Received: 26 October 2025 | Revised: 1 December 2025 | Accepted: 6 December 2025

DOI: 10.1002/alz.71069

Alzheimer's & Dementia®
THE JOURNAL OF THE ALZHEIMER'S ASSOCIATION

PERSPECTIVE

Advancing global dementia research through equity and inclusion

Natalia Vilor-Tejedor[1,2,3,4,5] | **Samuel Danso**[6,7] | **Ricardo D'Oliveira Albanus**[8] | **Kimberley Billingsley**[9] | **Tavia Emily Evans**[3,10] | **Liz Yuanxi Lee**[11] | **Selena Wang**[12] | **Jiyang Jiang**[13] | **Hangfan Liu**[14] | **Jermaine Ross**[15] | **Geetha Chilla**[16]

[1]Barcelonaβeta Brain Research Center (BBRC), Pasqual Maragall Foundation, Barcelona, Spain

[2]Institute for Risk Assessment Sciences, Utrecht University, Utrecht, The Netherlands

[3]Department of Human Genetics, Radboud University Medical Center, Nijmegen, The Netherlands

[4]Centre for Genomic Regulation (CRG), Barcelona Institute of Science and Technology (BIST), Barcelona, Spain

[5]Hospital del Mar Medical Research Institute, Barcelona, Spain

[6]School of Computer Science and Engineering, Sunderland University, Sunderland, UK

[7]Centre for Clinical Brain Sciences, College of Medicine & Veterinary Sciences, University of Edinburgh, Edinburgh, UK

[8]Department of Neurology, MSC, St. Louis, Missouri, USA

[9]Center for Alzheimer's and Related Dementias, National Institute on Aging and National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, Maryland, USA

[10]Global Brain Health Institute, Trinity College Dublin, Dublin, Ireland

[11]Department of Psychology, University of Cambridge, Cambridge, UK

[12]Department of Biostatistics and Health Data Science, Indiana University School of Medicine, Indianapolis, Indiana, USA

[13]Centre for Healthy Brain Ageing, Discipline of Psychiatry and Mental Health, School of Clinical Medicine, Faculty of Medicine and Health, University of New South Wales, Sydney, Australia

[14]Health Sciences Facility III, University of Maryland School of Medicine, Baltimore, Maryland, USA

[15]Alleo Labs Corporation, San Francisco, California, USA

[16]Bioinformatics Institute, Agency for Science, Technology and Research (A*STAR), Matrix, Singapore

Correspondence
Natalia Vilor-Tejedor, Barcelonaβeta Brain Research Center (BBRC), Pasqual Maragall Foundation, C. Wellington 30, 08005 Barcelona, Spain.
Email: nvilor@barcelonabeta.org

Funding information
Alzheimer's Disease Data Initiative; Spanish Ministry of Science and Innovation—State Research Agency,, Grant/Award Number: RYC2022-038136-I; European Union FSE+, Grant/Award Number: PID2022-143106OA-I00; European Union FEDER, Grant/Award Number:

ABSTRACT: Despite the global burden of dementia, research remains dominated by high-income, Western populations, limiting the generalizability and equity of findings. In this Perspective, we highlight the importance of diversity and inclusion in dementia research, not only in study participants but also in the researchers, study design, and funding priorities. We describe how the lack of representation creates knowledge gaps and delays progress in prevention, diagnosis, and treatment. We also present examples of initiatives that are working to change this, including the Alzheimer's Disease Data Initiative and the William H. Gates Sr. Fellowship program, which supports open science, international collaboration, and early-career researchers from underrepresented regions. These efforts demonstrate that diversity is not only an ethical goal, but a scientific need. More inclusive and global research could lead to discoveries that are

23S06083-001; Ajuntament de Barcelona; la Caixa Foundation; AD Strategic Fund: Vascular Contributions to Cognitive Impairment and Dementia—Understanding Mechanisms of Dysfunction, Grant/Award Number: VCID-UMD-26-1514428; Alzheimer's Association Research postdoctoral fellowship, Grant/Award Numbers: 25AARF-1377279 (2025–2029), WE.03-2024-07(2025–2027); Intramural Research Programs of the National Institute on Aging (NIA); National Institute of Neurological Disorders and Stroke (NINDS); National Institutes of Health (NIH), Department of Health and Human Services, Grant/Award Numbers: Z01-AG000949, 1ZIANS003154, P30AG072976, R01AG081693

more generalizable, more globally applicable, and better able to inform strategies to address dementia across all communities.

KEYWORDS
cross-cultural research, diversity and inclusion, open science, research equity

Highlights

- Prioritize representation in datasets across ethnicity, geography, sex/gender, and socio-economic status.
- Support early-career researchers from underrepresented regions with long-term funding and mentorship.
- Standardize and adapt tools (cognitive, clinical, genomic) across cultural and linguistic contexts.
- Promote open science through equitable, federated data sharing platforms, and embed community engagement from research design to dissemination.
- Value diversity as a driver of discovery, not as a confounder.

