness, adequate processing and storage infrastructure; globally applicable and locally adaptable and ethically sound regulatory and operational frameworks.

Abstract 04 (Poster with Flash Talk)

Determinants of Hand Grip Strength Amongst Older Nigerian Africans in an Urban Slum: Data from the Valiant Study.

Rufus O Akinyemi, MBBS, PhD[1-3], Oladotun V Olalusi, MD[1,2], Gabriel O Ogunde, MSc[3], Tolulope O Akinyemi, MSc, FMLSCN[4], Joseph O Yaria, MBBS, MSc[2], Eniola O Cadmus, MBBS, PhD[3], Femi O Popoola, MBBS, PhD[5], Mayowa Ogunronbi, MPH[1], Dorcas Olujobi, MSc[1], Olaoluwa Famuyiwa, BSc[1], Joshua O Akinyemi, PhD[5], Mayowa O Owolabi, DSc[2,3], Roman Romero-Ortuno, MD, PhD[6], Adesola Ogunniyi, MD, FAS[2,3,7] Brian Lawlor, MD[8-10] and Raj Kalaria, DSc[11].

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Background: Hand-grip strength (HGS) is known to be a surrogate marker of not only fitness and frailty, but of cognitive and cardiometabolic health. It is cheap, readily deployed and can be a valuable tool in resource-limited settings. Little however is known about the determinants and correlates of HGS in sub-Saharan Africa, where stroke and vascular cognitive disorders are projected to exponentially increase. We examined the determinants of HGS among older adults in a rural community in Ibadan, South West Nigeria.

Method: Vascular heAlth, fraiLty and cognition in Ageing Nigerians (VALIANT) Study is an ongoing longitudinal community-based cohort study aimed at exploring the association between cardiovascular health, cognition and frailty in Nigeria. One thousand (1000) participants have so far been recruited (via a multistage, stratified cluster random sampling method) and have been taken through a battery of cardiovascular, cognitive and frailty assessment tools. Data on HGS, obtained using a digital hand dynamometer, was available for 480 men and women aged ≥50years. Clinical frailty was assessed using the Rockwood's clinical frailty scale (CFS) score. A multivariable adjusted linear regression analysis was used to assess the determinants of HGS. All associations were reported as coefficients with 95% confidence intervals (CI).

Results: The mean age was 64.5 (±11.8) with 35% males. The mean HGS was higher among males (22.86 ± 10.1) than in females (16.26 ± 6.1) ($p<0.001$) and decreased with increasing age and in the left hand. Using the Rockwood frailty scale, 66 (13.8%) of the study participants were vulnerable to frail, 43% had mild cognitive impairment (MOCA 18 – 25) and 36% had moderate-severe cognitive impairment (MoCA <17). In the multivariable linear regression analysis, the independent determinants of HGS with corresponding beta coefficients (95%CI) were age >80 -3.43 (-6.60; -0.26), female gender -5.55 (-7.20; -3.90), presence of cognitive impairment (MoCA score<19) -2.03 (-3.86; -0.20), higher IDEA-ADL 0.24 (0.04; 0.44), and higher CFS -0.87 (-1.70; -0.03).

Conclusions: Amongst older adults in Nigeria, older age, female gender, presence of cognitive impairment and clinical frailty were independently associated with HGS. This study has identified unique determinants of HGS among West Africans.

Abstract 05 (Poster with Flash Talk)

Exposure to Psychotropic Agents and Cognitive Dysfunction Among Community-Dwelling Older Nigerians: Insights from the Valiant Study.

Rufus O Akinyemi, PhD[1-3], Oladotun V Olalusi, MD[1,2], Gabriel O Ogunde, MSc[3], Tolulope O Akinyemi, MSc, FMLSCN[4], Joseph O Yaria, MSc[2], Eniola O Cadmus, PhD[3], Femi O Popoola, PhD[5], Mayowa Ogunronbi, MPH[1], Dorcas Olujobi, MSc[1], Olaoluwa Famuyiwa, BSc[1], Joshua O Akinyemi, PhD[5], Mayowa O Owolabi, DSc[2,3], Roman Romero-Ortuno, PhD[6], Adesola Ogunniyi, FAS[2,3,7], Raj Kalaria, DSc[8] and Brian Lawlor, MD[9-11]

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Background: The relationship between psychotropic agents and cognitive function is complex. Some authors posit that patients hitherto asymptomatic for dementia may become symptomatic with use of psychotropic agents because astrocytes in amyloid plaques have GABA-secreting activity. There is no data on the potential association between use of psychotropic agents and dementia risk in sub-Saharan Africa, home to a rapidly ageing elderly population and increasing use of over-the-counter (OTC) psychotropic agents. Knowledge of possible association may further bolster ongoing preventive public health strategy targeted at lessening the burden of dementia. We investigated the relationship between use of psychotropic agents and cognitive function among older Nigerian Africans in an urban-slum. **Methods:** The Vascular heAlth, fraiLty and cognition in Ageing Nigerians (VALIANT) Study is an ongoing longitudinal community-based cohort study aimed at exploring the association between cardiovascular health, cognition and frailty in Nigeria. One thousand and thirty-six (1036) participants have been recruited via a multistage, stratified cluster random sampling method recruited from a rural community in Ibadan and taken through a battery of cardiovascular, cognitive and frailty assessment tools. Data on psychotropic substance use, type, and duration were obtained. Patients with recent use of psychotropic agents (in the past 30 days) and chronic insomnia were excluded from the study. The relationship between cognitive performance (using the IDEA score) and psychotropic medication use was examined using a multivariable adjusted linear regression analysis. We adjusted for age, sex, years of education, clinical frailty score, smoking and alcohol use. All associations were reported as beta coefficients with the corresponding 95% confidence intervals (CI). **Results:** Among the 1031 older Nigerians, the mean age was 64.5 (±11.8) with 27.2% were males and 5.6±4.8 years of education. The mean IDEA score was higher among males (11.81±3.22) than in females (10.87±3.28) ($p<0.001$). In the population, 202 (20%) took sedatives, 18 (1.8%) tranquilizers, 324 (32%) stimulants, 13 (1.3%) marijuana, 4 (0.4%) inhaler solvents, 2 (0.2%) cocaine, hallucinogens 1 (0.1%) and heroin 1 (0.1%). In the multivariable linear regression analysis, use of psychotropic agents was independently associated with overall poor cognitive health among men -0.76 (-1.40, -0.12) but not women -0.13 (-0.58, 0.32). **Conclusion and Discussion:** We established an independent association between cognitive decline and psychotropic use among males but not females. Public health measures against indiscriminate sales or use of psychotropic medications among the elderly would be beneficial. Future longitudinal studies would potentially help establish causality.

Abstract 06 (Poster with Flash Talk)

The African Dementia Imaging Protocol (ADIP).

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In the next two decades, Africa is projected to have the highest number of people living with dementia (WHO 2017). Neuroimaging, specifically, Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET) are established diagnostic tools for characterizing Alzheimer's disease and related dementias (ADRD). PET and MRI are fundamental to the understanding of dementia pathophysiology and in discoveries of disease-modifying therapies. However, PET and MRI are severely underutilized in African dementia research, despite the growing imaging infrastructure across Africa. This is partly due to lack of protocols, designed specifically to provide relevant biomarkers for characterization of dementia in African populations. ADIP provides the acquisition and analysis procedures for neuroimaging of dementia in the populations residing in Africa. The protocol is designed to provide relevant imaging information to address dementia biomarker needs. The protocol was developed based on emerging evidence of dementia risk profiles in Africa, and knowledge of ADRD epidemiology in African populations, including higher vascular risk factors. The protocol follows best practices1 and is adapted from established dementia imaging protocols (Alzheimer's Disease Neuroimaging Initiative (ANDI) and the Canadian Dementia Imaging Protocol (CDIP)) and analysis pipelines. Here, we describe brief the systematic steps taking to develop the ADIP for imaging relevant dementia imaging biomarkers in African populations.

Abstract 07 (Poster with Flash Talk)

Role of Suboptimal Health Status tools in dementia early detection and prevention to form future interventions in Africa.

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Although societal ageing is not yet a prevailing concern in Africa, it is a developing pattern that will demand attention in the future decade. Africa is experiencing an increasing burden of dementia due to rising life expectancy, with risk factors such as cardiovascular diseases, diabetes, and lifestyle changes becoming more prevalent. However, there are also unique challenges in the region, such as limited healthcare infrastructure, low awareness, and fewer specialized care services. Effective dementia prevention strategies in Africa should focus on both individual and systemic actions. African countries can enhance their readiness for future challenges and possibilities related to an ageing population, such as dementia, by strategically devising and executing efficient policies. This scoping review highlights the progress made by Africa in dementia prevention and care and reveals that dementia has not yet received significant policy attention in many African countries compared to other health priorities like infectious diseases, maternal health, and child health. Furthermore, a thorough assessment of the use of suboptimal health status to predict dementia as key to dementia prevention in Africa. Suboptimal health aligns with the principles of predictive, preventive, and customized therapy. Preventing dementia in Africa will require a broad and integrated approach, combining lifestyle changes, disease management, education, healthcare improvements, and community engagement. While challenges such as limited resources and stigma exist, opportunities for prevention are abundant, particularly if tailored to the region's unique cultural and social context. These findings provide ageing populations with chances for tailored health interventions. Furthermore, it illuminated the obstacles that hinder the timely identification and prevention of dementia in Africa.

Abstract 08 (Poster with Flash Talk)

Neuroprotective Role of Zingerone on Cadium Induced Cognitive Deficit, Neuroinflammation and Microglia Activation in the Hippocampus.

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Background: Environmental exposure to heavy metals negatively impacts brain function and cognitive abilities. Environmental exposure to cadmium has been linked with neurodegenerative disorders and cognitive decline. This study investigated the neuroprotective potentials of zingerone (a bioactive component of ginger) on cadmium induced toxicity.
Method: Adult wistar rats weighing (180-220g) were divided randomly into six groups of five rats each, as follows: Normal control, 5mg/kg of cadmium only, 100mg/kg of zingerone only, treatment groups of 50mg/kg /100mg/kg /200mg/kg of zingerone co-administered after 5mg/kg of cadmium. Zingerone and cadmium were administered orally and the duration of this experiment was three weeks. Novel object recognition test was used to evaluate the cognitive abilities, biochemical analysis was carried out to determine the level of inflammatory markers (IL-6, TNF-α), and acetylcholinesterase (AChE) levels of in the brain. Fixed brain tissues was processed for histological and immunohistochemical investigation using H&E, Cresyl fast violet and IBA-1 for microglial expressivity.
Result: In the group treated with 5mg/kg cadmium only, there was decreased cognitive function, increased inflammation, elevated level of acetylcholinesterase activity, over expression of microglial cells and histological alteration in the CA-1, CA-2 region of the hippocampus. The hippocampus clearly showed degenerative changes characterized by fragmented pyramidal and granular layer, with loss of cellular process. However these observed impacts were mitigated in all the zingerone treated groups.
Conclusion: These results shows that zingerone enhances cognitive abilities in rats exposed to cadmium by reducing inflammation, lowering acetylcholinesterase (AChE) levels, and modulating the over activity of microglial cells.

Abstract 09 (Poster with Flash Talk)

Predictive value of CSF fatty acids in differential diagnosis of Cognitive Healthy, Mild Cognitive Impairment and Alzheimer's Disease.

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Background: Alzheimer's disease (AD) is characterized by the abnormal deposition of extracellular β-amyloid (Aβ) in the brain cortex and hyperphosphorylated tau (P-tau) as neurofibrillary tangles intracellularly. While cerebrospinal fluid (CSF) biomarkers such as Aβ42, pTau, and the Aβ42/tau ratio exhibit high diagnosis accuracy of AD, there remains a critical need for alternative biomarkers to enhance diagnostic precision.
Objective: The study aimed to evaluate the predictive value of fatty acids in CSF fractions in differentiating cognitively healthy (CH), mild cognitive impairment (MCI), and AD patients. Methods: CSF fatty acids profiles were analyzed from CH (68), MCI (38), and AD (37) aged (77.30 ± 7.74) years sourced from the Huntington Medical Research Institute (HMRI). Multivariable binary logistic regression analysis identified the most effective CSF fatty acid biomarkers for distinguishing between CH, MCI, and AD. The best fitting CSF fatty acids biomarker was integrated with Aβ42, tau, and Aβ42/tau ratio to assess their impact on the diagnostic performance. The model was adjusted for covariates such as age, sex, smoking status, hypertension, diabetes, and APOE genotype were evaluated for their influence on the model. ROC curves were generated for the top 10 CSF fatty acids based on the area under the curve (AUC), sensitivity, and specificity and tested for significance with the DeLong test.
Results: The findings showed that palmitoleic acid/palmitic acid ratio, alpha-linolenic acid, and palmitoleic acid in CSF unesterified, supernatant fluid, and nanoparticles fraction respectively effectively

classified CH from MCI than Aβ, tau, and Aβ/tau. Moreover, integrating a panel of these fatty acids with Aβ42/tau significantly improved its diagnostic accuracy.
Conclusion: Altogether, this study suggests that changes in fatty acid metabolism precede abnormalities in amyloid and tau in early AD pathology. Thus, strategies that regulate fatty acid metabolism may stem off cognitive decline in an older population.

