LONGEVITY ASIA - 2025

2nd International Virtual Conference on

Aging, Longevity and Quality of Life

December 20th – 22nd 2025

ORGANIZERS

Krebs Neumann

CureScience

(स्थापना/ Established in 1956)
बेहतर भविष्य के लिए क्षमता निर्माण
Capacity Building for a Better Future

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ABOUT THE CONFERENCE

The 2nd International Conference on Aging, Longevity and Quality of Life was held during 20th – 22nd December 2025. The 1st symposium in 2024, was attended by over 300 attendees from across the Asian continent.

Longevity is focused on exploring concepts of Aging, Longevity and Quality of Life. The trans disciplinary event had scientists from biological, social, clinical, technological and policy aspects of Aging in Asia. Risk of dementia, neurodegenerative disorders, chronic diseases increase as people age. Scientists from biological and clinical world explore these disorders. Whilst scientists from social sciences examine the population dynamics, traditional and cultural implications. In another dimension, technological innovations provide solutions to address some of these challenges. Similarly, policies enacted and implemented in different countries impact the Aging society differently.

Longevity, a thematic concept focused on extending life span. Numerous biological and molecular clocks and epigenetic quantification provide insights into health risks. While understanding the biological aspects provides insights into expanding lifespan, improving and maintaining the quality of life becomes a challenge and needs to be explored and understood further. The conference was tailored to explore multiple dimensions of these conceptual themes.

Themes & Subthemes:

Track 1: Longevity and Healthy Aging

- Biology of Aging
- Personalized Medicine
- Neurodegeneration
- Cancer & Chronic Diseases
- Computational Biology

Track 2: Socioeconomics and Cultural Diversity in Aging

- Aging and Environment
- Nutrition and Diet
- Family and Society
- The dynamics of care giving & long-term care
- Economics Impact

Track 3: Tech Innovation for Longevity and Quality of Life (QoL)

- Health Records and Artificial Intelligence
- Smart Technologies
- Design Engineering
- Digital Assistants and Platforms

Track 4: Policy Impact on Aging - Challenges and Opportunities

- Impact of UHC on older Population
- Effectiveness of Long-Term Care and Funding Models
- Social Protection for Informal Workers and Vulnerable Elders
- Gender Responsive Aging Policies and Their Impacts
- Policy Transfer and Lessons Learned Across Countries
- Policy Impacts on Digital Literacy and Technology Access for Seniors

Track 5: Environmental Change and Disaster Management

- Disaster Effects

Track 6: Quality of Life

- QOL and Aging

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ABOUT THE ORGANIZERS

LongevityAsia

Asia, with nearly five billion people across 48 nations, is a mosaic of cultures, languages, foods, and traditions. This diversity extends to how each country views and supports the journey of aging. Aging is life's most universal truth—and it can be embraced with dignity, vitality, and purpose. Before 50, it is often celebrated as longevity and possibility. Beyond 50, new challenges arise—chronic conditions, declining health, reduced mobility, and the fading of traditional family support. Yet, with intention and care, every stage of aging can be transformed into a chapter of growth and fulfilment.

Every decade after 50 presents not just challenges but opportunities: to strengthen wellness, to nurture resilience, and to create meaningful connections. A clear and thoughtful plan for health and well-being can profoundly improve the quality of life.

LongevityAsia was created to bring together visionary thinkers, scientists, policymakers, and communities to reimagine what it means to age. Together, we can transform aging from a challenge into a shared triumph.

Supported By
CureScience, USA

CureScience™ was established to develop research centres of excellence through collaborative partnerships with academia as well as the pharmaceutical and biotechnology industries. CureScience™ envisions that this approach will accelerate the discovery and commercialization of novel and beneficial diagnostics and therapeutics. We have initiated programs focusing on diagnostics, drug discovery and development, and simplifying patient access to innovative therapies.

International Institute for Population Sciences (IIPS), India

The International Institute for Population Sciences (IIPS) was established in 1656 jointly by the Government of India, the United Nations and Sir Dorabji Tata Trust as a Demographic Training Centre to serve as a regional centre for teaching, training and conducting research in the area of population studies for the ESCAP regions. IIPS is the only recognized

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deemed to be University under the administrative control of the Ministry of Health and Family Welfare, Government of India.

The Institute strives as a center of excellence on all population and relevant issues through high-quality education, teaching and research. IIPS offers six regular postgraduate courses. The Institute also offers MA in Population Studies through Distance Learning. The Institute conducts short-term courses from time-to time for various international and national organizations on population and health issues.

Apart from the teaching activities, the Institute also conducts a large number of research projects on various aspects of population like National Family Health Surveys (NFHS), Longitudinal Ageing Study in India (LASI), Study of Global Ageing and Adult Health (SAGE), Global Youth Tobacco Survey, Gender Equity and Health, and several other projects.

KrebsNeumann

KrebsNeumann – Research beyond varsity, at KrebsNeumann, research and innovation are driven by passion and dedication to advance translational medicine. Together, let's expand access to research and fuel the next wave of innovation. At KrebsNeumann, research is driven by perseverance and should be accessible to all.

To support this vision, we offer a select group of students the opportunity to engage directly with our ongoing research projects. Our main mission is to mentor and cultivate the next generation of aspiring scientists. We build this mission on three core pillars: hands-on research experience, scientific leadership, and entrepreneurship.

ORGANIZING COMMITTEE

Steering Committee

Prof. Anil Krishna
Professor
Global Institutions for Transformation

Prof. T. R. Dilip
Associate Professor
International Institute for Population Sciences (IIPS)

Prof. Varalakshmi Manchana
Associate Professor
University of Hyderabad
India

Prof. Dhananjay W. Bansod
Professor
International Institute for Population Sciences (IIPS)

Dr. Shashaanka Ashili
Sr. Scientist
CureScience
USA

Secretariat

Divyalakshmi Ramakrishna
Rhenix Lifesciences, India

Chaithra Y K
Rhenix Lifesciences, India

Uma Rakshita
Rhenix Lifesciences, India

Volunteers

Raghunath Mandi
Research Scholar
IIPS, Mumbai

Abhishek Anand
Research Scholar
IIPS, Mumbai

Ranjan Singha
Research Scholar
IIPS, Mumbai

Akriti Rajput
Research Scholar
IIPS, Mumbai

Subham Sharma
Research Scholar
IIPS, Mumbai

Lilly Rose Jose
Research Scholar
IIPS, Mumbai

Roni Sikdar
Research Scholar
IIPS, Mumbai

Amita Samal
Research Scholar
UOH, Hyderabad

Thisara Geetika Perera, PhD
Senior Lecturer
University of Colombo, Sri Lanka

Numair Arshad
Content Writer
Rhenix Lifesciences, India

Yamini Meditha
Junior Data Analyst
Rhenix Lifesciences, India

PARTICIPANTS

LongevityAsia Conference 2025

Key Statistics

Population ageing is a global phenomenon, and we received overwhelming response from participants across the globe. Our two- day symposium provided a dynamic platform to discuss diverse issues related to longevity and health, emphasizing the growing global commitment to addressing these critical challenges.

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INAUGURAL ADDRESS

Ms. Andrea M. Wojnar
Country Representative UNFPA, India

Ms. Andrea M. Wojnar is the Representative for UNFPA India and the Country Director for Bhutan, commencing her tenure in early 2022.

In a career spanning thirty-six years, Ms. Wojnar has been at the forefront of programs that have focused on the rights and health of women and girls and giving a voice to youth and adolescents. The 'power of data' being her core guiding principle. She is passionate about using evidence-based results to conduct public advocacy and high-level policy dialogue to influence decision-makers on the importance of gender equality for sustainable development.