1 | WHY DIVERSITY MATTERS IN DEMENTIA RESEARCH

1.1 | The global impact of dementia

Dementia represents one of the most significant health challenges faced by societies worldwide, with an increasing number of cases projected in the coming decades. According to the World Health Organization (WHO),[1] 57 million people had dementia worldwide in 2021, with more than 60% of cases in low- and middle-income countries (LMICs). By 2050, this number is expected to reach between 139 and 153 million globally,[2] with the burden increasing most quickly in LMICs.[3] The global costs of dementia, estimated at $1.3 trillion in 2019, are expected to reach $14.5 trillion for the period between 2020 and 2050.[4] In addition to these economic burdens, dementia also carries a significant health burden for individuals themselves, leading to reduced quality of life in years after their diagnosis. A study projected that by 2050, the annual socio-economic costs and the value of quality-adjusted life-years lost in China would reach $1.233 trillion and $702 billion, respectively.[5] Global figures will be much higher and have both direct and indirect impacts on economies.

Formal and informal medical care communities will also take on substantial burdens from dementia. As there are no known treatments for preventing or stopping the progression of the disease, most of the illness costs at present are from care costs. Sixty-one percent to 85% of current dementia care costs are attributable to informal care, primarily from family members, with carers spending an average of 5 hours a day providing support to individuals with dementia. Although there is some level of organized support in terms of access to information and training, and support for carers, these are available mainly in high-income countries. In addition, current information might not translate to the global population well, given ethnic, demographic, and cultural differences. Despite its widespread and growing impact, dementia research has been historically focused on populations in high-income countries, predominantly involving Western, educated, industrialized, rich, and democratic cohorts. This narrow demographic focus limits the applicability of research findings across the global population and hinders the development of equitable dementia prevention, diagnosis, and treatment strategies (Figure 1), particularly in low- and middle-income and non-White cohorts.[6] Given the rising number of dementia cases globally, this health care challenge needs to be tackled urgently from multiple facets to alleviate emotional and financial burdens on individuals with the disease, their caretakers, and communities, as well as to reduce socio-economic costs for economies.

1.2 | The cost of homogeneity in dementia research

Despite dementia's wide-reaching impact, much of our scientific understanding remains based on narrow, homogeneous cohorts. The lack of diverse population studies creates "blind spots" in our knowledge, impeding accurate characterization of disease mechanisms. For example, work on the local ancestry of the apolipoprotein E (*APOE*) locus [7,8] reveals ancestry-specific nuances in the effect of *APOE* ε4 that are overlooked in predominantly European datasets. Broadening the inclusion of diverse participants, to encompass a range of ethnicities, socio-economic backgrounds, and geographical regions, is essential to improve the generalizability and applicability of dementia research findings. A broader outlook can also enable the discovery of novel