Abstract 10 (Poster with Flash Talk)

Synaptopathies in Neurodegenerative disorders: Neural and non-neural factors.

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Synaptopthies underlie many neurodevelopmental and neurodegenerative disorders (Grant, S. 2012. Current Opinion in Neurobiology, 22: 522–529; Bae & Kim. 2017. Biochemistry and Molecular Biology Reports, 50: 237-246). The synapse is the junction between the pre- and post-synaptic neurons, but the synapse is more complex than often recognized. In addition to the pre- and post-synaptic neurons, synaptic function is regulated by astrocytes, oligodendrocytes, microglia, the extra-cellular matrix and the neurovascular system, resulting in a seven-part synapse (De Luca C. et al. 2020. Int. J. Mol. Sci. 21, 1539). Genetic and epigenetic factors, hormones, neuropeptides, mitochondria and gut microflora all affect synaptic function. If we consider the "two-hit" hypothesis of neurological disorders (Zhu et al., 2007. Biochimica et Biophysica Acta 1772: 494–502) or the "Multiple-hit" hypothesis (Patrick, et al., 3019. Front. Cell. Infect. Microbiol. 9:138) there are many permutations and combinations of factors underlying synaptopathies. For example, considering the two hit hypothesis and a 7 factor synapse, there are 21 combinations of factors which might lead to a neurological disorder and 10 of these (47.6%) do NOT involve neurons. For example, a synaptic disorder might involve astrocytes and microglia or microglia and the neurovascular system. This means that the treatment of neurological disorders due to synaptopathies must consider the effects of non-neural causes of neurological disorders. For example, some suggest that treatment of astrocyte abnormalities might repair CNS disorders (Verkhratsky, et al., 2023. Signal Transduction and Targeted Therapy 8:396), while others propose the treatment of mitochondrial dysfunction (Alshial, et al., 2023. Life Sciences, 334: 122257) or microglial dysfunction (Ganz & Ben-Hur. 2024. Int.J. Mol. Sci.25, 3245). The best approach might require a multiple treatment model (Citro, et al., 2024. Nature Reviews Neurology, 20:50–61). This approach to understanding synaptopathies may lead to new and unexpected treatments for neurological disorders.

Abstract 11 (Poster with Flash Talk)

Development and testing of a capacity-building programme for informal caregivers of community-dwelling older persons ageing in place.

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Abstract Background: Aging is often accompanied by a decline in intrinsic capacity and functional abilities, increasing the health and support needs of older adults. Adequate care can slow this decline and promote healthy ageing. Informal caregivers, usually family, friends, and neighbours provide essential health and social support in many low and middle-income countries including Nigeria. However, most lack formal training to address the diverse needs of older adults, including managing chronic conditions like dementia. This study developed and tested a capacity-building training curriculum to enhance the skills of informal caregivers of community-dwelling older persons.
Methods: A cross-sectional study was conducted among older persons and their informal caregivers using mixed methods. Twenty, focus group discussions were carried out among informal caregivers, and 18 Key Informant Interviews were carried out among older males and females aged 60 years and above in an urban community in southwestern Nigeria. Data were transcribed and analysed based on emergent themes.
Results: Our study revealed the perceived training needs of the participants included common routine procedures like blood pressure, and sugar monitoring, first aid and hazard prevention, knowledge about emergency care, nutritional guidelines, and demystifying cultural myths and misconceptions about ageing. Other training needs include assisting the care recipient with advanced directives and end-of-life decision-making.
Conclusion: This training curriculum will be beneficial and enable improved care coordination skills and competencies of informal caregivers of community-dwelling older persons in the community and similar low-resource settings.

Abstract 12 (Poster with Flash Talk)

'They are mad and must be hidden or locked away': A Qualitative Survey of Community Member's Perception About Dementia from African Countries Participating in the READD – ADSP.

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Background: Dementia is a growing global health concern, with rising prevalence due to ageing populations. Cultural narratives shape beliefs about dementia, often leading to stigma, social exclusion, and potential abuse. Understanding public knowledge, beliefs, and attitudes about dementia and its risk factors is crucial for developing effective public health interventions and support systems. Objective This study explored the attitudes towards dementia and its risk factors among participants attending a training of Community Advisory Board (CAB) members who act as community liaison officers. The CAB members are responsible for facilitating recruitment and retention across the Recruitment and Retention for Alzheimer's Disease Diversity Genetic Cohorts in the Alzheimer's Disease Sequencing Project (READD-ADSP) project sites across 10 African countries.
Methods: Ten focus group discussions were conducted among CAB members across the project sites. Data were transcribed and analyzed based on emergent themes to uncover patterns and insights into participants' understanding and perceptions of dementia.
Results: The study found consistent knowledge about dementia across sites, with participants recognizing it as a disease affecting the mind and causing behavioural changes. However, many held misconceptions about its causes and progression. Most native languages lacked a single term for dementia, describing it through phrases or analogies instead.

Conclusion: The study revealed that many communities lack suitable terminology for dementia, often using stigmatizing and stereotypic language. Using dementia-friendly terms is crucial to reducing intolerance and changing negative perceptions. The findings highlight the need for culturally sensitive approaches to promote inclusive language and services for those living with dementia. Keywords: Dementia, Older persons, Memory disorder, Stigma, Africa.

Abstract 13 (Poster with Flash Talk)

Protective Role of HDL-Mediated Cholesterol Efflux in Dementia Incidence Among Elderly Adults at High Cardiovascular Risk: Implications for Low- and Middle-Income Countries.

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Background: As global life expectancy increases, the prevalence of dementia is rising, especially in low- and middle-income countries (LMICs), where the aging population is growing rapidly. Cardiovascular (CV) risk factors, particularly lipid profiles, are linked to neurodegeneration. Further, HDL functionality might play a role in preventing dementia, especially in vulnerable populations at high CV risk. Understanding this association is particularly important for LMICs, where the burden of both cardiovascular diseases and dementia is increasing.
Methods: This case-cohort study is nested within the PREDIMED cohort (mean follow-up: 4.7 years), originally a trial comparing Mediterranean and low-fat diets. Incident dementia cases (n=110) and 201 non-cases were selected, with 1-year follow-up. Participants (aged 55–80) were at high CV risk but free of CV disease and dementia at baseline. HDL functionality was assessed via cholesterol efflux capacity in SH-SY5Y neuron models and its effect on preserving soluble vascular cell adhesion molecule (sVCAM) in cerebral microvascular endothelial cells. Additional biomarkers included 24S-hydroxycholesterol and Apoprotein E. Lin-Ying modified survival analysis was used to assess associations.
Results: Higher HDL-mediated cholesterol efflux in neurons was linked to reduced dementia risk (per 1 SD increase; model 2 HR = 0.68 [95% CI: 0.49–0.94]; model 3 HR = 0.65 [95% CI: 0.47–0.91]). Elevated 24S-hydroxycholesterol was associated with increased risk (model 3 HR = 2.21 [95% CI: 1.27–3.84]). Higher triglycerides and lower HDL cholesterol were also associated with dementia risk.
Conclusions: HDL cholesterol efflux capacity and lipid profiles are associated with dementia risk in elderly individuals at high CV risk. These findings are critical for LMICs, where CV diseases and dementia are increasingly prevalent, underscoring the need for preventive lipid management.

Abstract 14 (Poster with Flash Talk)

A Comparative Analysis of DNA Methylation Patterns and Post-Stroke Cognitive Impairment in West African and UK populations.

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Background: In Africa, the prevalence of non-communicable diseases is surging resulting in co-morbidity with infectious diseases. The nature of post-stroke cognitive impairment (PSCI) is heterogeneous, with varying prevalence rates among different populations. Epigenetics play a role in diseases but its role in PSCI has not been explored. This study aims to determine the DNA methylation pattern in people of West African ancestry and compare the methylation patterns with European ancestry.
Method: The participants are from the SIREN and CogFAST (Nigeria and Newcastle, UK) studies. Twenty cases and 20 controls from each ancestry were utilised. DNA was extracted and the Infinium MethylationEPIC BeadChip was used to analyse genome-wide DNAm. The Chip Analysis Methylation Pipeline (ChAMP) was used for the analysis.
Result: In the West African cohort, CpG17410736 was the site with the lowest p-value, and it was situated in an intergenic region on chromosome 12. The CpG05555050 in IL1RAPL2 gene was also one of the sites with low p-values in the West African cohort. The CpG02843856, of the GPR78 gene was the site with the lowest p-value in the European cohort. Both genes (IL1RAPL2 and GPR78) play roles in inflammatory response pathways and are implicated in cognitive dysfunction. Gene enrichment analysis with a FDR<0.05 in the West African cohort showed that genes involved with Major Histocompatibility II (MHC class II) protein complex, were well represented in the genes enriched with DNA methylation. The CpG02051096 site, annotated to BRWD3, has the lowest p-value in the association test from the meta-analysis of the cohorts and it is associated with cognitive dysfunction.
Conclusion: There were no matching genes/CpG sites in the top 10 hits between the compared ancestries. Our results suggests that neuroinflammation is a possible pathway to cognitive dysfunction post-stroke, especially in West Africans.

Abstract 15 (Poster with Flash Talk)

Digital Cognitive and Gait Biomarkers for Ageing and Parkinsonian syndromes: The OxQUIP Study.

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The Oxford Quantification in Parkinsonism (OxQUIP) longitudinal study seeks to develop digital tools to objectively assess longitudinal changes in cognitive and motor functions in healthy ageing, Parkinson's disease (PD), and Progressive Supranuclear Palsy (PSP). This study leverages methods including telemedicine, wearable technology, and app-based cognitive assessments to track subtle changes over time with high precision. Earlier results from this study have shown that gait features captured using wearable sensors are sensitive to progression in PD and PSP (Sotirakis et al., 2023; 2022). Presently, we aim i) to identify cognitive measures which are sensitive to longitudinal changes, ii) to explore associations between cognitive and gait measures in healthy ageing and Parkinsonian syndromes, and iii) to validate these measures with an LMIC-based population. Our cohort in the UK consists of 110 PD, 27 PSP, and 53 healthy adults who have been tested every three months over a period of 18 months. Preliminary results have identified the verbal fluency task (i.e., an executive function measure) as a useful tool for tracking longitudinal trends. Distinct associations are found between verbal fluency performance and gait features such as walking speed. These results may suggest that executive function is closely linked to motor performance, with verbal fluency serving as a potential predictor of gait decline. Next steps involve expanding this study to diverse LMIC populations, to examine the potential diagnostic value of these methods in cross-cultural populations and to assess the feasibility of applying digital tools in low-resource clinical settings.

Abstract 16 (Poster with Flash Talk)

The World-Wide FINGERS International Working Group on Cognitive Outcomes for Precision Prevention of Dementia and Alzheimer's Disease with a focus on LMICs.

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Background: Precision Prevention is a recent endeavour in the Alzheimer's disease (AD) field, requiring integration of multidimensional data from large, representative populations, to identify phenotypes for early, accurate detection of risk prevention potential for healthy brain ageing. The World-Wide FINGERS network of multidomain lifestyle intervention trials, adapted from the original Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) model for risk reduction and prevention of dementia includes 60+ countries.
Aims: The network works towards data harmonization among trials to enable joint analysis via specific International Working Groups (IWGs). Cultural adaptations of the FINGER model require piloting in LMICs in keeping with the aim to contribute to global data. The Cognitive Outcomes International Working Group (IWGs) will facilitate data harmonization and joint analysis of cognitive test data across the global network studies.
Methods: Mapping of data across trials is progressing; RedCap-supported surveys have been completed by IWG members, including AFRICA-FINGERS. The Cognitive Outcomes IWG includes 49 countries. Survey results have been analysed with descriptive methods. AFRICA-FINGERS is the first trial of the FINGER model to be initiated in the continent, in Kenya and Nigeria, and aims to be a landmark trial of a model suitable for other African countries.
Results: The survey captured data from 37 trials; 12 completed, 12 -recruitment complete, 7-recruitment ongoing, 6 in preparation, with at least 22,931 recruited participants as of 1st May 2024. Main target populations are from asymptomatic, at-risk of dementia to early symptomatic stages; including diverse ethnicities (Caucasian, Asian, Black African, mixed ethnicity, Caribbean, Hispanic/Latino); using cognitive tests in 19 languages, with composite neuropsychological test batteries most frequently used. A broad selection of validated tests is in use in domains of episodic (n=23), semantic (n=16) and working memory (n=19), executive function (n=10), visuospatial skills (n=14) and processing speed (n=11). The complexity of harmonising outcome data from the diversity of tests and study populations is the challenge for this IWG.
Conclusion: The Cognitive Outcomes survey results will be used to generate guidelines for global data meta-analyses considering the cultural and contextual experiences from different settings. Trials in LMICs pose challenges for identifying and addressing local dementia risk factors, introducing culturally acceptable and sustainable interventions, as well as appropriate cognitive outcomes.