Prior to her arrival in India, Ms. Wojnar was UNFPA Representative in Mozambique, Senegal and Country Director for The Gambia. Before joining the United Nations, she led development and humanitarian programs both at the grassroots and at the national level for the US Peace Corps, International Federation of Red Cross and Red Crescent Societies (IFRC), and the American Red Cross Society in more than 50 countries in Africa, Asia, and Latin America.

Ms Wojnar is a citizen of the United States of America and holds a master's degree in management from McGill University (Montreal, Canada), with studies at INSEAD (France), Lancaster University (United Kingdom), Indian Institute of Management (Bengaluru, India), LG Institute (South Korea) and Japan Advanced Institute of Science and Technology (Kanazawa, Japan). She also holds a Master's in Social Change and Development Economics from the Johns Hopkins School for Advanced International Studies (Washington D.C.).

PANEL DISCUSSION

Prof. T.V. Sekher
Professor, International Institute for Population Sciences
Mumbai

Prof. Sekher is a Professor at the International Institute for Population Sciences (IIPS) in Mumbai, India. With a specialization in population ageing, social demography, gender issues, family studies, large-scale demographic and ageing surveys, evaluation of health and gender programs. Prof Sekher was a Fullbright-Nehru Senior Fellow, Visiting Fellow at Oxford Brookes University, UK, Visiting Scholar at Department of Social Sciences, Lund University, Sweden, Indo-French Academic Exchange Program Fellowship.

Prof. Sekher has significantly contributed to the field through numerous publications and research projects, including the Longitudinal Ageing Study in India (Wave 1 & 2), Study on Global Ageing and Adult Health (SAGE)-India, District Level Household and Facility Survey and various surveys for the Government of India. He has published over 120 research articles, authored more than 25 project study, edited more than 10 books, establishing himself as a leading voice in social demography. His leadership roles include serving as President of the Indian Association for Social Sciences and Health from 2018 to 2022. Dr. Sekhar's work continues to influence policy and practice in public health and demographic studies.

Ms. Malti Jaswal
Founder, Inspiring Seniors Foundation
Delhi

Malti Jaswal is the Founder of Inspiring Seniors Foundation, a Delhi based non-profit focused on healthy and purposeful ageing, providing a platform for seniors to thrive, inspire, and contribute rather than simply exist. She believes that with the right awareness, opportunities, and interventions, India's silver population can be a golden asset for the society and the nation. Before entering the 'senior world', she was a Senior Consultant with World Bank, and Advisor with National Health Authority since the launch of Ayushman Bharat PM-JAY in 2018. She is a post graduate from Delhi University. She has worked in insurance sector in various leadership roles and has developed a Certification Course on Health Insurance for Insurance Institute of India.

Dr. Niral Shah
General Surgeon & Critical Care Specialist
Augusta, Georgia, USA

Niral Shah, MD MBA FACS is triple-board certified in Surgery and Critical Care by the American Board of Surgery. His education and training were from Upstate Medical University, Syracuse, Weill-Cornell Medical School, Houston, and Harvard Medical School, Boston. He is a national instructor of the Advanced Trauma Life Support course and a Fellow of the American College of Surgeons.

A serial surgeon-entrepreneur with unique vantage at the intersection of medicine, innovation and entrepreneurship successfully launching and scaling early-stage technology and life science companies. Having founded and exited two companies and advised a number of others, Niral brings a proven track record of translating clinical insight into commercial success and guiding startup teams from ideation through exit. He was the inaugural Biodesign & Innovation Fellow at the University of Missouri and he received his MBA from the University of Michigan - Ross School of Business and he was awarded the C.K. Prahalad Initiative Fellowship to evaluate new models focusing on healthcare for the "Bottom of the Pyramid" and transferability to developed countries.

He continues with various humanitarian causes even going into hotspots when needed such as Haiti with the United Nations Stabilization Mission and was the course lead for trauma surgery on behalf of the Harvard Humanitarian Initiative and the International Medical Corps in Mykolaiv Oblast, Ukraine. In his free time, he enjoys golfing, skiing, fishing, and spending time with his family.

Dr. Anil S. Bilimale
School of Public Health, JSS AHER
Mysuru

Dr. Anil S. Bilimale is a public health physician, academician, and systems thinker who works at the intersection of health, longevity, leadership, and social innovation. An Associate Professor at the School of Public Health, JSS AHER, Mysuru, he brings over a decade of experience across WHO, UNICEF, academia, and community-based systems, blending policy insight with grassroots execution.

Over the past five years, he has authored 33 peer-reviewed publications and successfully mobilized ₹7.5 crore in competitive research funding from agencies including ICMR, ICSSR, WHO, UNICEF, and Novartis. Known for his ability to translate complex science into actionable frameworks, Dr. Bilimale is the creator of the Panchamantra Model for Longevity and is working on the Meta-7 (MMI) early metabolic risk score, both designed to shift healthcare from late-stage treatment to predictive, preventive, and personalized health. His work spans non-communicable diseases, lifestyle medicine, public health genomics, healthy ageing, and systems design for wellness ecosystems.

A passionate educator and mentor, he focuses on developing critical thinking, leadership, and entrepreneurial mindset among students, believing that not all impact must come from conventional research pathways. Since 2021, he has actively nurtured social entrepreneurship in public health, guiding students toward national and international recognition through pitch fests and incubator collaborations. Beyond academia, Dr. Bilimale is

building a vision for a Comprehensive Health & Longevity Complex and a Longevity Lab, integrating fitness, nutrition, mental health, community engagement, and sustainable local economies. His philosophy is rooted in equity, human potential, and systems sustainability—with a simple conviction: health systems should not just treat disease, but design environments where healthy choices become the default. Strategic in thought, grounded in science, and human in approach, he continues to work toward creating blue-zone-like ecosystems in Indian cities, starting from Mysuru.

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VALEDICTORY ADDRESS

Prof. Mala Kapur Shankardass
Retd. Professor, University of Delhi
Delhi

Dr Mala Kapur Shankardass is an internationally and nationally known Sociologist, Gerontologist, Health and Development Social Scientist. She retired from University of Delhi as Professor in March 2021.

She has published over 100 articles and is an author of several books on different ageing issues. She Consults with United Nations agencies and is a Resource person with various Ministries of Government of India and NGOs for ageing issues. She has been involved with Ministry of Social Justice and Empowerment in formulating the National Policy for Older Persons and is part of their working group for senior citizens. She is also Member of the Committee on Older People of National Human Rights Commission.

PROGRAM SCHEDULE

Day 1 | 20th December 2025 (Saturday)

09:30-10:30 AM Inaugural Session

09:30-09:45 AM Brief Welcome to the Dignitaries, Speakers and Participants by **Dr. Shashaanka Ashili**

09:45-09:50 AM Introduction of Key Dignitaries by **Prof. Dhananjay W. Bansod**

09:50-09:55 AM Introduction of Chief Guest by **Prof. Mala Kapur Shankardass**

09:55- 10:15 AM Inaugural Speech by **Ms. Andrea M. Wojnar**

10:15-10:25 AM Formal Release od Conference Brochure by **Prof. Anil Krishna**

10:25-10:30 AM Formal Vote of Thanks & Acknowledgment by **Dr. T R Dilip**

Session 1

Chairpersons: Dr. Shashaanka Ashili and Dr. Varalakshmi Manchana

10:30-10:40 AM Navigating Complex Vulnerabilities: Physiological and Psychological Interplay in Fall Susceptibility Among Self-Perceived Unhealthy Indian Aging Population, **Madhurima Sharma**

10:40-10:50 AM A Comparative Analysis of Healthy Ageing: Applying the Australian Healthy Ageing Score (HAS) Framework to Sri Lanka, **Yuganthi Subasinghe**

10:50-11:00 AM Association Between Hysterectomy and Diabetes Among Post-Menopausal Older Women of India, **Poulami Sarkar**