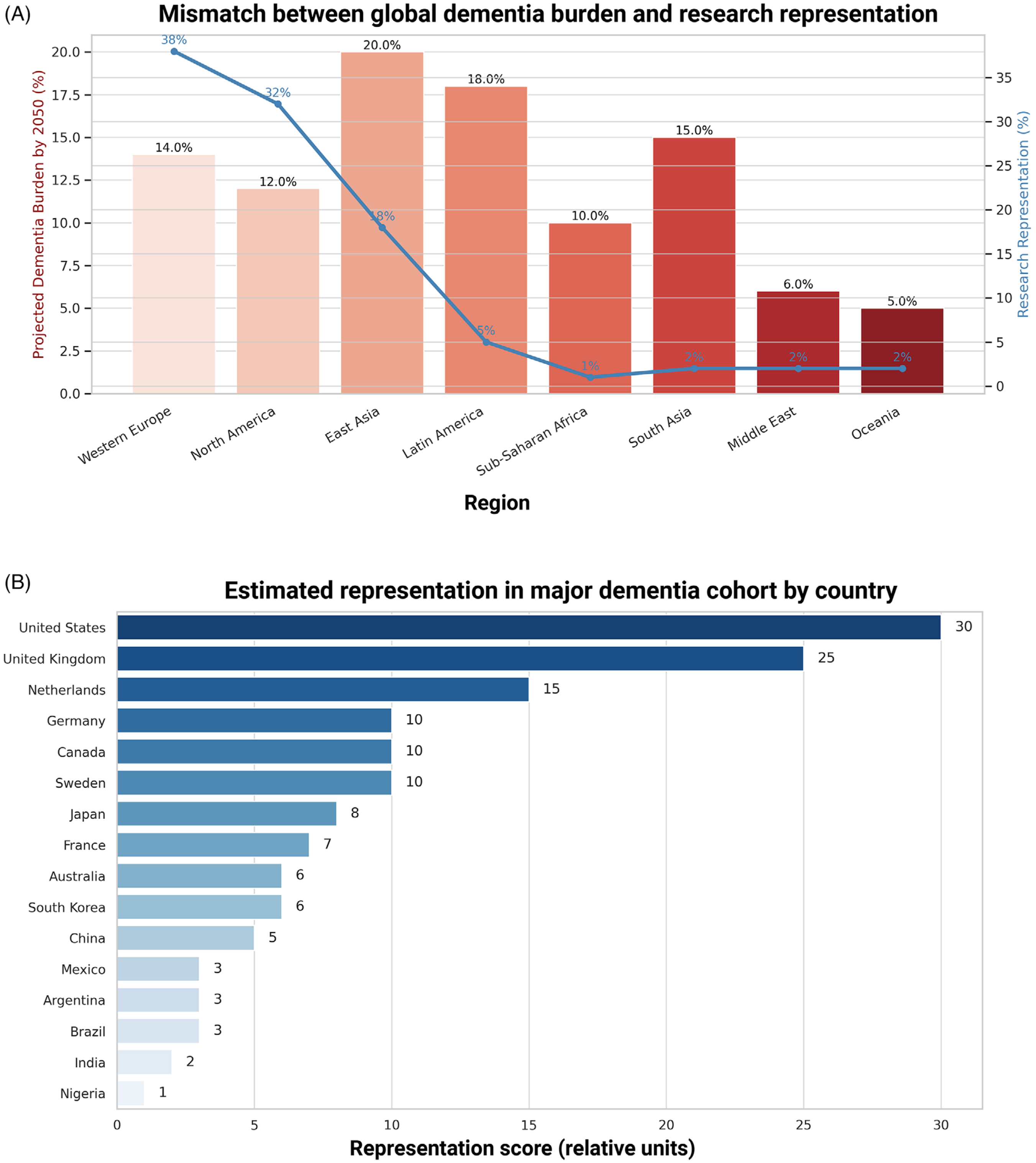

FIGURE 1 **(A) Global mismatch between projected global burden of disease and research representation**. Projected regional contributions to global burden of dementia by 2050 (bars, in salmon) are shown alongside current estimated representation in dementia research cohorts and genetic datasets (line, in steel blue). Although regions like Sub-Saharan Africa and South Asia are expected to experience a sharp increase in dementia prevalence, they remain significantly underrepresented in published research. Data sources include WHO dementia projections (2021), Global Burden of Disease estimates (2023), and cohort participation reports from ADNI, ReDLat, and UK Biobank studies. **(B) Country-level representation in major dementia research cohorts**. Estimate relative representation scores for countries contributing to prominent international dementia research initiatives, including Alzheimer's disease neuroimaging initiative (ADNI), UK Biobank, European Prevention of Alzheimer's disease (EPAD), Latin America and the Caribbean Consortium on Dementia (ReDLat), Australian Imaging Biomarkers and Lifestyle (AIBL), Japanese ADNI (J-ADNI), and Longitudinal Aging Study in India (LASI-DAD). The scores reflect a composite measure based on three factors: (1) the presence

risk and protective factors, disease mechanisms, and therapeutic targets that differ across populations.[3] Global partnerships facilitate the pooling of resources, the sharing of diverse perspectives, and the generation of culturally sensitive approaches, accelerating discoveries and maximizing their global relevance. It is important to note that the issue is not that prior research is scientifically inaccurate, but that findings derived from predominantly homogeneous cohorts have restricted applicability, limiting their relevance to the broader global population.

2 | HOW UNDERREPRESENTATION SHAPED THE FIELD

The limited scope of dementia research to date has contributed to significant disparities in understanding the disease across different cultural, ethnic, and socio-economic groups. This lack of representation has both constrained the generalizability of research findings and resulted in missed opportunities to uncover population-specific risk factors, protective factors, and responses to interventions.[9] Beyond limiting generalizability, the exclusion of participants from non-WEIRD (non-Western, Educated, Industrialized, Rich, and Democratic) cohorts raises ethical concerns about equitable access to the benefits of research. It also risks reinforcing existing health disparities by skewing diagnostic frameworks, treatment recommendations, and public health policies toward the needs of already well-studied populations.

Awareness of the need for greater diversity in dementia research has grown over recent decades. Key moments, such as the broader recognition of health disparities following global epidemiological studies and public health initiatives, have highlighted the consequences of historical exclusion. Underrepresentation has perpetuated knowledge gaps, particularly concerning the incidence, progression, and presentation of dementia in minority populations, as well as differences in access to diagnosis and care.[10] A 2024 meta-analysis[11] underscored the persistence of these gaps, revealing that a majority of dementia research studies do not report participants' ethnicity or race. Among those that did, the inclusion of racial and ethnic minorities remained limited, with most research conducted in North America and Europe. Available data indicated a higher incidence of dementia among Hispanic and African American populations in the United States, and among African Caribbean populations in the United Kingdom, but the small sample sizes of these groups constrained robust analyses and understanding of underlying causes.

2.1 | The importance of diverse study groups and research cohorts

The ethnic, cultural, and socio-economic imbalances in contemporary research represent a major obstacle to the development of universally effective strategies for dementia prevention, diagnosis, and treatment. Including participants from diverse populations is critical for capturing the wide range of biological, environmental, and social factors that influence the onset and progression of dementia. Factors such as genetics, lifestyle, environmental exposures,[12,13] and access to health care[14] can vary substantially across populations, shaping the risk, manifestation, and course of the disease.[15] For example, differences in educational attainment, early-life socio-economic status, social isolation, and exposure to air pollution have all been identified as important modifiable risk factors, as highlighted by the 2024 Lancet Commission on dementia.[16]

Broadening the scope of dementia research to include underrepresented populations both enhances the generalizability of findings and enables the identification of novel biomarkers, risk factors, and therapeutic targets that may be population specific. It also facilitates the discovery of protective factors and resilience mechanisms that could inform tailored interventions. For example, recent large-scale studies have demonstrated the scientific value of ancestral and regional diversity in uncovering novel risk factors for dementia. A biobank-scale analysis[17] identified disease-causing variants and ancestry-specific genetic modifiers of Alzheimer's disease (AD) risk that would have been missed in homogeneous cohorts. Similarly, work led by the the Latin America and the Caribbean Consortium on Dementia (ReDLat) has revealed unique variants associated with AD and frontotemporal dementia in admixed Latin American populations, highlighting the importance of regional representation in genetic research.[18] These findings underscore the need to expand research efforts beyond predominantly European cohorts to capture the full spectrum of genetic and environmental contributions to dementia.