Abstract 17 (Poster with Flash Talk)

Memory impairment in chronic hepatic encephalopathy involving hippocampal microglia activation and synaptic dysfunction.

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Hepatic encephalopathy (HE) is a brain dysfunction caused by impaired liver function and/or portal-systemic shunting, which manifests as a wide range of neurological and neuropsychiatric abnormalities ranging from subclinical alterations to coma. Under cirrhosis, up to 80% of patients can develop HE and exhibit memory deterioration. The pathophysiological mechanism underlying memory dysfunction in HE is unknown. Microglia activation/neuroinflammation and altered neuroplasticity might be responsible for memory abnormalities observed in HE patients. The aims of the present investigation were to assess memory function and identify microglial changes in a chronic model of HE (CHE). The study was carried out in 5 months-male Wistar rats with chronic liver disease induced by thioacetamide (TAA, 100mg/kg. b.w) administration. Memory function was assessed by Morris water maze test (MWM), Novel object recognition test and Y-maze test, together with microglial marker Iba1 (for activation) within the hippocampal CA1, CA3 and dentate gyrus (DG) and as well as neuronal markers; beta III tubulin, synaptophysin, postsynaptic density protein 95 (PSD95), and tau protein. Our data showed memory impairment in our CHE rats with significant elevation of microglia activation in the CA1, CA3, and DG of the hippocampal formation. Additionally, we found hyperphosphorylated tau protein (p-tau) in both cortical and hippocampal neurons and microglia in CHE rats. Moreover, we found beta III tubulin (a specific marker of neurons) and CD68+ staining in microglia, suggesting the engulfment of neurons by microglia. We also found synpatophysin, postsynaptic density protein 95 (PSD95), synaptotagmin and other neuronal proteins in the microglia, along with decreased dendritic length and reduced number of dendritic spines, strongly suggests the possible alterations in neuroplasticity, which may underlie the observed memory abnormalities. Key words: memory impairment, hippocampus, hepatic encephalopathy, neuronal markers, Iba1, neuroplasticity, Morris water maze, Novel object recognition, Y-maze, microglia activation.

Abstract 19 (Poster with Flash Talk)

DEMETRA (DEMEntia Tracking Risk Assessment): Global Distribution of Modifiable Dementia Risk Factors – A Situational Analysis by Geographical Subregions and Income Levels.

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Background: Dementia is a growing global concern, with numerous modifiable risk factors contribute to its prevalence. Understanding their distribution across countries is crucial for effective public health strategies. This study presents a global situational analysis of 14 modifiable dementia risk factors, following updates from the Lancet Commission on dementia prevention (2024). These risk factors span early life (education), midlife (hearing loss, high LDL cholesterol, depression, traumatic brain injury, physical inactivity, diabetes, smoking, hypertension, obesity, excessive alcohol), and late life (social isolation, air pollution, and visual loss), offering a comprehensive view of dementia risk across the lifespan.
Methods: Data on 14 modifiable risk factors were collected for 195 countries from global health databases. The factors were normalized using Min-Max scaling to ensure comparability and were weighted according to their dementia risk contribution. "Years of education" was reversed to reflect its inverse relationship with dementia risk. Missing data were handled using four methods: Bypassing Missing Values, Mean, Minimum, and Maximum Imputation, followed by a comparative analysis to assess the impact of these approaches on the risk scores. Geospatial visualization, using GeoPandas and Matplotlib, mapped dementia risk scores by country, subregion, and income level.
Results: The analysis revealed significant disparities in dementia risk across regions and income levels. African subregions, particularly Eastern, Middle, and Western Africa, had the highest median risk scores, while Europe and Oceania showed the lowest. Income analysis indicated a strong trend: as income levels increased, median dementia risk decreased. Low-income countries exhibited the highest risk and greatest variability, while high-income countries displayed lower, more uniform risk levels.
Conclusions: This study underscores the link between socio-economic status, geographic location, and dementia risk. Low-income countries and high-risk subregions, especially in Africa and Asia, face the greatest dementia burden. Targeted public health interventions are crucial for addressing these disparities and improving outcomes in vulnerable populations, particularly in LMICs.

Abstract 20 (Poster with Flash Talk)

Mapping Brain Health in Southeastern Europe: Key Determinants and Regional Outcomes in Aging LMICs.

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Introduction: Southeastern Europe (SEE) encompasses 13 countries, including 10 classified as low- and middle-income countries (LMICs). This region faces significant brain health challenges, exacerbated by its aging population and rising dementia rates. To inform policy and practice, we compared indices of brain health across the SEE region, focusing on the five domains of brain health determinants as defined by the WHO: physical health, healthy environments, safety and security, learning and social connection, and access to quality services.
Methods: A Brain Health Task Force, with representatives from the 13 SEE countries, convened in Ohrid, North Macedonia (2023) to conduct a consensus process and SWOT analysis using WHO's brain health framework. A scoring system was developed based on local expert feedback and a literature review. Strengths (S)=1, weaknesses (W)=-1, opportunities (O)=2, and threats (T)=-2 were assigned, and scores were standardized as percentages for regional comparison.
Results: Key findings highlight widespread challenges in physical health, environmental health, safety, education, and access to services across SEE countries. High smoking and alcohol consumption rates, maternal and child health disparities, nutritional imbalances, and antimicrobial resistance were identified as significant issues. Traumatic injuries and pollution remain critical concerns. Notably, higher economic status did not necessarily equate to better brain health outcomes ($R^2 = 0.531$). However, strengths in healthy environments and social connection were observed, particularly in Slovenia and Croatia.
Conclusion: Despite shared challenges, there is a strong consensus to collaborate and exchange effective practices. Our study provides key recommendations for each domain, including strengthening tobacco and alcohol control, standardizing prenatal care, investing in trauma care infrastructure, and improving environmental regulations. This cross-border collaborative approach, rooted in the region's shared cultural and historical foundations, aims to adapt successful strategies and improve brain health outcomes across SEE.

Abstract 21 (Poster with Flash Talk)

The Multi-Ancestry Genomics, Epigenomics, and Transcriptomics of Alzheimer's (MAGENTA) Project: Understanding Alzheimer's Disease Risk through Multi-omic Approaches.

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Aims: The Multi-Ancestry Genomics, Epigenomics, and Transcriptomics of Alzheimer's (MAGENTA) project aims to determine how differences in the ancestral genetic architecture of Alzheimer's disease (AD) contribute to underlying functional outcomes such as gene expression and epigenetic features like DNA methylation. Such studies are critical to discover disease mechanisms that may inform early potential therapeutic interventions across diverse populations.
Methods: The MAGENTA project has generated blood RNA transcriptomes and DNA array methylomes on individuals from diverse ancestries (N=626; 135 European, 204 African Americans, 205 Caribbean Hispanics, 82 Peruvians), divided between AD and cognitively unimpaired (CU). Differential methylation was computed using DESeq2 adjusting for age, sex and global genetic ancestry while differentially methylated sites and regions were determined using the SeSAMe R package using a linear model with covariate variables sex, age, methylation batch, global genetic ancestry, and estimated immune cell proportions.
Results: Within each cohort ~400 genes were significantly differentially expressed between AD and CU (p.adj <= 0.05). Across cohorts, few genes were differentially expressed in both AA and NHW, however pathway analysis revealed that immune and inflammation related pathways were enriched in all cohorts despite differences in specific genes. Similarly, when combining all samples, we identified 906 CpG sites with nominally significant differences (p <= 0.001) between AD and CU. Notably, when restricting this analysis within each cohort, the number of differentially methylated sites differed: European - 572 sites, African American - 1033 sites, Caribbean Hispanic - 448, Peruvians - 422. Notably, however, the markers across the ancestral groups did not overlap.
Conclusions: Our MAGENTA data indicate differences in the expression and DNA methylation architecture across ancestries highlighting the importance of inclusion of diverse individuals for a comprehensive understanding of epigenetic risk for AD.

Abstract 22 (Poster with Flash Talk)

Helping Carers to Care: implementation of the 10/66 Dementia Research Group caregiver intervention in rural Benin.

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Background: In sub-Saharan Africa, the number of people living with dementia is expected to double every 20 years. The shortage of trained health professionals leads family members of older people living with dementia to provide informal care. There is therefore an urgent need to develop interventions to improve the lives of people with dementia and their families in this region. The objective of this study was to determine the feasibility of the Helping Carers to Care (HC2C) caregiver intervention in rural Benin.
Method: This was a before-and-after quasi-experimental study conducted from January to December 2022 in Djidja-Abomey-Agbangnizoun, Benin. Two groups of 30 dyad (caregiver / person with dementia) were to receive the intervention in the beginning of the trial or six months later. The intervention consisted of three modules: 1) assessment; 2) basic education about dementia; and 3) training regarding specific problem behaviors. Main outcome measures for caregivers and patients with dementia were assessed at baseline, at 3-month and at 6-month. For caregivers, measures included strain (Zarit Burden Interview), psychological distress (SRQ-20), and quality of life (WHOQOL-BREF). Dementia participants completed scales assessing behavioural and psychological symptoms (NPI-Q) and quality of life (DEMQOL).
Result: Study population consisted of 22 elderly people living with dementia and their primary caregiver divided into two groups - control and intervention - of 11 dyads. Both groups were similar with regards to sex, education, marital status, occupation, dementia severity but people in the control group were older. Participation rate was 100%. After the intervention, only the participants' quality of life scores was statistically different in the intervention group, but not the caregiver burden or quality of life scores.
Conclusion: Preliminary results show that implementation is challenging in rural Benin, where dementia awareness is low and care structures are lacking.

Abstract 23 (Poster with Flash Talk)

Common Dementia Symptoms and Indigenous Caregiving Techniques in Uganda: Insights from Family Caregivers.

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Background: Dementia, particularly Alzheimer's disease and related dementia (ADRD), presents complex symptoms that significantly challenge caregivers. This study aimed to examine these symptoms and explore the strategies caregivers use to manage them in a resource-limited setting.
Methods: We interviewed 14 caregivers of individuals diagnosed with ADRD in Wakiso, Uganda. Participants were selected through purposive sampling to ensure a diverse range of age and sex. The interviews, lasting 60-90 minutes, were conducted in Luganda and transcribed verbatim. Thematic analysis was used to categorise reported symptoms and caregiving techniques.
Results: The study included 14 caregivers (five male, nine female) aged 20–56 years. Data were categorised into sub-themes under behavioural issues, memory and mood changes, incontinence and appetite loss, inconsistent demands and sleep issues, and physical, cognitive, and hallucinatory symptoms. Caregivers reported numerous challenges, including wandering, aggression, irritability, memory loss, depression, anxiety, incontinence, appetite loss, sleep disturbances, and inconsistent demands, which exacerbate the physical and financial burden of caregiving. Physical symptoms include mobility issues and declining health, whereas cognitive symptoms often involve hallucinations. To manage patient symptoms, caregivers employed various techniques, such as creative dietary management, anger management, movement restriction, physical restraints, incentives, external assistance, prevention of wandering, passive response to hallucinations, community assistance, storytelling, and deceptive consolation.
Conclusion: This study highlights the various strategies caregivers' use to address challenging behaviours in patients with ADRD in Uganda. Caregivers' resilience and resourcefulness are evident in their adaptive strategies for managing these complex symptoms. These findings underscore the need for comprehensive support systems and resources to aid caregivers. Emphasising community involvement and accessible training programs is crucial for enhancing caregiving capacity and improving the quality of life of caregivers' and patients.

Abstract 24 (Poster with Flash Talk)

Understanding Distress & Resilience Of Newly Diagnosed Cancer Patients Through The Distress Assessment & Response Tool (DART): The Brain Resilence Study Kenya.