11:00-11:10 AM Obesity and Spousal Concordance in India: Shared Risks and Regional Insights from LASI, **Tribeni Sonowal**

11:10-11:20 AM Chronic Diseases and Labor Force Participation Among Older Adults in India: Evidence from the NSS 75th Round, **Nandlal Mishra**

11:20-11:30 AM Reactive Oxygen Species as a Precursor to Carcinogenesis in PCOS: Age-Dependent Dysregulation of PTEN and NFE2, **Simel Masood**

11:30-11:40 AM **Tea Break**

11:40-11:50 PM Decomposing Gender Gaps in Cognitive Difficulty Among Older Adults in Nepal: The Role of Socioeconomic Factors, **Manusha Paudel**

11:50-12:00 PM Religious Engagement and Cognitive Function Among Older Adults in India: Evidence from LASI Wave 1, **Ram Naresh**

12:00-12:15 PM Correlates of Chronic and Cardiometabolic Multimorbidity among Middle-aged and Older Adults in India: Evidence from SAGE India Wave-3, 2024
Sruthi AnilKumar Hemalatha

12:15-12:30 PM Occupation and the Early Onset of Chronic Diseases: Evidence from the Longitudinal Ageing Study in India, **Abhisek Sahu**

12:30-12:45 PM Associations between Elderly Pregnancies, Gestational Diabetes Mellitus, and Hypertensive Pregnancy Disorders and Implications for Later Life Health
Tridip Mitra

12:45-01:00 PM Empowering Healthy Ageing: A Generational Approach to Well-Being
Megha Paul

01:00-01:30 PM **Lunch Break**

Session 2

Chairpersons: Prof. Anil Krishna and Prof. Mala Kapur Shankardass

01:30-01:45 PM Technostress and Procrastination: Comparing Young and Middle-aged Adults
Richa Nigam

01:45-01:55 PM An Optimization-Driven Hybrid Deep Learning Model for Depression Prediction in Healthcare, **Sahil**

01:55-02:05 PM An Application of Machine Learning Technique in Predicting Hypertension in India, **Vikas Kamble**

02:05-02:15 PM A Silent Tsunami: Alzheimer's Disease in India Linking Environmental Exposure, Gendered Burden and Public Health Policy, **Neeloo Bharti**

02:15-02:25 PM Climate Change and Health of Elderly in India: Exploring Vulnerabilities and Adaptive Responses, **Abhinav Kumar Mishra**

02:25-02:35 PM Ageing Workforce, Age-old Solution: Apprenticeships as a Policy Tool for Age-Responsive Health Workforce Development, **Shruti Bhardwaj**

02:35-02:45 PM A Threefold Approach Towards Universal Health Coverage: Assessing Health Care Financing for India’s Ageing Population, **Ankit Sharma**

Day 2 | 21st December 2025 (Sunday)

09:30-10:30 AM **Plenary Session**

Topic: Policy Impact on Aging - Challenges & Opportunities

Chairperson: Prof. Anil Krishna

Panelists: Prof. T V Sekher, Malti Jaswal, Dr. Anil S Bilimale & Dr. Niral Shah

Session 3

Chairpersons: Prof. T.R. Dilip and Prof. Dhananjay Bansod

10:30-10:40 AM	Self-report Oral Health and Life Satisfaction in Older Indian Adults: Examining the Mediating Role of Social Support, **Amir Ali**
10:40-10:50 AM	Gendered Dimensions of Ageing Alone: Examining Health and Quality of Life Among Older Adults in India, **Abhishek Anand**
10:50-11:00 AM	Rural–Urban Differentials in Functional Disability and Its Associated Factors Among Elderly People in India: Evidence from LASI 2017–18, **Gajendra Gupta**
11:00-11:10 AM	Mapping the Geography of Care Transitions: Spatial Inequalities in Elderly Care Deficits in India, **Eugine Paul**
11:10-11:25 AM	An Ageing Population and Demographic shift: A Sociological Analysis of the Problems of Aged and the Need for Social Security in Contemporary India **Jesu Ketan Pattanaik**
11:25-11:40 AM	**Tea Break**
11:40-11:50 AM	Morbidity Knocks the Door of the Economy: Understanding the Economic Strain on Elderly Populations in Bankura District, West Bengal, **Ujjwal Das**
11:50-12:05 PM	Religiosity / Wealth - What Makes People Aged 60 and Above Happy in India? **Abhishek Rajak**
12:05-12:15 PM	Are Children a Source of Old age Security? The Role of Parity in Elderly Food Insecurity in India, **Ankita Roy**

12:15-12:25 PM Does Aging Matter? Determinants of Government Health Expenditure in South Asian Countries, **Soumyanayani Mohali**

12:25-12:35 PM Health and Ageing among Tribal and Non-Tribal Older Adults in India, **Venkata Raja Malla**

12:35-12:45 PM Understanding the Morbidity Gap for Multiple Long-Term Conditions in India: Roles of Modified Health Behaviors and Socioeconomic and Demographic Factors, **Himanshu Jaiswal**

12:45-01:30 PM **Lunch Break**

Session 4

Chairpersons: Prof. Dhananjay Bansod and Prof. T R Dilip

01:30-01:40 PM Ageing Without Care: The Rise of Elderly-Only Families in West Bengal, India: Evidence from NFHS (1992–2021), **Sourav Mondal**

01:40-01:50 PM Educational Gradient and Cognitive Health Among Middle-Age and Older Adults in India: Insights from the Longitudinal Ageing Study in India (LASI), 2017-18, **Sadanand Karun**

01:50-02:00 PM Socioeconomic Determinants of Social Support Among Elderly Populations: A Comparative Analysis of Old Age Homes and Family Settings in Uttar Pradesh, India, **Anil Kumar Pal**

02:00-02:10 PM A Bibliometric Analysis and Visualization on Ageing-in-Place (AIP) in the Gerontological Research, **Subham Sharma**

02:10-02:20 PM Challenging the Dependency Narrative: Recognizing the Hidden Contribution of the Elderly through Reciprocity and Solidarity, **Raghunath Mandi**

02:20-02:30 PM Opportunities and Challenges of Mobility Among the Elderly Population: Evidence from Gurugram City, India, **Sumedha**

02:30-02:45 PM Impact of Adult Children's Migration on Well-being of Left-Behind Elderly Parents: Evidence from an Out-Migration-Prone Region in India, **Pintu Paul**

02:45-02:55 PM Depressive Symptoms and Life Satisfaction across Living Arrangements in the Elderly Population of India, 2017–2018, **Shaoni Das**

02:55-03:05 PM Embodied Devotion: Daily Practices of End-of-Life Migrants in the Sacred City of Kashi, **Vineet Kumar**

Day 3 | 22nd December 2025 (Monday)

Session 5

Chairpersons: Prof. Anil Krishna and Dr. Shashankaa Ashili

10:00-10:10 AM	Divergent Mortality Trajectories of Major NCDs Among Older Adults in India: A 2036 Forecast, **Priyanka Kumari**
10:10-10:20 AM	Investigating the Role of Public Policies in Enhancing the Well-Being of the Elderly Population in Delhi, **Abhishek Kumar Singh**
10:20-10:30 AM	Can laws Replace Love? Testing the Effectiveness of India's Maintenance Act **Shweta Kalla Baxi**
10:30-10:45 AM	Intersections of National Social Assistance Programme & Digital Governance: Situational Analysis of Pension Schemes for Old Age in Rural India **Pankaj Kumbhar**
10:45-11:00 AM	Life in Old Age Homes: A Social and Demographic Analysis in Goa, India **Amrita Samuy**
11:00-11:15 AM	Population Ageing Succeeded by Demographic Dividend: The State of the Arab World, **Asharaf Abdul Salam**
11:15-11:25 AM	Association of Spirituality and Religiosity with Mental Well-being of Elderly in India: Evidence form Longitudinal Aging Study in India, **Biswajeet Besra**
11:25-11:35 AM	Reproductive Burden, Caregiving Responsibilities, and Long-Term Ageing Outcomes: Evidence from India, **Roni Sikdar**
11:35-11:50 PM	Synbiotics: A Key for Healthy Ageing in Menopausal Women **Sulabha Deokar**
11:50-12:50 PM	**Valedictory Ceremony**
11:50-12:00 PM	Brief Welcome and overview of the valedictory session and welcome of the guest speaker by **Dr. Varalakshmi Manchana**
12:00-12:20 PM	Valedictory Address by **Prof. Mala Kapur Shankardass**
12:20-12:30 PM	Summary of Key Sessions, Themes, Major Discussions, and Takeaways from the Conference by **Prof. Anil Krishna**