Along with diversifying study populations, increasing the diversity of researchers themselves is also important. This includes both institutional diversities, such as supporting researchers based in under-resourced settings or from institutions in LMICs, and individual-level diversity, including differences in race, ethnicity, gender, socio-economic background, and lived experience. These dimensions of diversity bring distinct perspectives that can challenge prevailing assumptions, generate new research questions, and foster more innovative and inclusive approaches. Researchers from historically underrepresented communities may also be better positioned to build trust with local populations, design culturally relevant studies, and advocate for the needs of those often excluded from research agendas.

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of country-level participation in one or more major cohorts, (2) the relative size of the participant sample contributed to global studies, and (3) the accessibility and visibility of the cohort data in published international literature (e.g., open access, data sharing, frequency of reuse). Countries shown with higher representation scores are those with well-established, highly visible, and frequently reused cohort data. In contrast, countries across Africa, Latin America, and South Asia remain critically underrepresented, despite bearing a growing share of the global dementia burden.

Achieving greater diversity among researchers will require concerted efforts to lower financial, structural, and institutional barriers. Scholarships, mentorship programs, and funding opportunities targeted at early-career researchers from low-income and historically underrepresented groups are critical for nurturing the next generation of leaders in dementia research. By investing in both participant and researcher diversity, the field can advance toward a more equitable and globally relevant understanding of dementia.

3 | COLLABORATION AS A DRIVER OF DISCOVERY

Collaboration is essential for addressing the multifaceted challenges of dementia research. Given the complexity of the disease—encompassing genetic, biological, environmental, psychological, and social dimensions—no single researcher, institution, or discipline can fully address dementia in isolation. Working together enables the integration of diverse expertise, perspectives, and methodologies, ultimately leading to more comprehensive and impactful discoveries.

Collaborative approaches allow researchers to share data, harmonize methodologies, and pool resources, facilitating studies that are both larger in scale and more inclusive in design. Such efforts are crucial for building globally representative datasets, enabling the field to move beyond narrow models and toward a more inclusive understanding of dementia risk, progression, and outcomes, as well as research questions that would otherwise be infeasible. Initiatives such as the World-Wide Alzheimer's Disease Neuroimaging Initiative (WWADNI) [19] are working to address disparities by fostering scientific collaboration across diverse regions and varied cultural contexts, including North America, Argentina, Australia, Canada, China, Japan, Korea, Mexico, and Taiwan. An additional and highly impactful global initiative is the Harmonized Cognitive Assessment Protocol (HCAP),[20] developed to generate internationally comparable cognitive measures across diverse cultural and linguistic contexts. By harmonizing assessment protocols across countries, the HCAP Network aims to build robust global data resources for the study of Alzheimer's disease and related dementias (ADRD), supporting cross-national analyses of cognitive aging and dementia risk. Such efforts are crucial for building globally representative datasets, enabling the field to move beyond narrow models and toward a more inclusive understanding of dementia risk, progression, and outcomes, as well as research questions that would otherwise be infeasible. Interdisciplinary collaboration, involving fields such as genetics, neuroscience, epidemiology, psychology, social science, and health policy, further enhances the ability to examine dementia from multiple angles. Such efforts can yield insights into how biological mechanisms interact with social determinants and environmental exposures to shape dementia risk and progression. They can also lead to more personalized approaches to care that consider the cultural and contextual factors influencing disease experience and treatment response.

It is notable that international collaboration strengthens equity in research by promoting partnerships between institutions in high-income countries and those in low- and middle-income settings. These partnerships can help build local research capacity, facilitate knowledge exchange, and ensure that research questions and solutions are informed by diverse global perspectives. As such, collaborative research is a scientific necessity and a moral responsibility. By working together, we can ensure that dementia research reflects the lived experiences, needs, and values of all communities worldwide.

3.1 | Centering communities in research design

Meaningful engagement with communities is essential to this more inclusive framework for research. Community involvement improves the relevance and cultural sensitivity of research and helps to build trust between researchers and participants, a critical factor for successful recruitment, retention, and long-term partnerships. Community-based approaches can enhance the design of research protocols by incorporating local knowledge and preferences, making studies more acceptable and impactful at the ground level.[21,22] These approaches also help researchers identify context-specific barriers to care or participation and adapt interventions accordingly. When communities are actively involved in shaping research questions and methods, the resulting science is more likely to translate into real-world improvements in health and care delivery.

Engaging communities also plays a key role in addressing stigma. As highlighted in global analyses,[23] stigma surrounding ADRD affects multiple levels of the care pathway, including individuals' willingness to seek diagnosis, clinicians' diagnostic confidence, and caregivers' efforts to navigate services. These global patterns underscore the need for culturally informed engagement strategies that explicitly address misconceptions and fears surrounding dementia. Tailored community engagement strategies implemented at the level of research centers are therefore essential. For example, in the South Texas AD Center, researchers partnered with local Latino communities to co-develop culturally adapted educational materials and recruitment strategies, leading to increased participation in both clinical and observational studies.[24] By fostering open dialogue and promoting trust, research centers adopting such approaches can improve study relevance and uptake and lay the groundwork for longer-term community–researcher partnerships. Ultimately, meaningful engagement enhances the sustainability and equity of dementia research by shifting power dynamics and embedding participant voices throughout the research process. It creates a feedback loop in which individuals contribute to (and benefit from) the research process. This participatory ethos can enhance the sustainability of research efforts and ensure that interventions are more readily adopted and scaled in diverse settings.