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Background: Over 30% of cancer patients experience psychological distress, emphasizing the need to integrate mental health services into oncology care. To address this global issue and standardize care, the Princess Margaret Cancer Centre developed the Distress Assessment & Response Tool (DART) to evaluate cancer patients' social, practical, spiritual, and emotional well-being. The necessity of DART was confirmed by its implementation at the Department of Hematology-Oncology at Aga Khan University Hospital Nairobi (AKUHN), where over 300 patients have been screened. Thus, it was deemed essential for understanding the distress and resilience of cancer patients in the Brain Resilience Kenya study. DART uses the following standardized and validated questionnaires: • Edmonton Symptom Assessment Scale-Revised (ESASr-CS) • Patient Health Questionnaire (PHQ-9) • Generalized Anxiety Disorder (GAD-7) • Canadian Problem Checklist (CPC)
Objective: Exploring distress levels and psychosocial factors that may influence accelerated aging in newly diagnosed breast and prostate cancer patients. Methodology: A DART assessment will be conducted on 50 newly diagnosed cancer patients (25 breast and 25 prostate). The assessment is completed directly on the patient's electronic health record. Quantitative data analysis is done using SPSS, and qualitative analysis involves thematic analysis of the patient's feedback collected after the DART assessment.
Results: All four breast cancer patients scored severe distress on the three scales; however, only two patients were deemed eligible for counselling as their distress levels were related to their diagnosis. Prostate cancer patients score within normal ranges on DART thus was ineligible for further assessment.
Summary: The DART framework is a structured approach that aims to assess and address distress in cancer patients. Its goal is to improve the well-being of patients and enhance their treatment experience. By implementing these strategies, healthcare systems in LMIC can improve the quality of care for cancer patients.

Abstract 25 (Poster with Flash Talk)

The Neuroprotective Effect of Betulin in Dementia: Insilico Approach.

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Emerging evidence presents a critical relationship between apolipoprotein E ε4 (APOE ε4) and cognitive health, with acetylcholinesterase (AChE) inhibition playing a key role in mitigating neurodegeneration, particularly dementia in Alzheimer's Disease (AD). However, current treatments raise a significant safety concern due to the unwanted side effects associated with amyloid-related imaging abnormalities, which underscores the need for urgent alternative therapeutic strategies. In response, this study investigated the therapeutic potential of bioactive compounds from Hog plum leaves (Spondias mombin), commonly known as Ewe Iyeye in Yoruba land, specifically betulin, campesterol, and phytol, renowned for their nootropic properties. These compounds have shown promise in enhancing cognitive function, improving memory, and promoting neuroprotection. A molecular docking simulation was conducted using AutoDock Vina in PyRx workspace to evaluate the inhibitory and binding potential of these bioactive compounds against APOE ε4 and AChE receptors. The results showed that betulin has a higher binding affinity for both AChE and APOE ε4 receptors, with a better docking score of -8.6 kcal/mol compared to standard ligands donepezil, memantine, rivastigmine, and galantamine. Further analysis showed that betulin formed a hydrophobic interaction with key residues in the AChE (PHE297, VAL294, TRP286, HIS287, TYR341) and APOE ε4 (LEU63, ARG32, TRP39, TYR36) drug pockets, indicating potent inhibitory activity. In silico pharmacokinetic and toxicity evaluations using SwissADME, ADMETLab, and PROTOX-II servers confirmed that betulin possesses a favorable absorption, distribution, metabolism, excretion, and toxicity (ADMET) profile. Additionally, betulin showed no propensity for hERG inhibition, hepatotoxicity, carcinogenicity, mutagenicity, or drug-liver injury, making it a promising therapeutic agent for further experimental research in treating dementia in Alzheimer's disease.

Abstract 26 (Poster with Flash Talk)

Myricetin Protects Against Atrazine-Mediated LRRK2/UCHL-1 Gene Mutation, Neurodegeneration, and memory deficit in a Rat Model of Parkinson's Disease.

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Parkinson's disease is fast affecting Africa's older and recently, younger generations, and its late onset has been linked to the development of cognitive deficit and dementia in affected individuals. Till date, atrazine, a broad-spectrum herbicide detected in surface and ground water sources, is still being used for agricultural purposes irrespective of the ban being placed on its usage due to its pathological damages to the body. Myricetin is a flavonoid found in vegetables, teas, and exhibits myriads of biological activities. Therefore, this study aimed at investigating the neuro-protective role of myricetin on atrazine-mediated LRRK2/UCHL-1 gene mutation, neurodegeneration, and memory deficit in rat model of Parkinson's Disease. Thirty-two adult male Wistar rats (250 g- 300 g) grouped into four of eight animals each and orally treated with atrazine (PD group), myricetin, and a combination of both at 50 and 20 mg/kg. b.w. respectively for 65 days. Post treatment, behavioral test was conducted using Morris Water Maze (MWM). Post euthanasia, striatal and hippocampal brain derived neurotrophic factor (BDNF), neuronal nuclei (NeuN), nestin, Ubiquitin carboxy-terminal hydroxylase L1 (UCHL-1), leucine rich repeat kinase-2 (LRRK2), and nigral alpha-synuclein (SNCA) were examined using chromogenic and fluorescence immunohistochemistry techniques, incorporating wide-field and confocal microscopy. Atrazine treatment significantly upregulated nigral expression of SNCA (PD gene), striatal LRRK2 and UCHL-1, decreased number of platform zone entries and time spent in MWM platform quadrant in the atrazine/PD group compared to the control. Also, there was upregulation of genes responsible for neurogenesis (BDNF, NeuN, Nestin) and increased number of platform zone entries and time spent in MWM platform quadrant in the co-treatment group of myricetin and atrazine compared with the atrazine/PD group. Result obtained from this study demonstrated that myricetin could be a potential therapeutic candidate in the treatment and management of Parkinson's Disease associated with mitochondrial dysfunction and cognitive impairment.

Abstract 27 (Poster with Flash Talk)

Ethical and Practical Methods for Recruiting Older Adults for Dementia Research in Rural Uganda: Insights from the DEPEND Study.

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Background: DEPEND aims to investigate pathological processes underlying dementia by recruiting adults aged 60+ from the General Population Cohort (GPC) in rural Southwest Uganda. Recruitment is based on GPC census and mapping data. There are specific logistical and ethical challenges in recruiting older adults in this rural African setting; ill health impacts participants' mobility and communication, and busy schedules of caretakers may hinder engagement. Community protectiveness towards older adults may reduce participation, due to the desire to avoid disrupting their daily lives.
Objectives: This abstract explores the approaches used in DEPEND to address these concerns, while maximizing ethical recruitment to improve understanding of brain health of older persons in this setting.
Methods: The study plans to engage the Community Advisory Board (CAB), local leaders, and community members prior to recruitment to foster cooperation. Recruitment will be guided by GPC census and mapping data, and non-capacitous participants will be recruited through next-of-kin assent. A study advisory group including NGOs, clinical experts, and an older adult representative will ensure culturally sensitive practices. Comprehensive community sensitization will be undertaken to encourage participation. Participants will receive transportation support, medical care from the GCP clinic supported by geriatric and psychiatric specialists, and compensation for their time.
Conclusions: DEPEND's success depends on addressing recruitment challenges through practical and ethical methods, including rigorous interviewer training, flexible recruitment strategies and robust support systems. This ensures effective recruitment while prioritising the well-being of older adults and their caregivers. Keywords: dementia, recruitment challenges, ethical practices, older adults, caregiver support, community sensitization.

Abstract 28 (Poster with Flash Talk)

A pilot study of a pragmatic awareness raising campaign regarding brain health in primary schools of Greece: An exportable model?

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Background: Conditions that adversely affect brain health can occur throughout life and impair brain development, structure and its function. For instance, intrauterine environment, physical safety, education, nurturing care, social networks health behaviors are among the factors that influence brain health according to the recently published position paper of the World Health Organization defining brain health and its determinants. Prevention and lifelong brain health protection are strategies of paramount importance in order of to reduce the risk of developing brain diseases including dementia.
Materials and methods: The Global Brain Health (GBH) questionnaire for primary school children and a brief animated video of a little brain which helps children learn about the eight steps to keeping our brains healthy were translated and adapted to Greek. The video “My brain Robbie” is an initiative of the Global Brain Health Institute (GBHI), Alzheimer’s Association and Alzheimer’s Society UK and is freely available on internet. The video was presented to primary school pupils and their knowledge and attitudes regarding brain health determinants and motivation to modify their lifestyle to improve brain health was twice assessed, i.e. prior and posterior the presentation of the video.
Results: The video was presented to 346 primary school pupils of Schools of the Region of Western Greece who also completed to GBH questionnaire. The findings point to the positive impact of the brief video on awareness raising regarding brain health determinants and on increasing motivation to change lifestyle so that brain health is promoted and protected even from a relatively early phase of life.
Conclusions: The brief animated video “My brain Robbie” can be a component of pragmatic campaigns for awareness raising regarding brain health in primary health schools. Such campaigns are crucial since they make children aware of the fact that many determinants of brain health are ultimately in their hands, and in the hands of the communities, where they live.

Abstract 29 (Poster with Flash Talk)

Sex-specific genome-wide meta-analysis in an ancestrally diverse dataset identifies novel candidate risk loci for Alzheimer disease.

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Objectives: Sex differences in progression and pathology of Alzheimer's disease (AD) suggest the existence of sex-specific factors influencing its development. While studies have established APOE genotype as contributing to AD risk differently in men and women, few large genome-wide studies have searched for additional genetic sex differences in AD. To identify sex-specific genetic associations with AD, we conducted a genome-wide sex-aware meta-analysis in the Alzheimer's Disease Genetics Consortium (ADGC) and Alzheimer's Disease Sequencing Project (ADSP). **Methods:** Sex-interaction and sex-stratified analyses were performed in an ancestrally diverse (African, Asian, European, Hispanic/Latino) set of genome-wide imputed AD datasets (N=11,559 cases, 60% female; 16,098 controls, 63% female). STAAR aggregation-based testing is also being conducted in datasets with whole genome sequencing (WGS). **Result:** Cross-ancestry sex-stratified analyses identified several loci with evidence of interaction ($P<0.05$) and suggestive significance in one sex ($P<5 \times 10\text{-}6$) and not the other ($P>0.05$). These include male specific variants in the PRDM14/NCOA2 locus, the STXBP6 and MAP4K5 genes, and the known AD locus PICALM. Associations identified in females and not males include loci at NPAS3, ZNF438, the CNTN5/LOC100128386 locus, and the CD180/LINC02242 locus. Top ancestry-specific results include associations in Asian females at the COL4A2 locus and in African American females at TMEM94. Male specific associations identified include variants in C16orf96 in African American and the known APP/CYYR1 locus in Hispanic ancestry. **Conclusion**: We identified sex-specific AD associations at loci containing genes that are potentially AD-relevant including STXBP6 (involved in AD relevant processes such as endolysosomal transport and synaptic transmission), NCOA2 (lipid metabolism), NPAS3 (neurogenesis), and COL4A2 (cerebral vasculature). All of these genes show differential expression in AD brains. Understanding the nature of these associations could help explain sex differences in risk and progression for AD.

Abstract 30 (Poster with Flash Talk)

Prevalence of APOE Alleles in Alzheimer's Disease Among Elderly Ugandans: A Case-Control Study.

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Background: Alzheimer's disease (AD), a primary cause of dementia, is associated with genetic variations such as the APOE gene, which influences both the risk of AD and brain lipid metabolism. Notably, the APOE ε4 allele heightens the risk of AD, while the ε2 allele is protective. Despite extensive research on APOE variations and AD, data from sub-Saharan Africa remains sparse. This study aimed to address the gap in knowledge by investigating the prevalence of APOE alleles (ε2, ε3, and ε4) and genotypes among elderly individuals with Alzheimer's disease (AD) in Uganda.
Methods: It was conducted using a case-control design, which included 86 older adults from the Wakiso District, who were divided into three groups: 55 patients with AD, 17 with mild cognitive impairment (MCI), and 14 healthy controls. We analyzed the frequency of APOE alleles and genotypes across these groups and compared the results.
Results: The study compared 47 Alzheimer's Disease (AD) patients with 41 healthy controls (HC). The AD group was significantly older than the HC group (79.7 ± 10.1 vs. 72.8 ± 7.6 years, $p = 0.00056$), but no significant differences were found in gender, education, BMI, heart rate, or blood pressure. APOE allele frequencies were similar between the groups (AD: 45.74% ε3, 45.74% ε4, 8.51% ε2; HC: 45.12% ε3, 42.68% ε4, 12.20% ε2), and no significant difference was observed in APOE ε4 carrier status ($p = 0.77$).
Conclusion: This study reveals that while trends in APOE ε4 frequency among Ugandan AD patients were observed, they were not statistically significant. These findings underscore the need for further research in Sub-Saharan Africa to understand regional genetic influences on AD and to inform global prevention and treatment strategies. Keywords: Alzheimer's disease (AD), APOE gene variations, Uganda.

Abstract 31 (Poster with Flash Talk)

The DAWN Alzheimer's Research Study: Expanding Diversity in the Alzheimer's Disease Sequencing Project (ADSP).