12:30- 12:40 PM Formal Vote of Thanks, Acknowledgement of Speakers, Partners, Participants, and Organizing Team by **Dr. T. R Dilip**

12:40-12:50 PM Declaration of Conference Closure and Brief Announcement of Post Conference Activities by **Prof. Dhananjay W. Bansod**

Session-wise summary of the conference

Longevity and Healthy Ageing

20th December 2025

Chairpersons: Dr. Varalakshmi Manchana & Dr. Shashaanka Ashili

- Number of Presenters: 12
- Life-course health risks are shaped by gender, age, work, and social disadvantages.
- Linking women's health, occupation, and pregnancy complications to later-life chronic disease and cognitive decline.
- Multimorbidity clusters within individuals, couples, and regions, driven by shared environments, behaviors, and functional impairments, calling for integrated preventive care.
- Psychosocial and cultural factors protect healthy ageing, with religious engagement, physical activity, and social support improving cognitive and functional health.
- Findings call for context-specific, gender and occupation-sensitive policies, aligned with the Decade of Healthy Ageing.

Tech Innovations, Environmental Change & Disaster Management

20th December 2025

Chairpersons: Prof. Mala Kapur Shankardass & Prof. Anil Krishna

- Number of Presenters: 8
- The session brought together evidence on mental health, chronic diseases, climate change, workforce issues, and health financing, with strong emphasis on technology, machine learning, and policy integration for improving quality of life (QoL) among older adults.
- Comparative evidence on the differences between technostress and procrastination in young and middle-aged adults, with implications for digital well-being across the life course, highlights the need for age-sensitive and healthier digital use practices.
- Machine learning applications for hypertension prediction in India underscored the role of data-driven prevention strategies.
- Brought attention to environmental and climate change impacts on elderly health, including vulnerabilities, disasters, and adaptive responses
- Emphasized gendered dimensions of ageing and caregiving, particularly in the context of Alzheimer's disease.

Panel Discussion: Policy Impact On Aging: Challenges & Opportunities
Chairperson: Prof. Anil Krishna
Panelists: Prof. T. V. Sekher, Malti Jaswal, Dr. Anil. S. Bilimale & Dr. Niral Shah

Prof. Anil Krishna
Professor
Global Institutions for Transformation

Prof. T.V. Sekher
Professor, IIPS, Mumbai

Ms. Malti Jaswal
Founder, Inspiring Seniors Foundation
Delhi

Dr. Anil S. Bilimale
School of Public Health,
JSS AHER, Mysuru

Dr. Niral Shah
General Surgeon &
Critical Care Specialist
Augusta, Georgia, USA

Key challenges in the Indian Context
Social security gaps, severe shortage of geriatric specialists, and rural healthcare. Need to focus on a "life-course" approach to healthy ageing, Legal & Social Friction.
Viewing the elderly as a "welfare burden" to recognizing them as a "social and economic dividend".

Global Perspective & Funding Gaps
Reduced Public Spending, The Funding Shift, and longevity research will likely shift toward Public-Private Partnerships and the Age-Tech market.

Opportunities: The "Silver Dividend"
"Young-old" (ages 60–75) are a massive, untapped resource. Tapping into longevity could add $300–$500 billion to India's economy annually. Leveraging India's cheap mobile data to promote "frugal innovation," such as using apps for mobility tracking, social connection, and "Uber-style" pharmacy deliveries to the home.

Concluding Reflection
Dignity in aging cannot be delivered by government alone. It requires intergenerational bonding, private sector engagement (Age-Tech), and a paradigm shift.

Socioeconomic, Cultural Diversity, and Quality of Life
21st December 2025
Chairpersons: Prof. T. R. Dilip & Prof. Dhananjay Bansod

- Number of Presenters: 11
- Research presentations primarily focused on elderly care, health, and social dynamics in India, utilizing data from the various aging studies in India.
- The session covered regional disparities in care, functional disabilities, food insecurities, and the shifting landscape of family support systems.
- Determinants of government health expenditure per capita in South Asian countries emphasize the need for strong public sector investment, promotion of active lifestyles, financial security, preventive healthcare, and improved access to health services.

- Chronic disease-related healthcare costs push elderly households into poverty in Bankura, West Bengal.
- Compared health and aging among tribal and non-tribal older adults in India, focusing on social determinants of vulnerability (SDVs), health status, and lifestyle behaviors.

- The collective deliberations underscore that ensuring dignity in ageing requires a rights-based, life-course, and equity-oriented approach

Socioeconomics and Cultural Diversity

21st December 2025

Chairpersons: Prof. Dhananjay W Bansod & Prof. T. R. Dilip

- Number of Presenters: 10
- Documents show the growing prevalence of elderly-only households over three decades, linking it to declining family support and increasing care vulnerability.
- Higher educational attainment is strongly associated with better cognitive health in middle-aged and older adults in India.
- Compares elderly living in old age homes and family settings, revealing how income, education, and living arrangements shape access to social support.
- Maps global research trends, key themes, and knowledge gaps in ageing-in-place studies within gerontological literature.
- Analyzes how living arrangements influence mental health, showing higher depression and lower life satisfaction among the elderly living alone.
- Highlights the often-overlooked economic, social, and caregiving contributions of older adults through reciprocity and intergenerational solidarity.

Longevity, Healthy Ageing & Policy Impacts

22nd December 2025

Chairpersons: Prof. Anil Krishna & Dr. Shashaanka Ashili

- Number of Presenters: 9
- NCD-related mortality and sustained gain in cardiovascular and cancer care among the Indian elderly, and the need for prevention and long-term management.
- Highlighted various policies and provisions for the elderly in India and some specific policies for the elderly in Delhi and identified gaps in the policy implementation.
- Field experiences and ground realities, and highlighted specific issues like non-completion of KYC, weak network connectivity, lack of transport facilities, and malfunctioning biometric systems have severely affected accessing pension amount for the elderly in rural areas.
- The significant role of spirituality in mitigating major depressive symptoms plays a critical role in fostering emotional resilience and coping mechanisms among older adults in India.

- Demographic dividend as a window of opportunities in the State of Arab world and highlighted various intervention strategies and the need for improvement in education and job opportunities for youth.
- Increasing reproductive burden on women leads them to exist from the labor market.
- Symbiotics as a key for Healthy Ageing in menopausal women.

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Abstracts:

Navigating Complex Vulnerabilities: Physiological and Psychological Interplay in Fall Susceptibility Among Self-Perceived Unhealthy Indian Aging Population

Madhurima Sharma[1], Aparajita Chattopadhyay[2]
[1] Doctoral fellow, International Institute for Population Sciences (IIPS), Mumbai, India [2] Professor, International Institute for Population Sciences (IIPS), Mumbai, India

Background: Fall is one of the major necessary health concerns among older persons and a leading cause of injury, disability, and mortality worldwide. In India, fall prevalence ranges from 12% to over 30%, with particularly high rates among those reporting poor self-rated health (SRH). Despite evidence linking physical and psychological factors to fall risk, little is known about how these determinants interact among self-perceived unhealthy older adults in India. Understanding these associations is essential for designing targeted, evidence-based fall prevention strategies. Therefore, this study focused to examine the physiological and psychological determinants of falls, multiple falls, and fall-related injuries among middle-aged and older Indian adults with poor SRH, and to estimate the state-level prevalence of falls in this population.