Researchers found that engaging in patient and public involvement (PPI) activities enhanced their understanding of dementia research and increased the meaningfulness of the work.[25] PPI needs development across the globe, with even well-researched regions still lacking in embracing PPI for better development of studies. In addition, PPI usually results in smoother, more insightful, and more cost-effective research methods as it increases relevance and utility and creates more acceptable recruitment info/strategies for the focus sample.[26] Therefore, involving communities is not only a pathway to better science but also a step toward more ethical, inclusive, and effective dementia research.

4 | TECHNOLOGY AS A TOOL FOR INCLUSION

Technological innovation is transforming the landscape of dementia research, particularly in its potential to support more inclusive, large-scale, and globally relevant studies.[27] Advances in data collection, analysis, and sharing have opened new opportunities to engage diverse populations, overcome geographical barriers, and captured the complexity of dementia across different demographic and cultural contexts.

4.1 | Tools for data collection and analysis

Digital tools, including mobile health technologies, online cognitive assessments, and wearable devices, are helping researchers collect real-time, ecologically valid data from participants in a variety of settings. These tools enable remote monitoring of cognitive, behavioral, and physiological parameters, facilitating participation from individuals in underserved, rural, or low-resource areas.[28] This can be especially valuable in longitudinal research, where sustained engagement over time is critical. However, reliance on digital platforms also introduces new equity challenges, particularly for populations with limited internet access, and lower digital literacy or device availability. Without intentional design and support, technology-driven research risks excluding the very groups it aims to reach.

4.2 | Artificial intelligence as a key player for inclusion

The emergence of artificial intelligence (AI) and machine learning techniques has further enhanced researchers' ability to analyze complex datasets, such as brain imaging, genomics, and digital phenotyping. These tools allow for the identification of subtle patterns across multimodal data that may inform early diagnosis, risk prediction, and subtype classification. Of note, when applied to large, diverse datasets, these analytical approaches can reveal population-specific insights that would be missed in homogeneous samples.[29–32] Digital biomarkers, derived from speech, gait, sleep, or touchscreen behavior, are used increasingly to capture early and progressive changes in cognitive function.[33,34] These markers can support more individualized tracking of decline and provide scalable tools for monitoring dementia in real-world conditions. Critically, they reduce reliance on in-clinic visits and standardized assessments, which may not be culturally appropriate or accessible in all populations.

4.3 | Data sharing and open science

By lowering logistical and financial barriers to participation, technology enables broader inclusion of populations historically excluded from research. For example, digital data collection platforms can be translated, adapted, and deployed across languages and cultures, supporting culturally sensitive research that reflects regional norms and contexts.[35] Moreover, technologies can be instrumental in engaging communities beyond participation alone. Digital platforms can be used to co-design research tools, disseminate findings back to participants, and support public health campaigns tailored to local needs. These applications support a two-way relationship between science and society, reinforcing trust and transparency.[36]

At the institutional level, technological infrastructure, such as secure data-sharing platforms and cloud-based analytics, supports cross-border collaboration and capacity building. This is particularly relevant for enabling equitable participation of institutions from LMICs, that may otherwise lack access to computational tools and high-volume data pipelines.[37] In many regions, limited computational infrastructure prevents researchers from effectively storing, processing and analyzing their own generated localy data. Platforms that allow scientists to upload their own data and access computational resources to support more computationally intensive research and analysis are paramount for scientists to further develop research lines and apply for additional funding.

Open science and global data sharing are transforming the way dementia research is conducted, breaking down silos and enabling a more inclusive, transparent, and efficient research ecosystem.[38] Open-access data platforms such as Dementias Platform UK (DPUK, launched in 2014), the Global Alzheimer's Association Interactive Network (GAAIN, launched in 2012), and, more recently, the Alzheimer's Disease Data Initiative (ADDI, launched in 2020), are revolutionizing dementia research by enabling global collaboration among researchers.[39,40] Collaborative platforms that support the exchange of data across countries and disciplines are vital for ensuring that research findings are broadly representative and capable of addressing the global burden of dementia.

A distinctive contribution of the ADDI is the provision of secure, cloud-based computational infrastructure through the AD Workbench, allowing researchers worldwide, particularly those in LMICs, to access analytical tools, storage, and high-performance computing at no cost. By lowering structural barriers to data analysis and providing standardized pipelines, training resources, and shared workspaces, ADDI enables investigators who may lack local infrastructure to participate fully in global dementia research. This commitment to equitable access is central to ADDI's mission and directly complements its role in assembling diverse, multinational datasets. Together, these efforts position ADDI as a key driver of inclusive, globally relevant AD research.

The ADDI aims to facilitate the sharing of genetic, imaging, clinical, and demographic data from a broad spectrum of populations around the world, enabling researchers to tackle the challenge from a global perspective. These data-sharing platforms allow researchers to access vast repositories of information encompassing a diversity of ethnicities, socio-economic statuses, and health backgrounds that were previously underrepresented in traditional dementia research. For instance, the ADDI provides researchers with access to data that spans various clinical trials, patient registries, and even longitudinal studies, offering a rich resource for understanding dementia's global impact at no cost. The ADDI's open-access model encourages the sharing of data, enabling international collaborations that would not have been possible in a siloed research environment. Researchers from high-income countries, who may have been focused on a narrower demographic, can now work with colleagues from LMICs, ensuring that their findings are representative of global populations. For example, by pooling data from underrepresented populations, the ADDI enables researchers to identify genetic variations, environmental influences, and socio-economic factors that may play a role in dementia's development. This allows for a better understanding of how the disease manifests in different populations, leading to more targeted and effective prevention, diagnostic, and treatment strategies.