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Objectives: The DAWN Alzheimer's Research Study is an international multi-site initiative to expand representation of African ancestry and Hispanic populations for genetic studies of Alzheimer's disease. The DAWN study will include 4000 African-Americans and 4000 Latinos from four US sites and 5000 Africans from nine countries in the African Dementia Consortium (AfDC). This resource of 13,000 individuals will be deeply phenotyped with accompanying whole genome sequence, CVD and plasma biomarker data as well as data on social determinants of health (SDOH).
Methods: Participants are ascertained from clinical and community settings and administered a standard protocol including clinical and family history, neuropsychological assessments, dementia staging, functional assessments, neurobehavioral measures, and SDOH tools. All measures were developed to support subsequent harmonization with ADSP cohorts. All clinical data are collected and compiled in REDCap where it undergoes rigorous quality control processing. Different workflows are in place for our US and African sites but aligned to a standard set of diagnostic criteria.
Results: In our first two years we ascertained 1606 African individuals (57% Female, mean age = 74.5 years, mean education=7.6 years), 1161 African-American individuals (81% Female, mean age=71.3 years, mean education=14.1 years), and 1163 Hispanics (74% Female, mean age=72.3 years, mean education=11.2 years). Resulting clinical data were processed using a combination of decision tree-based algorithms and reviewer-based adjudication to determine clinical status (AD, Non-cognitively impaired and mild cognitive impairment). To facilitate adjudication a computer-based algorithm was developed and tested in US participants reducing reviewer-based primary adjudication by 21% in US participants. **Conclusions:** To date the project has ascertained, enrolled, and processed nearly 4,000 participants. This collaborative project will serve as a catalyst for identifying and understanding genetic risk for diverse populations.

Abstract 32 (Poster with Flash Talk)

Adaptation of an Olfactory Test Kit for Detection of Alzheimer's Disease and Related Dementias in Kenya: Preliminary Findings.

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Background: The aging population is growing, leading to a projected increase in dementia cases to 152 million by 2050, with a significant rise expected in Sub-Saharan Africa (SSA). However, accessible and valid early detection tools are limited in this region. Olfactory dysfunction is an early predictor of dementia, yet no validated olfactory tests exist for SSA. This study aims to validate a novel olfactory identification test in older Kenyan adults, with and without dementia.
Methods: Funded by the Davos Alzheimer's Collaborative and approved by ethical boards, this study utilized the ScentAware Olfactory Test. The test includes 16 odour samples with five choices per item. Participants choose from four odour options or 'no odour detected'. The test was administered to 44 healthy controls (21 males, 23 females; ages 45-75, mean=54, SD=8) with varying education levels, and 4 individuals with Major Neurocognitive Disorder (2 males, 2 females; mean age 64, SD=12). Preliminary analysis included item-level statistics, Cronbach's alpha for internal consistency, and correlations with education and age in controls ($p<0.05$). Due to the small dementia sample, data were qualitatively described.
Results: Healthy controls' scores were normally distributed (mean=9.11, SD=2.75), with highest accuracy for coffee (86%) and garlic (80%), and lowest for smoke (30%) and orange (36%). Internal consistency was acceptable ($\alpha=0.61$). Scores positively correlated with education level (rho=0.58; $p<0.001$) and negatively with age ($r=-0.53$; $p<0.05$). 2 of 4 participants with dementia discontinued the test due to refusal to guess, with one scoring 8/16 and the other 1/16.
Conclusion: The ScentAware Olfactory test (preliminary) shows acceptable psychometrics in healthy controls but faced issues with dementia participants who were reluctant to guess. Adding an option for "odour detected but not identified" and introducing a step-down olfactory discrimination condition are recommended. Future work will focus on testing the tool in earlier stages of dementia.

Abstract 33 (Poster with Flash Talk)

Cultural Adaptation of the Cookie Jar Theft into Banana Theft Picture for Diagnosing Dementia in Africa: Innovation from the Akili Mali Project.

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Background: The assessment of speech has emerged is useful to diagnose dementia. The speech fluency test by Cookie Theft Picture from the Boston Diagnostic test can detect post-stroke aphasia and primary progressive aphasia. Unfortunately, these tests are not available in Africa using culturally relevant pictures. Our goal was to culturally adapt the "Cookie Theft" picture by maintaining hazards on picture descriptions without altering the content but fit into African culture.
Methods: Cognitive debriefing by picture-based validated test of Dementia reported by healthy volunteers was translated into a relevant, and culturally adapted picture for future users. Participants included 3 groups of 56 healthy adults aged >60 years 19 from the Kiwira, 19 from the Makandana, and 18 Ikuti wards of Rungwe, by Vijiji Tanzania in Mbeya, Tanzania. The original US picture was displayed, and facilitators asked participants, "Please tell me everything you see going on in this picture". After obtaining the hazards and confirmations, the facilitator asked "How can we present the same picture portraying the African environment?"
Results: Participants from the 3 groups suggested a change from a cookie theft picture to a banana theft picture as the African kitchen with three clay stones and chicken. A closet was changed into a local table with a milk gourd, and a basket full of bananas, mango, sugar cane, and avocado. A US girl with a short skirt was changed to an African girl with a long skirt. An African mother with head wrap culture. A falling stool was replaced with a broken bamboo ladder. All people in the picture had no shoes. Tap water pouring on the floor was translated as water pitcher pouring water onto the floor.
Conclusion: Clinicians and researchers in Africa are urged to use the banana theft picture early assessment of cognitive disorders and dementia over time.

Abstract 34 (Poster with Flash Talk)

Door-to-Door Community Recruitment of Older Adults with Alzheimer's Disease and Related Dementias (ADRD): A Case Study in Uganda.

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Background: Developing innovative community-based recruitment strategies is effectively engaging older adults with ADRD and their caregivers in resource-limited settings, such as sub-Saharan Africa. The growing prevalence of ADRD and the limitations of traditional recruitment methods necessitate the use of door-to-door recruitment in Uganda, which is essential for building trust, increasing participation, and addressing challenges such as dementia underdiagnosis. By fostering rapport, accurately identifying symptoms, leveraging local knowledge, facilitating early intervention, and enhancing ADRD detection and care in LMICs, this offer a solution for improving the outcomes of older adults with ADRD in these settings.
Methods: We employed a door-to-door recruitment approach to identify elderly individuals suffering from Alzheimer's disease and other dementias (ADRD). The study was carried out in urban and rural areas and targeted individuals aged 65 years or above. During the pre-recruitment visits, health history served as the primary criterion for selection. We used a series of cognitive tests and clinical examinations.
Results: We approached 322 individuals, 219 were eligible and consented to participate, yielding a recruitment success rate of approximately 67%. During recruitment, 79 individuals with Alzheimer's disease (AD), 112 control participants, and 28 with Mild Cognitive Impairment (MCI). The average age of the participants with AD was 82.45 years (SD = 9.23). Control participants were averagely aged 77.29 years (SD = 7.85). Participants with MCI had an average age of 79.33 years (SD = 8.75). We faced challenges, such as nine individuals declining participation, ten logistical issues, and two language barriers. Participants cited health benefits, involvement of VHTs, and personal interests as their primary motivations for participating in the study.
Conclusion: The door-to-door recruitment strategy successfully engaged older adults in Uganda, demonstrating its effectiveness in identifying participants with AD, MCI, and controls and highlighting its potential as a viable method for community-based research in similar settings.

Abstract 35 (Poster with Flash Talk)

Collecting blood samples in a rural African setting to build a genomic resource for dementia research: a case-control study.

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Kenya is part of a dementia study which is being implemented in 10 African countries. The study aims to collect DNA, and plasma biomarkers for phenotyping and whole genome sequencing, thereby creating a large genomics resource for studying dementia in individuals of African ancestry. The study is being conducted at Makueni County Referral Hospital (MCRH) in rural Kenya and follows a case-control design. Cases include adults aged 65 years or older with memory loss or other cognitive symptoms, including those diagnosed with Mild Cognitive Impairment (MCI), Alzheimer's disease (AD) and related dementias. Controls are cognitively unimpaired individuals with no history of dementia, matched by gender, location, and age (± 3 years). The study adheres to Standard Operating Procedures (SOPs) that outline guidelines for sample management. At the MCRH, blood samples are collected into three 10 ml EDTA tubes. One tube is stored directly on dry ice (-80°C) for DNA extraction. The remaining tubes are centrifuged at 1800g (3400 rpm) for 10 minutes, and the plasma fractions are dispensed into cryovials of various volumes. All samples are packed on dry ice and transported to the biomarker laboratory storage site at the Africa Institute of Mental and Brain Health (AFRIMEB) in Nairobi, Kenya, where they are stored in a -20°C freezer for up to 12 weeks before being shipped to the African Coordinating Centre (ACC) in Ibadan, Nigeria, or transferred to a -80°C freezer for further storage. The cold chain is maintained during transportation from the collection site, through storage, and until shipment to ensure the integrity of the biomarkers. In conclusion, this study highlights a successful approach to managing biological samples in a rural setting. It sets a precedent for future genomic research in Kenya and similar settings, contributing valuable data to the global effort against dementia.

Abstract 36 (Poster with Flash Talk)

The Female Brain Health and Endocrine Research in Africa Study (FemBER-AFRICA)
Culturally Adapted Cognitive and Advanced Diagnostic Approaches to Assess Sex Specific Differences in an African Population.

Anne Nyambura Njogu[1], Cynthia Smith[1], Alice Ondieki[1], Rachel Maina[1], Edna Bosire[1], Karen Blackmon[1], Sheena Shah[1], Dilraj Sokhi[1], Sylvia Mbugua[1], Harrison Kaleli[1], Sarah Gregory[4], Tanisha G Hill-Jarrett[3], Linda Khakali[1], Jasmit Shah[1], Thomas Thesen[1], Elena Tsoy[3], Sheila Waa[6], Anusha Yasoda-Mohan[3], Violet Okech[5], Michelle Mielke[2], Tamlyn J Watermeyer[4,6], PhD and * Chinedu T Udeh-Momoh[1-3], PhD*.

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Introduction: FemBER-Africa study seeks to assess sex specific differences in an African population. **Methods:** We are employing several strategies to deeply phenotype a cohort of 250 of men and women along the Alzheimer's disease continuum. These strategies include culturally-adapted neuropsychological and biopsychosocial measures, assessments of vascular and metabolic risk factors, analysis of various fluid-based biomarkers e.g., blood, urine, saliva, stool, and CSF, non-invasive cost-effective assessment techniques (wearables, retina scanning), and neuroimaging e.g., MRI and FDG PET. **Expected Results:** We have already culturally adapted neuropsychological and biopsychosocial questionnaires to reflect culturally relevant concepts, norms and values. This adaptation has enhanced their relevance, appropriateness, and accuracy. For the blood and CSF sample we will determine biomarkers associated with Alzheimer's Disease Related Disease (ADRD). The DNA samples will be analysed for AD-relevant genes, with emphasis on African-specific risk variants e.g. Apolipoprotein; triggering receptors expressed on myeloid cells 2; TP-Binding cassette transporter subfamily A member 7, and brain-derived neurotropic factor Val66Met. Additionally, we will have an option for participants to provide fecal samples for gut microbiome studies and scalp hair samples for metabolic activity and endocrine markers studies. Furthermore, saliva sample will be used for analysis of AD-related biomarkers and other steroid hormones including markers of endocrinological status. Other clinical laboratory investigations will include HbA1C, B12, TFT, FBG, CRP, AST, ALT, GGT and serum Creatinine. Neuroimaging techniques such as MRI, FDG PET and retinal imaging will also be employed. **Conclusion:** This study incorporates culturally adapted biopsychosocial battery, wearables, retinal biomarkers, fluid-based biomarkers and neuroimaging to provide insights on the underlying mechanisms of AD progression, enhancing diagnosis precision and monitoring with affordable and much less invasive procedures. Additionally, the study is poised to inform on sex-specific, culturally relevant prevention strategies for ADRD, ultimately contributing to the global effort to address this growing public health challenge.

Abstract 37 (Poster with Flash Talk)

Functional characterization supporting candidate gene INSYN2B in chromosome 5q35 locus identified in African Ancestry population.