Data and Methods: The study used nationally representative data from Wave 1 of the Longitudinal Ageing Study in India (LASI, 2017–18). We included 10,326 community-dwelling adults aged 45 years and above who reported poor or very poor SRH. Fall outcomes assessed included any fall, multiple falls, and fall-related injuries within the past two years. Independent variables encompassed demographic, socioeconomic, physical (sensory impairments, ADL/IADL limitations, mobility impairment, chronic pain), and psychological factors (depression, cognitive impairment). Descriptive statistics, chi-square tests, and multiple multivariate logistic regression models were utilised to associate significant predictors of fall outcomes, adjusting for potential confounders and applying survey weights.

Major Findings: Among self-perceived unhealthy 10,326 adults with poor SRH, 14.5% reported at least one fall, 7.1% multiple falls, and 6.8% fall-related injuries. Chronic pain showed the strongest association with all outcomes (aOR=1.61 for falls), followed by hearing impairment (aOR=1.28), ADL limitations (aOR=1.21), and cognitive impairment (aOR=1.33 for fall injuries). Visual impairment, mobility limitations, IADL difficulties, and depressive symptoms also increased fall risk. Females had higher odds of falling (aOR=1.36), while urban residence (aOR=0.73) and moderate physical activity (aOR=0.56) were protective. Geographic clustering revealed higher fall prevalence in central and southern states.

Conclusion: Physical and psychological factors especially chronic pain, sensory deficits, functional limitations, and cognitive decline play a critical role in determining fall risk among Indian adults with poor SRH. The findings underscore the need for comprehensive, multifactorial fall prevention strategies integrating physical rehabilitation, pain management, sensory health interventions, and mental health screening. Region-specific and gender-sensitive approaches, combined with promoting physical activity, can reduce the burden of falls and their associated health and economic consequences. Future longitudinal investigations are required to establish causal pathways and inform policy and programmatic interventions tailored to India's aging population.

Keywords: Falls, Self-Rated Health, Chronic Pain, Sensory Impairment, Cognitive Impairment, Older Adults, India.

A Comparative Analysis of Healthy Ageing: Applying the Australian Healthy Ageing Score (HAS) Framework to Sri Lanka

Yuganthi Subasinghe1 & Liwan Liyanage2
1Senior Lecturer, Department of Demography, University of Colombo, Sri Lanka
2Senior Lecturer, School of Computer, Data and Mathematical Sciences, Western Sydney University, Australia

Considering the availability of healthy ageing index, a very few countries have developed. However, measuring healthy ageing should go beyond the personal health related things. Australia also calculated Healthy Ageing Score for the first time on 2023 using data gathered from the Sax Institute's 45 and Up Study, based on the population of New South Wales (NSW), Australia. They have developed HAS using 13 health domains which have influenced on healthy ageing. The main domains included in the HAS were physical functioning, cognitive function, mental health, sleep, quality of life, balance, social connections and overall health. The HAS ranges from 0 to 16 with higher scores indicating a better health profile. HAS for Sri Lanka calculated using the data obtained from the Sri Lanka Health and Ageing Survey (SLHAS). Then found out the suitable scores and represent each domain included in the HAS of Australia. Physical functioning, cognitive function, mental health score, sleep, quality of life, pains, social functioning scale and general health were the domains selected for the HAS calculation for Sri Lanka. In Australia, the total mean score across all domains was 13.89 on a 0-16 scale. For Sri Lanka, the HAS was 10.68. Although lower, this score suggests that the state of healthy ageing in Sri Lanka is not significantly poor when compared to Australia, a developed country. It is also worth noting that Australia's HAS calculation includes data from individuals aged 45 and above, which may contribute to their higher reported HAS compared to Sri Lanka. This comparison reveals that while Sri Lanka's HAS is lower than Australia's, the difference is not as pronounced as might be expected, especially considering Australia's status as a high-income country. Several contextual factors should be noted: Australia's HAS included individuals aged 45 and above, many of whom may not yet exhibit age-related health declines, whereas the Sri Lankan analysis focused exclusively on the ageing population. This comparative analysis demonstrates the applicability and adaptability of international healthy ageing frameworks like HAS in the South Asian context, while also highlighting the need for culturally and contextually relevant tools. It further emphasizes the importance of incorporating broader determinants of health, such as environmental and social factors, into ageing indices. The findings support the call for more inclusive and comparative metrics to track progress in healthy ageing, especially within the global agenda of the Decade of Healthy Ageing (2021– 2030).

Keywords: Healthy ageing, Australia, Sri Lanka, comparative analysis, ageing population

Association Between Hysterectomy and diabetes among post-menopausal older adults of India

Poulami Sarkar, Dr Sanjay Kumar Mohanty
PhD Scholar, International Institute for Population Sciences

Introduction: Women in the post-menopausal period face an increasing risk of gynaecological morbidities and Type 2 diabetes (T2D). While a hysterectomy is carried out to treat some of the gynaecological morbidities, it may increase the risk of diabetes. Though studies on prevalence, variations and risk factors of diabetes have been increasingly available, no attempt has been made to understand the co-occurrence of hysterectomy and diabetes and their linkages among the post-menopausal women in India. Thus, this paper examines the association between hysterectomy and diabetes among post-menopausal women in India.

Methods: The study utilized the LASI Wave 1 (2017-18) data for postmenopausal older adult women aged 49 years and above. After excluding men and missing data for hysterectomy and diabetes, the study sample consisted of 26,526 individuals. Diabetes was measured using (HbA1c>=6.5), and self-reported clinically diagnosed conditions. Hysterectomy was self-reported and used as the primary predictor of diabetes. A quantitative approach was adopted, using STATA 17.0. Prevalence and variations were assessed using bivariate analysis followed by multivariate logistic regression. Entropy balancing with weighted logistic regression and propensity score matching (PSM) was used in the analyses.

Results: The background characteristics of the sample population showed that the majority of the study participants were in the 49-59 (44%) age group and lived in a rural area (66%). The prevalence assessment showed that among all categories, the prevalence of diabetes is higher among those who had a hysterectomy (treatment group) compared to those who had no (control group. The prevalence of diabetes among those who had hysterectomy is highest in the 60-69 years, 32.33% (95% CI age group compared to all other age groups. The entropy-weighted logistic regression showed 19% higher odds of diabetes among hysterectomized women (OR: 1.192, 95% CI: 1.080- 1.317). In unweighted models, the association remained significant after adjustments -unadjusted (OR: 1.561, 95% CI: 1.428-1.706), adjusted for socioeconomic factors (OR: 1.267, 95% CI: 1.150- 1.396), and with BMI OR: 1.189, 95% CI: 1.077-1.312). Propensity score matching confirmed a higher diabetes likelihood among hysterectomized women (ATE = 0.035). The findings of this study suggest that hysterectomy and diabetes have a significant association among post-menopausal women in India.

Discussion: Using nationally representative LASI data, the study demonstrates a significant association between hysterectomy and an increased risk of diabetes among postmenopausal women in India, independent of body mass index. The robustness of this correlation across many analytical methods suggests plausible metabolic and hormonal pathways that underlie the relationship. Consistent with prior international and Indian evidence, these findings underscore the importance of longitudinal investigations and post-surgical metabolic monitoring to promote healthy ageing among women.