5 | ADDRESSING GLOBAL RESEARCH BARRIERS

Although global data sharing platforms and open-access initiatives offer tremendous promise, they also introduce important challenges related to data harmonization, standardization, and cultural context. These issues must be carefully addressed to ensure that integrated research efforts yield valid and equitable conclusions.

5.1 | Standardizing diverse datasets

One major challenge is the variability in diagnostic criteria, assessment tools, and clinical practices across countries and health care systems. Cognitive testing protocols, clinical diagnosis protocols (or lack thereof), definitions of dementia subtypes, and thresholds for impairment may differ significantly among regions, thereby limiting the comparability of data. These discrepancies intersect with variations in language, educational systems, and health care access, which shape how cognitive function is expressed and measured. Of note, these linguistic and cultural differences are not barriers in themselves; rather, they highlight the responsibility of researchers to design, adapt, and validate assessment tools that are culturally and linguistically appropriate. Historically, the field has attempted to navigate this complexity by prioritizing homogeneity, and overcoming this legacy requires intentional methodological innovation.

Efforts to harmonize data collection and establish consensus-based diagnostic frameworks, such as those advanced by ADDI, the WW-ADNI consortium,[41] the Global Neurodegeneration Proteomics Consortium,[42] and other international initiatives, are crucial for enabling cross-cohort analysis. The National Institutes of Health's (NIH) Common Data Elements and WHO's Dementia Research Toolkit aim to enable more efficient data aggregation, but harmonization remains resource intensive and unevenly adopted across sites. Full standardization remains an ongoing and resource-intensive process that requires continued coordination among research networks, clinical centers, and policymakers.

5.2 | Interpreting data in a cultural context

Cultural differences also influence how dementia is perceived, reported, and managed. In some societies, cognitive decline may be considered a normal part of aging, leading to underdiagnosis or delayed care-seeking. In others, stigma surrounding cognitive impairment may discourage individuals from participating in research or disclosing symptoms. These cultural factors can impact recruitment, consent processes, and the interpretation of behavioral and psychosocial data. Moreover, cognitive assessments that are not culturally or linguistically adapted may fail to capture relevant symptoms or may misclassify participants based on norms that do not apply to their context. Without culturally appropriate tools, there is a risk of generating biased data that misrepresents cognitive function and disease severity in certain groups. To address these challenges, researchers must prioritize cultural competence in study design, engage with local communities and experts during tool development, and adopt flexible, inclusive research practices. Greater investment is also needed in creating and validating cognitive instruments across languages and literacy levels, particularly in regions with limited prior research infrastructure.[43]

5.3 | Striving for global equity in data science

Finally, there are challenges in ensuring equitable participation in data generation, stewardship, and authorship. Institutions in LMICs may face structural barriers to accessing computational infrastructure, data governance frameworks, or funding for long-term cohort studies. Addressing these disparities requires technical solutions, policy changes, capacity-building initiatives, and sustained global partnerships. Inclusive dementia research depends not only on who is studied, but on who is empowered to lead and interpret that research. Ensuring that data from diverse populations is collected, analyzed, and contextualized by diverse research teams is essential for meaningful, culturally grounded science.[44,45]

6 | SUPPORTING THE NEXT GENERATION OF RESEARCHERS

Advancing dementia research depends on fostering the next generation of researchers, particularly those from underrepresented backgrounds and underserved regions. Early-career investigators bring fresh perspectives, novel hypotheses, and the agility to bridge disciplines, but they face numerous challenges that can limit their long-term engagement with the field.

6.1 | Challenges for early-career researchers

Early-career researchers face significant challenges, including limited access to funding, resources, and support, particularly in the field of dementia research.[46–48] The multidisciplinary and longitudinal nature of dementia research, involving genomics, neuroimaging, epidemiology, behavioral sciences, and health systems, can be particularly resource-intensive, requiring infrastructure and collaborative networks that are not equally available worldwide. In addition, the path to academic independence is often constrained by structural inequities in global research funding, authorship opportunities, and participation in major consortia. These barriers can disproportionately affect researchers from LMICs, women, and scholars from historically marginalized groups. Without intentional strategies to address these disparities, the field risks losing critical talent and continuing the cycle of underrepresentation in both study leadership and scientific outputs.

6.2 | Investing in future scientific leaders

To secure the future of inclusive and impactful dementia research, investments in early-career development are essential. Targeted funding programs, seed grants, and protected research time can help emerging investigators develop independent lines of inquiry. Mentorship and training initiatives, particularly those that emphasize cross-disciplinary and cross-cultural collaboration, are equally important for building both technical capacity and global research networks. Programs that promote equitable authorship, leadership opportunities, and visibility within international conferences and publications are also needed to ensure that early-career researchers receive recognition for their contributions and have pathways toward long-term engagement in the field. By cultivating a diverse and well-supported pool of early-career scientists, the research community can generate more creative, context-aware, and ethically grounded approaches to dementia prevention, diagnosis, and care.

Fields such as oncology and infectious diseases have benefitted from long-standing global initiatives, like the International Agency for Research on Cancer (IARC) and the Special Programme for Research and Training in Tropical Diseases (TDR) and (WHO/United Nations International Children's Emergency Fund/ United Nations Development Programme /World Bank), which provide structured training, mentorship, and funding for early-career researchers, particularly in LMICs.