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Objectives: To further characterize the identification of novel linkage locus chr5q35 identified in the African ancestry population through the Research in African American Alzheimer Disease Initiative (REAAADI) and Late-Onset AD Family Study (LOAD), we performed locus-specific virtual capture C derived from Chromatin confirmation capture analyses (Hi-C) generated on brain and AD-relevant iPSC-derived cell lines through the Miami ADSP FunGen group.
Methods: Chromatin confirmation capture analyses (Hi-C) generated on brain BA9 regions and AD-relevant iPSC-derived cell cultures (microglia, mixed oligodendrocytes/neurons and neurons) were generated for AD patients and cognitively unimpaired individuals with high African, high European or high Amerindian ancestry contributions. The genome-wide data was utilized for chr5-locus specific virtual capture-C analyses using promoters of genes in the region as baits; with a focus on INSYN2B as putative candidate gene underlying the linkage and surrounding genes.
Results: Hi-C data from brain BA9 regions shows chromatin interaction of the shared variants in the linkage region, with the INSYN2B, but not the DOCK2 promotor in all ancestries. This pattern is driven by effects seen in iPSC-derived mixed oligodendrocyte/neuron and neuron cultures but not microglia, matching known expression patterns of INSYN2B.
Conclusions: Our analyses provide supporting evidence for INSYN2B, encoding an inhibitory synaptic factor, to play a role in AD genetics in the African ancestry population. This African ancestry-specific finding shows the importance of diversifying population-level genetic data to better understand the genetic determinants of AD on a global scale.

Abstract 38 (Poster with Flash Talk)

Development of a Standardized Framework for Reviewing Neuroimages from Multiple African Centers in the READD-ADSP Study: A Pilot Data Approach.

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Background: Neuroimaging plays a key role in diagnosing and managing Alzheimer's disease (AD), particularly with the updated NIH-NIA guidelines highlighting brain atrophy for accurate phenotyping. Although the READD-ADSP study is not explicitly funded for neuroimaging, collaborations with the African Dementia Consortium (AfDC) have enabled its integration into diagnostic workflows where possible. This pilot study assesses structural brain changes in individuals of African ancestry with dementia to enhance neuroimaging characterisation in African populations.
Methods: We established a standardised framework for reviewing neuroimaging data from dementia studies across African centres. Brain MRI and CT scans were collected from Nigeria, Tanzania, Kenya, Ghana, Mozambique, Benin, and Ethiopia sites. Preprocessing involved FSL-based image segmentation, brain extraction, and normalisation. A centralised pipeline ensured quality control, including automated and expert radiologist reviews. Structural analysis measured cortical thickness, hippocampal volume, and ventricular size. Machine learning models were used to develop vendor-agnostic biomarkers, and radiologists were remotely trained to ensure consistent reporting across sites.
Results: Neuroimaging data from cases aged over 60 years were analysed. Findings revealed global cortical atrophy, significant hippocampal atrophy, and enlarged temporal horns. White matter changes showed diverse patterns across dementia types. A reporting template was developed to identify incidental structural lesions.
Conclusion: This study demonstrates the feasibility of standardising neuroimaging across diverse African centres and highlights significant findings in hippocampal atrophy, ventricular enlargement, and white matter changes. These insights support the crucial role of neuroimaging in improving dementia diagnosis in African populations.

Abstract 39 (Poster with Flash Talk)

Risk factors and outcomes of delirium in hospitalized older Ghanaians.

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Objectives: Delirium has been rarely studied in older West Africans. We sought to investigate its correlates and outcomes in hospitalized older Ghanaians.
Methods: This was a one-month prospective observational study. Delirium prevalence was assessed within 24 h of admission using the Confusion Assessment Method (CAM). Incident delirium was determined with repeat CAM assessments on post-admission days 4, 7, 14, 21 and 28, after censoring participants with prevalent delirium. Multivariate logistic regression analyses were used to explore risk factors. Estimates of adjusted hazard ratios for mortality were derived with the discrete time version of the Cox regression model for time invariant explanatory variables.
Results: Among 483 participants, 250 (51.8%, 95% CI: 47.3–56.3) had prevalent delirium while 10 of the remaining 233 (4.3%, 95% CI: 2.1–7.8) developed incident delirium. Being older than 80 years (adjusted odds ratio (OR) = 2.1, 95% CI: 1.2– 3.6), having no formal education (OR = 2.2, 95% CI: 1.4–3.4), stroke (OR = 1.8, 95% CI: 1.1–3.0), infection (OR = 1.9, 95% CI: 1.2–3.0), and high Triage Early Warning Score (OR = 6.9, 95% CI: 2.5–19.0) predicted delirium. Delirium (adjusted hazard ratio (HR) = 1.8, 95% CI: 1.0–3.3) and high TEWS (HR = 4.6 (95% CI: 1.7–12.7) at baseline predicted mortality. These factors also predicted longer hospital stay.
Conclusion: Over half of hospital-treated older Ghanaians in the present study had delirium on the first day of admission. The syndrome prolonged hospitalisation and increased mortality risk. Future studies in West Africa may investigate the epidemiology of delirium in primary care and community settings.

Abstract 40 (Poster with Flash Talk)

Transcultural adaptation of the biopsychosocial assessments and tools through focused group discussions.

Alice Ondieki[1], Anne Nyambura Njogu[1], Cynthia Smith[1], Rachel Maina[1], Edna Bosire[1], Karen Blackmon[1], Sheena Shah[1], Dilraj Sokhi[1], Sylvia Mbugua[1], Harrison Kaleli[1], Sarah Gregory[4], Tanisha G Hill-Jarrett[3], Linda Khakali[1], Jasmit Shah[1], Thomas Thesen[1], Elena Tsoy[3], Sheila Waa[6], Anusha Yasoda-Mohan[3], Violet Okech[5], Michelle Mielke[2], Tamlyn J Watermeyer, PhD[4,6] and *Chinedu T Udeh-Momoh, PhD[1-3]*.

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Background: Only about 0.1% of total research in Africa constitutes dementia research which is of the lowest volume of all LMIC regions. The creation of novel, and adaptation of existing, biological & psychosocial measures in ethnically and culturally diverse populations is limited yet crucial to provide culturally informed research processes. This is paramount for studies exploring sex- and gender-based vulnerabilities for ADRD, such as reproductive health and fertility.
Methods: To gather insights and feedback on cultural relevance and sensitivity of our clinical and health questionnaires, these were subjected to review by expert clinical and academic stakeholders as well as local community members, community health promoters, community leaders and representatives through a series of focus groups.
Results: Questions about sexual behaviour, sexually transmitted diseases, biological and adapted children & fertility were inappropriate & required rephrasing in a more culturally sensitive manner & placed strategically after less sensitive questions to encourage rapport. Questions relating to traditional practices for fertility (e.g. use of herbal remedies), characteristics of puberty in male, partners support during and after childbirth were missing from original questionnaires. The incorporation of local beliefs and traditions will provide a more comprehensive & novel understanding of local reproductive health behaviours. Translations of cognitive measures missed subtle linguistic nuances. Instructions & cognitive concepts required more elaborate explanations or alternative concepts in Swahili to ensure clarity.
Conclusion: Fember-Africa study will address a significant gap on research related to sex and gender-specific differences in Africa, providing critical information to better understand the drivers of higher prevalence of dementia in women of African ancestry. By ensuring culturally sensitive and adaptation of research tools, we aim to provide meaningful insights into the prevention and management of ADRD in this underrepresented population.

Abstract 41 (Poster with Flash Talk)

Neuroprotection by zingerone in AlCl3/D-galactose induced model of AD in mice involves modulation of BDNF, astrogliosis, cholinergic system and oxidative/apoptotic cascades.

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Introduction Alzheimer's disease (AD), a prevalent neurodegenerative disorder, is characterized by progressive cognitive decline and substantial neuropathological changes. Zingerone, a bioactive constituent of ginger is known for its antioxidant activities. There is an information gap on the effect of zingerone on AlCl3/D-galactose induced model of cognitive impairment similar to AD. Methods Thirty-five male albino Wistar mice were divided into five groups, each with seven randomly selected and administered with AlCl3(100mg/kg po) plus D-galactose (100mg/kg ip) or co-administered with zingerone (100mg/kg po) or donepezil (10mg/kg ip) for 60days. After administration, neurobehavioral test was carried out to evaluate cognition. Biochemical investigation was performed to determine the brain antioxidant status via measures of SOD, CAT, and LPO as well as acetylcholinesterase (AChE) activity. Furthermore, immunohistochemical assessment of the expression of BDNF, GFAP and Bcl2 in the hippocampus and prefrontal cortex was carried out. Results Results indicated that AlCl3 + D-galactose only, induced cognitive impairment, decreased antioxidant enzyme activities, increased AChE activities, and reduced BDNF and GFAP immunoexpression. These effects were abated in the zingerone and donepizil–treated groups. Conclusion Hence, zingerone is a promising candidate for being included into the search for safe and effective anti-AD molecules.

Abstract 42 (Poster with Flash Talk)

Defining cognitive screening cut-points in a rural Ugandan population to enable recruitment to the DEPEND study.

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Background: DEPEND aims to recruit participants with and without dementia in Uganda to investigate pathological processes leading to dementia. Participants will be sampled from 1400 older adults in the General Population Cohort (GPC) in rural Southwest Uganda, based on their performance at cognitive screening. However, defining cognitive impairment at screening requires local population normative data which are lacking in Uganda. The Ugandan Wellbeing of Older People Study (WOPS) used identical cognitive screening methods, but these data are not population-representative, as WOPS was designed so that half of the cohort were people living with HIV. We aimed to use WOPS data to define cut-points applicable to the GPC to identify people with cognitive impairment.
Methods: We analysed data from the 5th WOPS round (collected 2021 – 2022). The screening elements were: • Verbal recall • Digit span • Verbal fluency We divided each score by the maximum achieved in that component. The mean of the component scores made an overall score (cogscreen). We adjusted the mean and standard deviations (SD) of cogscreen to the socio-demographic distribution of the population from the GPC census (collected 2021- 2023) using inverse probability weighting.
Results: Of the 513 adults 60+ in WOPS, 59.7% were female, 49.5% were living with HIV, and 20.1% had no formal education. In multivariable linear regression, older age and lower education were independently associated with lower scores on cogscreen, while sex and HIV status showed no association. We therefore adjusted the mean and SD of cogscreen to the age and education distribution of the census population. Impaired cognition was defined as scoring ≥1.5 SDs below the mean.
Conclusion: By identifying socio-demographic factors independently associated with cognitive screening performance in WOPS, we defined cut-points for impaired cognition in a rural Ugandan population. This enables over-sampling of GPC participants with impaired cognition for the DEPEND study.

Abstract 43 (Poster with Flash Talk)

Associations of markers of endothelial function with blood-based biomarkers of Alzheimer's Disease in individuals of admixed ancestry.

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Objectives: Cardiovascular health is a major risk factor for cognitive decline and dementia, including Alzheimer's disease (AD). Despite a higher risk of cardiovascular disease and dementia, individuals of Hispanic and African ancestry are vastly under-represented in AD research, and therefore the relationship between cardiovascular health and AD in diverse populations is largely unknown. To address this, we examined the associations between biomarkers of cardiovascular function, AD, and genetic ancestry.
Methods: AD biomarkers include Aβ42/40 and p-tau/Aβ42 ratios. CVD biomarkers include VEGF, PlGF, bFGF, VCAM-1, and ICAM-1. Biomarkers were collected from 256 admixed individuals sampled from Puerto Rico and Peru as well as African Americans from the continental US. Including age and sex as covariates, mixed effects regressions were modeled separately predicting both AD biomarker ratios by all 5 VCID biomarkers, degree of African ancestry, and APOE.
Results: Aβ42/40 ratio was associated with VEGF (β = -1.97×10-5, P = .002), bFGF (β = -2.10×10-4, P = .02), VCAM-1 (β = 1.53×10-5, P = 9.02×10-4), ICAM-1 (β = -3.72×10-5, P = .01) and degree of African ancestry (β = 0.01, P = .04). Similarly, p-tau/Aβ42 ratio was associated with VEGF (β = 0.01, P = .001), bFGF (β = 0.18, P = 5.21 × 10-5), VCAM (β = -0.005, P = .02), and ICAM (β = 0.02, P = .02). No significant associations were observed for PlGF.
Conclusions: Cardiovascular markers VEGF, bFGF, ICAM-1, and VCAM-1 are associated with both the p-tau/Aβ42 and Aβ42/40 ratios, the latter of which is also modulated by degree of African ancestry. These markers are valuable measures of cognitive health in admixed individuals and could inform the design of clinical trials for biomarker development across diverse populations.

Abstract 44 (Poster with Flash Talk)

Brain Banking In Africa – Preliminary Experience In The Ibadan Brain Bank Project.