Keywords: Hysterectomy, Diabetes, India, Entropy balancing, Propensity Score matching

Obesity and Spousal Concordance in India: Shared Risks and Regional Insights from LASI

Tribeni Sonowal; Manish Lekhwani
International Institute for Population Sciences, Mumbai

Introduction: Global concern has increased as surprising results from the studies have revealed that the worldwide deaths have accelerated due to overweight. According to the Global Burden of Disease (GBD) report, due to obesity, 160 million years of healthy life are lost globally, ranking in the top five risk factors of noncommunicable diseases. In 2022, the GBD Report showed that 43% of global adults were overweight, and among them, 16% are obese. A study comparing obesity between Asian and American populations exhibits region-specific analysis revealing that the Asian population has high prevalence of obesity than the American. Studies from the National Family Health Surveys and the Study on Global Ageing and Adult Health have forecasted that the obese population in the age-group 15-49 years will increase by 27.4% by 2040. The burden of obesity should not be viewed as outside of households; instead, it is mostly related to shared environment. Evidence has already suggested how marriage affects the life of two individuals in physical, mental, and emotional well-being, living day-to-day life. Studies have also revealed that the likelihood of having obesity is higher among couples and increased by 37% for one spouse if the other partner has obesity. This study, therefore, explores the concordance and likelihood of obesity among spouses and investigates the factors affecting it.

Methodology: This study has used the data from the first wave of the Longitudinal Ageing Study (LASI) in India to construct the couple dataset for this study with 19,660 couples, where both spouses had information for anthropometry (height and weight). To assess the association chi-square tests were used between spouses (having obesity vs. not having obesity), any spouse was randomly selected. Odds Ratios (OR) were used to estimate the within-couple concordance for obesity while adjusting for other characteristics.

Results: The prevalence of obesity among both spouses was 1.2%, while among one spouse was 11.9%. The odds for other spouses having obesity when one spouse already had obesity were 1.47. Additionally, the odds for obesity were 2.25 when both had hypertension and 1.65 when both were in a pré-hypertension state. The odds were also higher when both were younger, had morbidities and living in urban areas while non-significant for life satisfaction. These results clearly indicate that obesity has influenced spousal concordance by shared environment, lifestyle and socioeconomic status significantly highlighting Indian couple's obesity patterns and health status.

Discussion: A strong positive association is evident when one spouse adopts a healthy behavior influencing the other's lifestyle. Studies have also revealed the adoption of exercise or diet modifications of one spouse influence another spouse, that builds a social environment developing healthy behavior in a couple. Couples in urban areas are more particularly at risk due to combined influence of occupational stress and lifestyle imbalances ultimately leading to obesity. India is a dual-burden country dealing with both under-nutrition and over-weight at the same-time. Therefore, this study provides an opportunity to develop a strategy that is region-specific, sustainable, inclusive, and simply meeting the basic needs of older couples' health mitigating obesity.

Keywords: Obesity; Ageing; Couples; Concordance; Non-Communicable Disease

Chronic Diseases and Labor Force Participation Among Older Adults in India: Evidence from the NSS 75th Round

Nandlal Mishra
Doctoral Fellow, International Institute of Population Sciences

Chronic diseases increasingly threaten labor market participation among older adults. This study examines how chronic illnesses affect labor force participation among Indians aged 50–64 years, a stage when non-communicable diseases (NCDs) become prevalent while individuals remain of working age. Using nationally representative data from the National Sample Survey Organization (NSSO) 75th Round (2017–18), Schedule 25.0 "Household Social Consumption: Health," we analyze 73,247 individuals to assess the relationship between chronic illness and labor market engagement.

Labor force participation is defined as a binary variable based on principal activity status, taking value 1 for those employed, self-employed, or seeking work, and 0 otherwise. Chronic conditions are identified from self-reported ailments lasting at least 15 days prior to the survey and not yet recovered. Four disease groups are examined: cardiovascular (CV), diabetes mellitus (DM), major chronic diseases (MC, including cancer, respiratory, neurological, and mental disorders), and other chronic diseases (OC, such as musculoskeletal and gastrointestinal disorders). Control variables include demographic, socioeconomic, and geographic factors.

To address the interdependence of chronic diseases and their endogeneity with labor outcomes, we employ a multivariate probit (MVP) model that jointly estimates equations for labor force participation and each disease type. This approach captures comorbidities and correlates unobservable, providing consistent estimates.

Descriptive results show significant negative correlations between labor participation and chronic diseases, strongest for major chronic (–0.225) and cardiovascular (–0.196) conditions. Disease prevalence is notable—3.1% for cardiovascular, 2.9% for diabetes, 2.4% for major chronic, and 0.6% for other chronic diseases—with substantial comorbidity. Labor participation falls from 87.4% to 70.1% among men and from 18.0% to 16.5% among women when any chronic illness is present.

The MVP results confirm strong negative effects of chronic disease on labor participation, particularly among men. Major chronic diseases have the largest negative impact ($\beta = -0.694$), followed by cardiovascular ($\beta = -0.351$) and diabetes ($\beta = -0.331$). For women, cardiovascular ($\beta = -0.127$) and other chronic diseases ($\beta = -0.187$) are significant, though smaller in magnitude. Predicted probabilities indicate that chronic illness reduces participation by 6–15 percentage points for men and 1–3 points for women.

Marginal effects highlight key disparities. Urban residence and higher wealth lower participation, especially for women, while education increases it for both sexes. Marriage raises participation among men but lowers it among women, reflecting gendered social norms.

Overall, chronic diseases significantly reduce labor force participation among older adults in India, with stronger impacts on men. As India's ageing population grows, targeted interventions—such as chronic disease prevention, rehabilitation programs, and workplace accommodations—are vital to sustain older adults' economic engagement and productivity.

Keywords: Chronic diseases, Labor force participation, older adults, Ageing

Reactive Oxygen Species as a Precursor to Carcinogenesis in PCOS: Age-Dependent Dysregulation of PTEN and NFE2

Simel Masood, Zainab Hanjra, Noor-ul-Ain Amir
Forman Christian College University, Pakistan

Polycystic Ovarian Syndrome (PCOS) is a prevalent endocrine disorder characterized by hyperandrogenism, metabolic dysregulation, and chronic oxidative stress, all of which are increasingly recognized as contributors to elevated cancer risk. This is particularly relevant in the Pakistani population, where PCOS demonstrates a high prevalence, yet the molecular links to carcinogenesis remain understudied. Despite extensive research on PCOS and carcinogenesis independently, the molecular mechanisms linking age-related transcriptional changes in PCOS to malignancy remain poorly understood. In this study, we investigated the expression of four key genes, PTEN, NFE2, CYP17A1, and ESR1, across a cohort of Pakistani female patients aged 20–80 years, comprising healthy controls, individuals with PCOS, and cancer patients, using quantitative PCR fold-change measurements.

Our analysis revealed that PTEN and NFE2 expression levels were significantly associated with both age and condition, with PTEN displaying a notable age × condition interaction, suggesting that PCOS modulates the normal trajectory of age-related gene expression. In contrast, CYP17A1 and ESR1 remained relatively stable across age and disease states. Comparative analyses demonstrated significant downregulation of PTEN and NFE2 in cancer samples relative to both PCOS and control groups ($p < 0.05$), whereas CYP17A1 and ESR1 showed no significant differences. These findings indicate that cancer-specific repression of PTEN and NFE2, rather than generalized endocrine dysfunction, underlies loss of growth control and redox imbalance.

Heatmap and violin plot visualizations confirmed these patterns, with the lowest PTEN and NFE2 expression observed in malignancy and higher levels maintained in PCOS and control groups. Gene Ontology enrichment linked these genes to steroid and androgen metabolism, sex differentiation, reproductive organ development, and transcriptional regulation, highlighting their central roles in both endocrine and oncogenic pathways. Notably, ESR1 remained a stable hub for hormonal signaling, whereas the suppression of PTEN and NFE2 likely facilitates the accumulation of oxidative stress and predisposes tissues to malignant transformation.