Even within neurodegenerative research, the Global Parkinson's Genetics Program (GP2) has made intentional investments in capacity building, offering training programs, data access, and collaborative research opportunities for scientists around the world, with a focus on increasing representation from underrepresented regions. These models illustrate the transformative impact of sustained investment in early-career development, something still underdeveloped in the dementia research landscape. Without intentional strategies to address these disparities, the field risks losing critical talent and continuing the cycle of underrepresentation in both study leadership and scientific outputs.

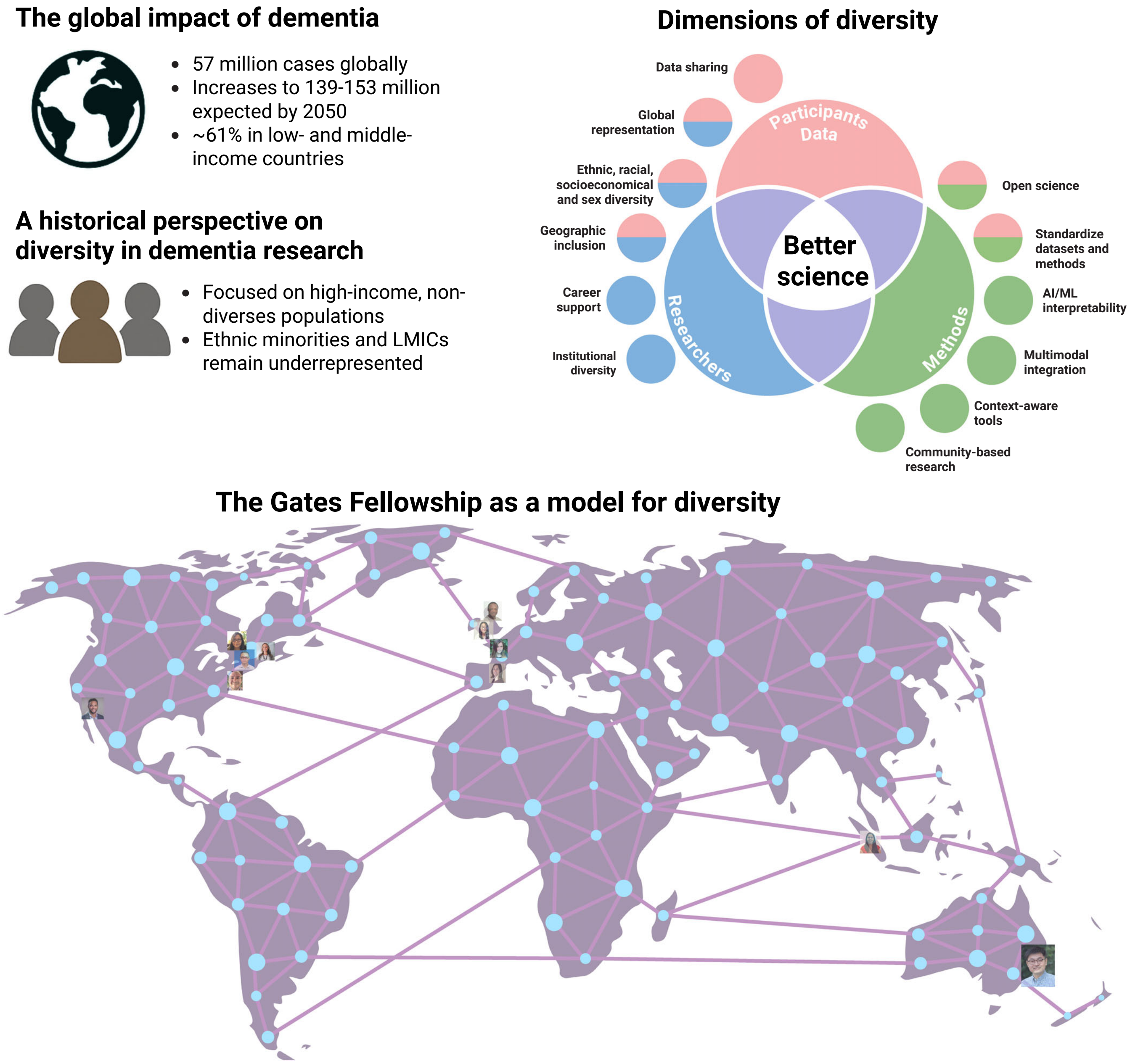

FIGURE 2 **Dimensions of diversity in global dementia research**. The left panel highlights the growing global burden of dementia and the historical underrepresentation of ethnically diverse populations and low- and middle-income countries (LMICs) in research cohorts. The top-right Venn diagram illustrates how diversity across participants, researchers, and methods converges to enable better science. Each domain includes specific axes of inclusion, such as racial/ethnic diversity, sex/gender, institutional and career diversity, and context-aware tools. The bottom map shows the geographical distribution of the William H. Gates Sr. Fellowship cohort, emphasizing the importance of equitable, international capacity building to advance research equity and global collaboration in dementia science.

7 | THE WILLIAM H. GATES SR. FELLOWSHIP AS A MODEL FOR INCLUSIVE RESEARCH

The William H. Gates Sr. Fellowship from the ADDI was established in 2023, to support early-career researchers around the world who are advancing innovative approaches to improve outcomes for individuals affected by ADRD (Figure 2). The fellowship provides financial support, mentorship, networking opportunities, and research infrastructure enabling investigators to develop independent, impactful research programs rooted in global inclusion.