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Introduction: Brain banking facilitates the availability of brain tissue for the exploration of the neurobiology of degenerative brain disorders. Although well developed in the global north, brain banking is gaining awareness and traction in low resource settings including Africa. This, hopefully, will enhance the availability of brain tissue from indigenous Africans with the hope of unique contributions to unique data from Africa and thus narrow the current diversity and equity gaps in brain banking. We have established the IBADAN Brain Bank, created brain donation awareness materials and commenced the collection of brains from donors and tissue storage in paraffin-embedded blocks.
Objective: This report highlights a brain donation awareness event with group of elderly Nigerians as well summarize our experience with the initial cohort of brains accrued in brain bank.
Methodology: A brain donation awareness event was organize for members of the Elders' Forum of the Chief Tony Anenih Geriatric Centre, University College Hospital, Ibadan. Nigeria. Initial brains were also obtained for our brain bank through hospital and coroners autopsies. A written consent was obtained for each of the autopsies from the relations in both coroner and hospital autopsies. The autopsies were done and the brains removed within 48 hours of death. Brain removal procedure follows the modified Newcastle/MRC protocol. The brain is weighed and fixed with 20% buffered formalin. The formalin is replaced after 24 hours and allowed to fix for a minimum of 10 days prior to sectioning. Coronal sections of the brain are obtained at 1cm intervals using the Newcastle brain map and processed into paraffin - embedded blocks. Sections of the tissue are de-paraffinized and processed with Haematoxylin and Eosin, Luxol Fast Blue and Cresyl Violet stains and planned for immunohistochemistry with vascular, amyloid and tau pathology markers. Preliminary Results: 60 older persons participated in the brain donation awareness event. A total of 18 brains have been acquired between January and September 2024 (54% female); age at death (61+/- 16.3 yrs; range 34-86 yrs). Brain weight ranges from 1050g to 1500g (mean:1205 +/- 139g). One patient was a female with previously diagnosed Alzheimer's disease while another died from a neuropsychiatric disease. Three of the patients had systemic hypertension at the time of death.
Conclusion: Establishing a brain bank in Africa is quite challenging because of the many traditional, cultural, religious and ethical and social barriers to brain banking. Context – sensitive brain awareness programs help overcome the barriers to donation. The IBADAN Brain Bank, the first organized brain tissue repository in Africa demonstrates that it is feasible to establish brain banks in Africa.

Abstract 45 (Poster with Flash Talk)

Community co-production in dementia research: A case study from Tanzania as part of the Akili Mali study.

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Dementia is a global health issue, which disproportionately affects low and middle-income countries. Since up to 40% of dementia is due to modifiable risk factors, prevention initiatives are of increasing importance, but few have been conducted in sub-Saharan Africa. Co-production is a collaborative method of conducting research where academic researchers and key stakeholders work in partnership to design and complete research. This method can address power imbalances but is relatively new in sub-Saharan Africa. The Akili Mali study aims to co-produce culturally appropriate measures of brain health for use in dementia prevention studies Akili Mali is co-produced between academic institutions in the UK, Tanzania and Nigeria, community organizations and grassroots community members. This study outlines the required steps and mechanisms to identify and effectively engage with communities and key stakeholders in Northern (Kilimanjaro) and Southern (Mbeya) Tanzania including the creation of an elders' community advisory board. Through a series of workshops, focus groups, and collaborative initiatives, we aimed to understand community needs and perspectives, integrating local knowledge into the project plan. The outcome has been a community co-produced neuropsychological protocol to measure early cognitive change based on the advice and experience of community members and key stakeholders. The findings reveal that effective community engagement relies on building trust, leveraging local networks, and ensuring inclusive participation across diverse demographics. Key strategies identified include the use of culturally relevant communication methods, the establishment of local leadership roles, and the incorporation of traditional practices into the research protocols.

Abstract 47 (Poster with Flash Talk)

Identifying Reversible Causes of Dementia Among Zambian Adults Screening Positive for Cognitive Impairment.

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Introduction: More than 55 million people worldwide have dementia, with over 60% living in low-and middle-income countries (LMICs) like Zambia. Potentially reversible causes of dementia, such as vitamin B12 deficiency, hypothyroidism, and syphilis, are common in LMICs and early evaluation and treatment of these etiologies have been to improve patient outcomes. However, there is limited data regarding the prevalence and etiologies for dementia in Zambia. Therefore, this American Neurologic Association-Neurologic Association of Zambia Early Career Research Grant is assessing reversible causes of dementia on an ongoing population-based cohort study of healthy aging and dementia in Lusaka, Zambia.
Methods: Adults age >55 are being enrolled from randomly selected households in two high-density Lusaka communities. During household interviews by community health workers, demographics, medical history, diet, anthropomorphic measurements, HIV, and glucose testing are collected. The Community Screening Instrument for Dementia (CSI-D) is being used to screen for dementia. All participants are then invited for examination by a neurologist to assess for systemic signs of neurologic disease and confirmatory neurocognitive testing. HIV-negative participants with dementia and no other identified cause are undergoing testing for B12 deficiency, hypothyroidism, and syphilis.
Results: To date, 256 Zambians (mean age 67; 68% female, mean education 5.8yrs) have been enrolled. Mean household income was ZMW 1364 ($53/month). Sixty-four (25%) drank alcohol, whereas 39 (15%) previously drank alcohol. Thirty-four (13%) participants were HIV-positive. One hundred and twenty-three (48%) participants regularly attended community social activities. Caregivers reported that 16 (6%) participants regularly forgot family member's names, 7 (3%) got lost in the community, and 5 (2%) got lost at home. On dementia screening, 83 (32%) screened negative for dementia (dfscore <0.12), 32 (13%) screened in the intermediate range (dfscore 0.12 to <0.184) and 141 (55%) participants screened positive for possible dementia (dfscore ≥0.184). Forty-nine (49/123, 40%) HIV-negative participants with possible dementia have undergone further neurocognitive testing and, among those with confirmed dementia, screening for reversible causes is ongoing.
Conclusions: The screen positive rate for possible dementia is extremely high among HIV-negative participants in this study population. Identifying the prevalence of reversible causes of dementia among these individuals may offer an impactful intervention to improve cognitive outcomes in these communities.

Abstract 48 (Poster with Flash Talk)

Feasibility of a culturally adapted picture description task as a measure of cognition within the older adult population of Hai, Northern Tanzania. An Akili Mali study project.

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Introduction: Dementia is an increasing global health problem. Picture description tasks are a useful tool to assess semantic-based language deficits, which can occur during later stages of dementia. There is a paucity of research regarding culturally appropriate picture description tasks within sub-Saharan Africa. **Aim:** Develop a culturally adapted picture description task and scoring method and evaluate its feasibility as a cognitive measure in two rural communities in Kilimanjaro, Tanzania.
Methods: An adaptation of a widely used picture description task was developed using community feedback. Five scoring methods were adapted from existing literature. One hundred and twenty-two participants aged ≥60 were sampled for assessment. Audio-recordings and handwritten records of participant responses were transcribed and translated for scoring and analysis.
Results: Eighty-five participants were excluded due to difficulties with task administration. Translated language samples from the remaining 37 participants were analysed. All scoring methods showed no statistically significant association with the IDEA score when controlling for age, sex and years of education. Education was significantly associated with four out of five scoring methods.
Conclusion: This is an informative first exploration of the cultural adaptation and co-production of a picture description task in sub-Saharan Africa. Most participants attempted the task, with initial analysis suggesting the task correlates with educational attainment more than cognition. Overall, the Banana Theft task shows potential, however, there are caveats to its use in a rural East African setting without additional training and support due to issues highlighted during this pilot study.

Abstract 49 (Poster with Flash Talk)

Neuroprotective Effect of Omega3 oil against ALCL3 induced oxidative stress in the cerebellum of adult male rats.

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The brain is a potential target for aluminium toxicity as it induces oxidative stress. Therefore, strategies to attenuate aluminium-induced brain impairments should be explored. The study aimed at investigating the protective effects of omega-3 oil on aluminum chloride-induced oxidative stress in the cerebellum of adult Female Wistar rats. Forty adult female Wistar rats (160 – 165g) were divided into four groups (n=10). Group I received distilled water and served as the control, group II received 100mg/kg body weight of aluminum chloride intraperitoneally, group III received 200mg/kg of omega-3 oil orally and group IV received 200mg/kg of omega-3 oil and 100mg/kg of aluminum chloride for 28 days. Body weight and neurobehavioural studies were done on day 28 and the rats, sacrificed on day 29. The cerebellum was dissected out and some preserved in phosphate buffered saline at 4oC and pH, 7.2 for oxidative stress and antioxidant markers, while others fixed in 10% formol-saline for histological and immunohistochemical studies. Data was analyzed using one way analysis of variance (ANOVA) at $p<0.05$. The rats treated with aluminium chloride showed general body weakness and decrease body weight, exploratory movement and forelimb grip strength and negative geotaxis compared with the control and groups II and III rats. Aluminium chloride-treated rats showed increased lipid peroxidation, and decreased glutathione levels, glutathione peroxidase and catalase activities, severe loss of Purkinje cells and vacuolization of cells in the granular layer, astrogliosis and apoptosis in the cerebellum compared with the control, groups II and III rats. In conclusion, Omega-3 fatty oil decreased the rate at which aluminium chloride induced oxidative stress in the cerebellum of Wistar rats by increasing the antioxidant capacity of the brain and reducing apoptosis.

Abstract 50 (Poster with Flash Talk)

Whole Genome Sequencing of Alzheimer's Disease in African Populations: Insights from the DAWN Study.

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Alzheimer’s disease (AD) is the most common neurodegenerative disorder among the aging population with a strong genetic contribution. The DAWN study is aimed to investigate the genetics of AD in an underrepresented diverse population including nine countries in sub-Saharan Africa through the Africa Dementia Consortium (AfDC). In this analysis, we aimed to identify rare, pathogenic AD variants through a whole genome sequencing (WGS) analysis of cohort of individuals from Nigeria, Ghana, Kenya, Ethiopia, and Mozambique. We performed whole genome sequencing of 441 individuals from AfDC sites in Nigeria, Ghana, Kenya, Ethiopia, and Mozambique. DNA was extracted at the University of Ibadan, Nigeria and an aliquot shipped to the University of Miami for processing. The sequencing was done using standard PCR-free Illumina whole genome sequencing protocols on the NovaSeqX Plus instrument. We applied an Alzheimer’s Disease Sequencing Project (ADSP) developed bioinformatics pipeline and quality control procedures. Variants were filtered for those in 22 established AD genes and risk loci based on the ADSP Gene Verification Committee recommendations including genes with variants causing familial AD (e.g. PSEN1, PSEN2, APP) and those with rare susceptibility variants (e.g. SORL1, TREM2, APOE). The prioritized rare variants were confirmed using Sanger sequencing. Of the 441 participants, the mean age at examination was 74.7 years and females accounted for 51.9%. These were divided into AD cases (46.1%), cognitively unimpaired controls (49.2%), and mild cognitive impairment (MCI) (4.7%). After filtering for AD genes, we identified a total of 41,683 variants of which 812 (1.9%) were protein coding. Filtering further for population frequency, we identified a novel mutation in PSEN1 changing from alanine to threonine at position 431 (PSEN1 A431T) in a 63-year-old male AD patient

from Nigeria with positive family history of AD. This variant has never been identified, though other amino acid changes have been reported in familial AD. Similarly, we identified a previously reported SORL1 variant introducing a premature stop codon at amino acid 985 (SORL1 R985X) variant in 58-year-old female patients from Nigerian with diagnosis of AD. This variant has previously been identified in two AD cases of European background and other protein truncating variants in SORL1 have been shown to have strong effects on AD risk. We identified a novel PSEN1 variant and a rare SORL1 in this unique African population. This finding supports the importance of the study of diverse ancestries to identify new and recurrent AD causative/risk variants.

Abstract 51 (Poster with Flash Talk)

Verbal fluency performance of older adults in rural Tanzania: A community-based pilot study.

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Semantic specific impairment on verbal fluency tasks (VFTs) is a recognised marker of Alzheimer's disease (AD). While there is extensive research on VFTs in high-income countries (HICs), fewer studies have investigated their applicability in Sub-Saharan Africa. The present work evaluated VFTs in relation to demographic variables and cognitive decline in a community-based sample from rural Tanzania. Older adults (n=131) from the Hai district, Kilimanjaro completed a neuropsychological battery including the IDEA screen and five VFTs: two semantic (animals and market items), two phonemic (words beginning with C and B) and one action fluency task. Performance differences in semantic and phonemic fluency were evaluated using z scores derived from means and standard deviations of cognitively normal participants (IDEA score >7). Phonemic-semantic discrepancy scores were calculated as phonemic z scores minus semantic z scores. Overall, participants performed better on semantic than phonemic and action fluency ($p<0.001$ for all). All VFT scores positively correlated with education ($p<0.015$ for all) and total IDEA scores (all $p<0.005$), which also correlated with discrepancy scores between animal and letter B fluency ($p=0.030$). All raw VFT scores correlated with tasks of memory, semantic and executive functioning (all $p<0.05$). When using z scores, only phonemic measures ($p<0.01$ for both) correlated with executive tasks. All VFTs effectively classified cognitive impairment (AUROC>0.7, $p\leq0.001$ for all). Discrepancy between animal and letter fluency performance additionally demonstrated utility in classifying cognitive impairment in groups with higher than elementary education (AUROC>0.7, $p\leq0.001$ for both). In this rural East African community, VFT performance pattern correlated with demographic and cognitive variables as previously observed in HICs. Raw scores were markedly lower than in HICs. Phonemic-semantic discrepancy correlated with cognitive impairment only in those with primary-level education. VFTs including phonemic-semantic discrepancy may be useful elements of neuropsychological assessment for AD in this setting, but robust local normative data are crucial.