The age-dependent dysregulation observed for PTEN in PCOS suggests that endocrine disruption may alter the trajectory of normal aging processes, potentially priming ovarian and reproductive tissues for oxidative damage. As individuals age, the compounded effect of PCOS-related hormonal imbalance and diminished antioxidant capacity could contribute to a heightened vulnerability to carcinogenesis. This trajectory may be especially critical in populations like Pakistan's, where genetic and environmental factors may exacerbate this risk.

The subsequent cancer-specific downregulation of PTEN and NFE2 likely represents a critical molecular shift from endocrine dysregulation to malignant progression.

Collectively, our findings provide mechanistic insight into the intersection of aging, endocrine dysfunction, and oxidative stress in PCOS, emphasizing the role of PTEN and NFE2 as pivotal mediators of transcriptional and metabolic homeostasis. This study is among the first to highlight this link within a Pakistani cohort, addressing a significant gap in the literature. This work highlights the importance of considering age and Pakistani population-specific factors as modifying elements in both PCOS pathophysiology and cancer risk assessment, suggesting that early interventions targeting oxidative stress and tumor-suppressor pathways may mitigate long-term malignancy susceptibility in women with PCOS.

Keywords: Cancer; Polycystic Ovarian Syndrome; Oxidative Stress; Longevity

Decomposing Gender Gaps in Cognitive Difficulty Among Older Adults in Nepal: The Role of Socioeconomic Factors

Manusha Paudel
Tribhuvan University, Nepal

Background: Cognitive difficulties in later life are a major public health concern in low- and middle-income countries (LMICs) such as Nepal. With the ageing population rising to 10.2 percent and the disability prevalence increasing from 1.94 percent in 2011 to 2.2 percent in 2021, Nepal faces significant challenges in supporting older adults. The current rapid demographic transition and gender longevity/disability trend in Nepal shows increasing challenges in supporting its ageing population. International evidence also highlights that older women are disproportionately affected by cognitive decline, yet whether these disparities are driven by biological differences or by accumulated socioeconomic disadvantages remains less understood in the Nepali context.

Objective: This study examines the gender gap in cognitive difficulty among older adults in Nepal and decomposes the role of socioeconomic factors in explaining this disparity.

Methods: This study utilized nationally representative data from the Nepal Demographic and Health Survey (NDHS) 2021 household dataset to analyze 3,247 individuals aged 60 years and above, after excluding cases with missing data. Descriptive statistics were used to analyze prevalence patterns, and logistic regression models were employed to identify predictors of cognitive difficulty. The Fairlie decomposition method was applied to quantify the contribution of socioeconomic factors to the observed gender gap in cognitive difficulty.

Results: Overall, 31.4% of older adults reported cognitive difficulty, with a higher prevalence among women (34.4%) than men (28.0%). Risk was significantly higher among those aged 75+ (51.4%), widowed individuals (43.9%), and those without formal education (35.1%). Multivariate analysis confirmed that advanced age (OR=2.7), widowhood (OR=1.6), and lack of education (OR=0.6 for educated vs. none) were key significant predictors. Decomposition analysis revealed that socioeconomic factors fully accounted for the observed gender gap in cognitive difficulty. Education and marital status were the dominant contributors, together accounting for more than 75 percent of the disparity, while age contributed around 9 percent. Other factors, such as residence, wealth, household size, and food insecurity, had a minimal or negligible explanatory power.

Conclusion: Gender disparities in cognitive health among older adults in Nepal are not inherent but stem from structural inequalities, particularly educational deprivation and marital vulnerabilities across the life course. Findings underscore the need for policy interventions that prioritize lifelong education, targeted support for widows, and strategies to reduce socioeconomic inequities in old age. By demonstrating that gender gaps in cognition are socioeconomically driven, this research provides novel evidence for advancing healthy and equitable aging in Nepal and similar LMIC contexts.

Keywords: Cognitive difficulty, gender gap, older adults, Nepal, socioeconomic inequality, Fairlie decomposition, NDHS 2021

Religious Engagement and Cognitive Function Among Older Adults in India: Evidence from LASI Wave 1

Ram Naresh, Shubham Tiwari
International Institute for Population Sciences, Mumbai

Introduction: Cognitive decline among older adults represents a major public health challenge globally. While modifiable lifestyle factors have been studied extensively, the role of religious and spiritual engagement in preserving cognitive function remains underexplored in the Indian context. This study examines the association between religious engagement and cognitive function among older adults aged 45 years and above in India, employing rigorous causal inference methods to account for selection bias and confounding.

Methodology: Cross-sectional analysis of 68,407 individuals from the Longitudinal Aging Study in India (LASI) Wave 1. Cognitive function was assessed using a comprehensive battery covering memory recall, orientation, executive function, object naming, and arithmetic abilities (total score: 0-43). Religious engagement was operationalized as a binary indicator of participation in religious or spiritual activities. We employed two complementary causal inference approaches: Propensity Score Matching (PSM) with nearest-neighbor matching and 0.1 caliper, and Inverse Probability Weighted Regression Adjustment (IPWRA). Models adjusted for education, sex, place of residence, marital status, living arrangement, caste, region, age, religion category, alcohol use, physical activity, tobacco use, life satisfaction, depressive symptoms, work status, activity engagement, ADL/IADL limitations, and chronic condition.

Results: In the matched sample, 91.49% of religiously engaged individuals demonstrated preserved cognitive function (score >15) compared to 88.26% of non-engaged individuals. After rigorous adjustment, religious engagement was associated with a 3.24 percentage point increase in preserved cognitive function using PSM (ATT: 3.24, SE=0.66, $p<0.001$) and a 3.21 percentage point increase using IPWRA (ATE: 3.21, SE=0.35, $z=9.10$, $p<0.001$).The effect remained robust across sensitivity analyses using different estimands (ATET: 2.58, $p<0.001$). Covariate balance diagnostics confirmed excellent matching quality, with mean bias reduced from 22.5% to 2.8% and all balance criteria met.

Discussion: Religious engagement demonstrates a statistically significant and clinically meaningful association with better cognitive function among older Indian adults, even after accounting for a comprehensive set of sociodemographic, health, and lifestyle confounders. These findings suggest that religious and spiritual activities may represent a culturally appropriate, accessible intervention strategy for promoting cognitive health in aging populations. Future longitudinal research should examine whether sustained religious engagement can slow cognitive decline over time and elucidate potential biological and psychosocial mechanisms underlying this association.

Keywords: Religious engagement, cognitive function, older adults, aging

Correlates of Chronic and Cardiometabolic Multimorbidity among Middle-aged and Older Adults in India: Evidence from SAGE India Wave-3, 2024

Sruthi Anilkumar Hemalatha1, Tridip Mitra1, Rajiv Janardhanan1
1Division of Medical Research, Faculty of Medicine and Health Sciences, SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu- 603 203, India

Introduction: The simultaneous presence of two or more chronic conditions, known as

Multimorbidity is increasingly common as populations age and lifestyles change. Within the broader phenomenon of multimorbidity, cardiometabolic multimorbidity (CMM), defined as a group of interconnected disorders such as hypertension, diabetes, stroke, and cardiovascular disease, is increasingly recognized as one of the leading causes of disability and death globally. In India, rapid demographic and epidemiological transitions, along with social and behavioral risk factors, have led to the rise of both chronic multimorbidity and cardiometabolic multimorbidity. Thus, the main objective of this study was to examine the prevalence and correlates of chronic multimorbidity and cardiometabolic multimorbidity among middle-aged and older adults in India, with a focus on identifying socio-demographic and behavioral determinants.