A defining feature of the Gates Fellowship is its explicit emphasis on global inclusion and capacity building. Fellows are recruited from a broad range of countries, institutions, and disciplinary backgrounds, reflecting the program's commitment to diversifying dementia research and the way studies are conceptualized. In addition to supporting multidisciplinary dementia research projects across the world, the fellowship promotes international collaboration, open data use, and methodological innovation targeted at addressing gaps in representation, particularly in regions where research infrastructure has historically been limited.

Several projects explicitly address the challenges of working with missing, sparse, or noisy data—a common reality in both global and longitudinal cohort studies.[49–52] These include models for early detection that integrate structural and molecular neuroimaging, cognitive phenotyping, and genetic risk information, as well as modular risk systems that stratify individuals across the preclinical to symptomatic spectrum of disease.[53–56] Many incorporate biologically informed priors or environmentally modulated gene sets in the construction of proteomic and transcriptomic brain modules[57,58] and functional polygenic risk scores and other predictive features.[59,60] Others employ embedding techniques, representation learning, or probabilistic graphical models to capture latent dimensions of disease progression, subtyping, or differential response to risk exposures.[61–63] The shared emphasis on interpretability is critical, both for generating mechanistic insight into AD pathophysiology and for increasing trust and utility in clinical or public health applications.

Another common thread is the integration of multimodal data streams.[64–67] Rather than isolating genetic, imaging, or clinical measures, many projects adopt a systems-level perspective that combines data from across biological and behavioral domains. This also includes efforts to harmonize disparate data types across international cohorts[68] to identify converging biomarkers of early pathology, and to build unified models that are adaptable to the constraints and opportunities of specific settings, whether high-income imaging-rich environments or low-resource contexts where digital and community-level phenotyping are more feasible.

By prioritizing research questions and methods that center on global diversity, the fellowship serves as a practical model for how targeted investment in emerging researchers can accelerate more inclusive and equitable dementia science.

8 | CONCLUSIONS: TOWARD A MORE INCLUSIVE DEMENTIA SCIENCE

Diversity in dementia research is not a peripheral consideration; it is central to scientific validity, clinical relevance, and ethical responsibility. Including participants from varied ethnic, socio-economic, and geographic backgrounds expands the scope of discovery, reveals population-specific risk and protective factors, and ensures that interventions are effective across diverse communities. Equally important is fostering diversity among researchers, empowering new generations of scientists from underrepresented groups to lead innovative, culturally sensitive research agendas.

Global collaboration, open data sharing, and community engagement are powerful levers for achieving a more inclusive and equitable research ecosystem. Initiatives such as the ADDI and programs supporting early-career investigators, including the Gates Sr. Fellowship, demonstrate how intentional investment in diversity can accelerate discovery and broaden the impact of dementia research worldwide.

The future of dementia research depends on our collective commitment to inclusivity, in who we study, who conducts the research, how it is communicated, and how findings are translated into real-world solutions. By embracing diversity as a scientific and moral imperative, the research community can develop more effective strategies for prevention, diagnosis, and care, ultimately improving outcomes for all individuals affected by dementia.

ACKNOWLEDGMENTS

We would like to thank the entire Alzheimer's Disease Data Initiative (ADDI) team for their invaluable support and collaboration throughout our fellowship. We are especially grateful to Caitlin Caitlin McHugh. Associate Director, Bioinformatics (Gates Ventures) for her guidance, coordination, and thoughtful input during the William H. Gates Sr. Fellowship, which greatly contributed to the successful completion of our projects and this work.

All authors are supported by William H. Gates Sr. Fellowships from the Alzheimer's Disease Data Initiative. In addition, N.V-T. is supported by the Spanish Ministry of Science and Innovation—State Research Agency, grant RYC2022-038136-I. N.V-T is also co-funded by the European Union FSE+, grant PID2022-143106OA-I00, by the European Union FEDER, grant 23S06083-001, by the Ajuntament de Barcelona and "la Caixa" Foundation, grant WE.08-2024-07, and by the AD Strategic Fund: Vascular Contributions to Cognitive Impairment and Dementia—Understanding Mechanisms of Dysfunction (grant #VCID-UMD-26-1514428). T.E.E. is additionally supported by the Alzheimer's Association Research postdoctoral fellowship 25AARF-1377279 (2025–2029), and Alzheimer Nederland project WE.03-2024-07 (2025–2027). K.J.B. is additionally supported in part by the Intramural Research Programs of the National Institute on Aging (NIA) and the National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health (NIH), Department of Health and Human Services; project numbers Z01-AG000949, 1ZIANS003154. S.W. is additionally supported by NIA P30AG072976. H.L. is additionally supported in part by NIH grant R01AG081693. L.L.Y. is additionally supported by the Isaac Newton Trust.

CONFLICT OF INTEREST STATEMENT

At the time of preparation of this manuscript, G.C. had no conflicts of interest. Since then, G.C. has joined MSD International GmBH, Singapore. MSD International GmBH, Singapore, has no involvement in the design, preparation, or the decision to publish the manuscript. The rest of the authors report no conflict of interest. Author disclosures are available in the Supporting Information.

ORCID

Natalia Vilor-Tejedor https://orcid.org/0000-0003-4935-6721

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Vilor-Tejedor N, Danso S, Albanus RD'O, et al. Advancing global dementia research through equity and inclusion. *Alzheimer's Dement*. 2026;22:e71069. https://doi.org/10.1002/alz.71069