POSTER PRESENTATIONS II

(in alphabetical order by first author)

Abstract 52 (Poster)

Modifiable Risk Factors for Cognitive Dysfunction Among 1036 Community-Dwelling Older Nigerian Africans: Data from the Valiant Study.

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Background: Multi-pronged risk factor characterization and primary prevention of dementia is cost-effective. The Lancet 2024 commission on dementia observed that almost half of the burden of dementia is potentially preventable by tackling 14 putative risk factors. These emerging risk markers include early life (less education), mid-life (hearing impairment, high LDL-c, depression, traumatic brain injury, physical inactivity, diabetes (DM), smoking, hypertension (HTN), obesity, excessive alcohol use) and later life (social isolation, air pollution, and visual impairment). We examined the contribution of these risk factors to cognitive impairment among 1036 community-dwelling older Nigerians.
Methods: The Vascular heAlth, fraiLty, and cognItion in Ageing Nigerians (VALIANT) is a longitudinal community-based cohort study. One thousand and thirty-six (1036) participants were recruited from Wards 2 and 3 of the Ibadan Northeast local government area of Oyo State, Nigeria through a multi-stage, stratified cluster random sampling method. Patients were diagnosed as having dementia and MCI via a consensus diagnosis of at least two neurologists. Ten of the recently published 14 risk factors for dementia were identified. A multinomial logistic regression analysis was used to explore the relationship between emerging dementia risk factors and cognitive impairment (MCI/Dementia). The aOR (95% CI) were reported.
Results: The mean age was 65.2 (±10.5) with 27.2% males. A total of 35 participants (3.4%) and 112 (11%) had dementia and mild cognitive impairment respectively. The mean (SD) age of participants was 77.0 (11.3) dementia, 72.6 (9.8) MCI and 63.8 (9.9) normal. On the bivariate analysis, older age, female gender, low level of education and being underweight were associated with cognitive impairment. The determinants of cognitive impairment ORs (95% CI) were age 60-69 years: 2.23 (1.09 – 4.54), 70 – 79 years 7.15 (3.73 – 13.69), 80-89 years 19.3 (9.64 – 38.66), 90+ years 28.32 (10.08 – 79.53), female gender 1.70 (1.10 – 2.65), any form of education 0.18 (0.13 – 0.27), DM 1.19 (0.59 – 2.42), HTN 0.70 (0.50 – 0.99), alcohol use 0.64 (0.43 – 0.95), smoking 0.65 (0.35 -1.22), obesity/overweight 0.34 (0.18 – 0.64), dyslipidaemia 0.84 (0.58 – 1.22), and social network score 0.95 (0.93 -0.97).

Conclusion: Of the early and late-life risk factors, only low level of education and social isolation were significantly associated with cognitive impairment. Of the mid-life risk factors, HTN, obesity and alcohol use showed a protective association with cognitive impairment demonstrating a reverse causation effect. An understanding of the contribution of known risk factors to dementia burden should be context-specific and may enhance population-wide efforts to lessen dementia burden in sub-Saharan Africa.

Abstract 53 (Poster)

Neuroprotective Effect of Zingerone on ALCL3/D-Galactose Induced Neurodegeneration and Immunoexpression of BDNF in Prefrontal Cortex of Albino Wistar Mice.

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This study investigates the neuroprotective effect of Zingerone on $AlCl_3$/D-galactose-induced neurodegeneration in the prefrontal cortex of albino Wistar mice. Brain-derived neurotrophic factor (BDNF) immunoexpression and Nissl bodies staining using Cresyl Fast Violet (CFV) were employed to assess neuronal integrity. A total of twenty eight (28) adult male mice were randomly assigned into four groups as follows: Control group(1) animals which received normal saline and food only, group(2) $AlCl_3$/D-galactose only (100mg/kg), group(3) $AlCl_3$/D-galactose+Zingerone (100mg/kg), and group (4) $AlCl_3$/D-galactose+Donepezil (10mg/kg) respectively. The Y maze and Morris water neurobehavioral assessment were carried out. At the end of 8 weeks' period, all the animals from each group were sacrificed a day after the end of the administration with anaesthesia by intraperitoneal injection of pentobarbital and followed by cervical dislocation. The brains were removed, processed and subjected to test. Data collected were analysed using one-way ANOVA and difference were considered significant at ($P<0.05$). Result: There was a significant decrease in body weight of animals in other groups compared to the control group, the animals in the control group were more active during their behavioural test compared to the animals in other groups. The control group revealed normal immunoexpression of BDNF and Nissl protein expression, while the $AlCl_3$/D-gal only group exhibited weak BDNF expression and faintly stained Nissl bodies. Treatment with Zingerone significantly restored immunoexpression of BDNF and corresponding increase in staining intensity of Nissl bodies. These findings suggest that Zingerone exerts a protective effect by mitigating Aluminum chloride and D-galactose induced neurodegeneration by enhancing BDNF expression and Nissl bodies.

Abstract 54 (Poster)

Recruitment approaches in genetic study participation for Alzheimer's disease and related dementias in Kenya.

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Background: The READD-ADSP (Recruitment and Retention of Alzheimer's Disease Diversity Genetic Cohorts in the ADSP) project, is a case-control genetic epidemiological study, which aims at engaging underrepresented populations of African ancestry in Alzheimer's disease and related dementias (ADRD) research. We aim to recruit 200 cases of ADRD and 200 controls of older adults of 60 years and above in Kenya. Recruiting individuals for ADRD genetic studies, especially those with low socioeconomic status and residing in rural areas is challenging.
Methods: We employed various strategies to facilitate participant recruitment. These included: (i) involvement of Community Advisory Board (CAB) members, such as faith healers, government officials, healthcare workers, caregivers of people with dementia, and Community Health Promoters, to lead the recruitment efforts at the community level; (ii) Collaborations with the Makueni County Referral Hospital to provide access to clinical records registry; (iii) Utilizing data from an existing study cohort (DEM-SKY project); and (iv) Snowballing processes.
Results: The various recruitment efforts have so far resulted in 112 cases (106 with Alzheimer's disease, three with mild cognitive impairment, two with Lewy body dementia and one with Parkinson dementia), 99 healthy controls, and a total of 96 matched pairs of ADRD and controls. The recruitment process has taken place within a period of two years, translating to about 9 participants per month.
Conclusions: The READD-ADSP Kenya project utilizes various recruitment strategies that build on established community and hospital engagement structures. Employing these different strategies is essential for broadening participant reach, building trust, and improving retention. Keywords: Dementia, Kenya, older adults, recruitment strategies.

Abstract 55 (Poster)

Biomarkers of neurodegeneration and synaptic dysfunction differentiate cognitively unimpaired individuals with high levels of Alzheimer's disease (AD) neuropathology from individuals with AD dementia.

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Background: Alzheimer's disease (AD) neuropathology is commonly associated with neurodegeneration and subsequent cognitive decline. However, approximately one third of individuals accumulate significant AD neuropathology without developing cognitive impairment [1-3]. These individuals (mismatches) show lower levels of neurodegeneration and focal hypertrophy that may explain cognitive maintenance. Recently, biomarkers of synaptic dysfunction and neuroinflammation have been implicated in early AD-related cognitive decline [4]. We examined the role of global atrophy, hippocampal volume, neuroinflammation, neurodegeneration, and synaptic dysfunction in differentiating AD/MCI individuals from cognitively unimpaired individuals with (mismatches) and without (controls) substantial amyloid and tau accumulation.
Methods: We analyzed a cohort (N=506) from the Wisconsin Registry for Alzheimer's Prevention and the Alzheimer's Disease Research Center who underwent positron emission tomography (PET) scans with both MK6240 and Pittsburgh compound B (PiB) tracers, and cognitive assessment within one year. We differentiated cognitively unimpaired individuals without amyloid and tau accumulation (controls, n=422) from those with amyloid accumulation (global PiB>1.19) and PET-derived Braak stage III-VI (mismatches, n=38). AD/MCI individuals (n=46) were defined as cognitively impaired with Braak stage III-VI and amyloid accumulation. We used mixed models with a random effect for individual to compare magnetic resonance imaging-derived global atrophy and hippocampal volumes between AD/MCI vs. mismatches and controls. CSF biomarkers were measured using the Roche NeuroToolKit, a panel of robust prototype immunoassays, in a subsample (N=226; control n=188, mismatch n=17, AD/MCI n=21). We compared markers of neuroinflammation (chitinase-3-like protein [YKL-40] and glial fibrillary acidic protein [GFAP]), neurodegeneration (total tau and neurofilament light [NfL]), and synaptic dysfunction (synaptosomal associated protein 25 [SNAP-25], alpha synuclein [α-syn], neurogranin [Ng], and neuronal pentraxin II [NPTX2]) between groups. Models were adjusted for age, APOE-ε4 carriage, and sex. CSF models were additionally adjusted for days between lumbar puncture and MK6240 scan, and atrophy models were adjusted for intracranial volume (mL). Skewed dependent variables were logged.
Results: The cohort was aged 66.8 years (mean), had 36.5% APOE-ε4 carriage, and was 68.3% female. In mixed models, mismatches demonstrated significantly lower global atrophy (□=-0.046[0.017]; p=.007) and higher hippocampal volume (□=734.95[174.55]; p=.000) than AD/MCI individuals, as did controls (□=-0.019[0.006]; p=.002; □=850.25[143.47]; p=.000). Neuroinflammatory biomarkers YKL-40 and GFAP did not differentiate mismatches from AD/MCI individuals. However, neurodegeneration biomarkers total tau (□=-0.23[0.089]; p=.011) and NfL (□=-0.32[0.096]; p=.001) were significantly lower in mismatches versus AD/MCI individuals. Presynaptic proteins SNAP-25 (□=-0.018[0.094]; p=.049) and α-syn (□=-0.25[0.125]; p=.048) differentiated mismatches (and controls) from AD/MCI individuals. Although correlated strongly with SNAP-25 (r=0.89) and α-syn (r=0.81), Ng did not differentiate mismatches from AD/MCI individuals. NPTX2 was uninformative in differentiating all groups.
Conclusions: Mismatches exhibited lower global atrophy and higher hippocampal volume than AD/MCI individuals, consistent with their lower levels of neurodegenerative CSF biomarkers. Our finding that SNAP-25 and α-syn differentiated mismatches and controls from AD/MCI individuals suggests a role of

presynaptic processes in protecting against neurodegeneration and contributing to cognitive maintenance. The results are also consistent with evidence from autopsy studies suggesting that accumulation of hyperphosphorylated tau within the synaptic compartment contributes to neurodegeneration and associated cognitive decline.

Abstract 56 (Poster)

A systematic review on the sex and gender influences on Alzheimer's disease biomarkers: Insights from African populations.

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Introduction: Biomarkers have remarkable potential to allow earlier diagnosis of dementias such as Alzheimer's disease (AD). Less than 5% of dementia research data comes from Black Africans or African American populations, despite Africa's growing dementia burden. Furthermore, there are globally more women than men living with dementia, a pattern that is expected to continue. This review aims to identify and synthesise existing research on sex and gender influences on AD fluid and neuroimaging biomarkers, specifically in populations of African descent.
Methods: Systematic searches were conducted across PubMed, Scopus, Web of Science, SciELO and African journals online for studies published between 2000 and 2024, focusing on neuroimaging, cerebrospinal fluid and blood-based biomarkers in African populations. Inclusion criteria cover studies focusing on AD and related dementias and identified sex and gender influences on biomarkers as well as the influences of ethnicity or race. The literature synthesis followed PRISMA guidelines, and a meta-analysis will be conducted.
Results: Results from our cursory review of the literature identified sex-specific influences on biomarkers of AD, including higher likelihood of dementia progression, and higher prevalence of diagnosis with AD-dementia in women, compared to men with similar biomarker levels. Importantly, African ethnicity has also been found to influence levels of AD biomarkers.
Conclusion: There is a fundamental need for more research in African populations. We seek to increase understanding of biomarker profiles in African populations, with focus on sex and gender, and with our meta-analysis highlight gaps in the existing literature. Studies like the Alzheimer's Association funded FemBER-Africa project will advance AD and biomarker research in Africa, and reviews such as ours will significantly contribute to wider understanding on sex and gender related disparities in diverse presentations of ADRD in African contexts, further identifying critical literature gaps that require attention.

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