Methods: We utilized data of 7032 adults over 45 years and older from the nationally representative survey SAGE India Wave-3, 2024. Chronic multimorbidity was defined as the presence of two or more self-reported chronic conditions, while CMM was defined as the co-occurrence of at least two conditions from a subset of cardiometabolic diseases. Descriptive analyses were carried out to estimate differences in prevalence by socio-demographic characteristics. Multivariate analysis using logistic regression models was conducted to examine multimorbidity outcomes and socio-demographic and behavioral factors.

Results: Chronic multimorbidity was found to increase sharply with age, while some diseases were more prevalent in women than in men. Cardiometabolic multimorbidity constituted a large share of the overall multimorbidity burden, with hypertension and diabetes emerging as the most common disease dyad. From the regression results, it was evident that the selected key variables, such as older age and socio-economic characteristics, significantly impacted the likelihood of having both chronic multimorbidity and CMM. Furthermore, behavioral risk factors such as smoking and alcohol consumption were significantly associated with greater odds of multimorbidity. Individuals reporting multiple risk behaviors had disproportionately higher odds of experiencing both chronic multimorbidity and CMM.

Discussion: The study results highlight that both chronic multimorbidity and cardiometabolic multimorbidity are highly prevalent among middle-aged and older adults in India, with notable variation across socio-demographic and behavioral groups. Thus, a focus on chronic multimorbidity in general and particularly cardiometabolic multimorbidity is essential for the prevention and management of the rising challenge of multimorbidity in India.

Keywords: Chronic Multimorbidity; Cardiometabolic Multimorbidity; Older Adults; India

Occupation and the Early Onset of Chronic Diseases: Evidence from the Longitudinal Ageing Study in India

Abhisek Sahu, Independent Researcher, Dr. Pradeep S Salve, International Institute for Population Sciences, Mumbai

Healthy aging depends on the prevention and delayed onset of chronic diseases, yet occupational exposures remain an overlooked driver of disease risk. Occupation shapes daily physical demands, stress levels and exposure to hazardous environments, making it a vital predictor of when conditions such as diabetes, cardiovascular disease (CVD), lung disorders and musculoskeletal problems emerge. Understanding these occupational influences is crucial for identifying pathways to extend disease-free survival and promote longevity in aging societies. To investigate the impact of occupational categories on disease-free survival among older adults in India and assess how work-related disparities influence the timing of chronic disease onset. Data were drawn from the Longitudinal Ageing Study in India (LASI Wave I, 2017–18), covering aged 45 years and older. Outcomes included diabetes, CVD, lung disease and bone/joint disorders. Survival analysis techniques were applied Kaplan–Meier curves to describe survival patterns and Cox proportional hazards (Cox PH) models to quantify occupational risks, adjusting for demographic, socioeconomic and health-related covariates. Kaplan–Meier survival curves showed steep declines among elementary, clerical and service workers while legislators and professionals fared better. Cox regression confirmed elevated hazards across outcomes bone/joint disease was significantly higher in elementary workers (HR=1.67), clerks (HR=1.62) and service workers (HR=1.44). For diabetes, hazards increased for elementary (HR=1.53), clerical (HR=1.48), service workers (HR=1.41) and professionals (HR=1.32). CVD showed sharp disparities with elementary (HR=1.49), clerical (HR=1.42) and service workers (HR=1.36) at higher risk. Technicians and associate professionals demonstrated dramatically higher hazards for lung disease (HR=14.52). Other determinants reinforced these occupational gradients. Obesity was strongly associated with diabetes (HR=9.37) and CVD (HR=3.83). Poor self-rated health predicted sharply higher hazards across all conditions (HR=4.67 for bone/joint; HR=6.10 for diabetes). Women faced greater risks of bone/joint disease and CVD while men were more vulnerable to diabetes. Urban residence, higher education, and higher wealth quantities were linked to increased metabolic and cardiovascular risks. Scheduled Tribe affiliation appeared protective, while access to social security reduced lung disease hazards.

Occupation is a strong predictor of healthy versus unhealthy aging trajectories. Manual laborers experienced earlier onset of musculoskeletal and cardiovascular conditions, while sedentary clerical and professional workers faced metabolic and cardiovascular risks. Together, these results confirm the dual burden physical strain among low-skilled workers and metabolic stress among sedentary groups both accelerating chronic disease onset and undermining healthy aging. These findings highlight the urgent need for preventive health programs tailored to occupational risks. Workplace-based initiatives such as ergonomic improvements, protective equipment, regular health check-ups, and promotion of physical activity in sedentary jobs can significantly delay the onset of chronic diseases. Policymakers should integrate occupational health into national aging strategies, ensuring that interventions extend disease-free survival and support India's goal of promoting healthy longevity.

Keywords: Occupation, Chronic Diseases, Disease-Free Survival, Healthy Aging, India, Survival Analysis

Associations between Elderly Pregnancies, Gestational Diabetes Mellitus, and Hypertensive Pregnancy Disorders and Implications for Later Life Health

Tridip Mitra1, A.H. Sruthi Anil Kumar1, Sajeetha Kumari R.2, Rajiv Janardhanan1
1Division of Medical Research, Faculty of Medicine and Health Sciences, SRM IST, Kattankulathur, Tamil Nadu- 603 203, India. 2 Department of Obstetrics & Gynecology, Faculty of Medicine and Health Sciences, SRMIST, Kattankulathur, Tamil Nadu-603203, India

Introduction: Gestational Diabetes Mellitus (GDM) and Hypertensive Disorders of Pregnancy (HDP) are major obstetric complications affecting maternal and fetal outcomes. Elderly pregnancies (≥35 years) further increase vulnerability due to age-related metabolic and vascular changes. Women with GDM or HDP face greater long-term risks of different metabolic diseases. This study explores the association between elderly pregnancy, GDM, and HDP in India to enhance targeted maternal health interventions.

Methods: This study utilized individual-level data from about 7 lakh currently pregnant women in the National Family Health Survey (NFHS-5, 2019–2021). Elderly pregnancies with GDM and HDP were specifically examined. Bivariate analyses assessed associations between advanced maternal age, socio-demographic factors, and these complications, followed by multivariable regression adjusting for key covariates. Findings were contextualized within existing epidemiological and clinical evidence linking GDM and HDP to long-term metabolic risks, enabling connections between pregnancy complications and subsequent maternal health outcomes.

Results: Bivariate analysis revealed that among currently pregnant women aged 15–49 years, the weighted prevalence of both diabetes and hypertension increased progressively with maternal age. The prevalence of diabetes was below 1% among women under 30 years, rising to 1.1% in the 30–34 years group, 2.1% among those aged 35–39 years, and peaking at 5.1% in women aged 40–44 years. Similarly, hypertension prevalence was 2–3% in women below 30 years, increasing to 4–5% among those aged 30–39 years, and exceeding 12% in women aged 40 years and above. Overall, the weighted prevalence of diabetes and hypertension was 0.8% and 2.9%, respectively. Chi-square analysis indicated statistically significant associations between maternal age and both conditions. Regression model findings further demonstrated that advanced maternal age significantly elevated the odds of developing GDM and HDP, even after adjusting for covariates such as education, residence, religion, caste, and wealth index. These findings align with existing evidence linking GDM and HDP histories to heightened risks of type 2 diabetes, hypertension, and other health problems later in life.

Discussion: Elderly pregnancies are linked to higher risks of GDM and HDP due to shared mechanisms like insulin resistance, endothelial dysfunction, and oxidative stress. Hyperglycemia in GDM damages endothelium, triggering HDP, while vascular dysfunction in HDP worsens insulin resistance. Age-related vascular rigidity, hormonal shifts, and placental aging amplify these effects. Targeted preconception counseling, early screening, and integrated maternal care are essential to mitigate pregnancy-related and long-term cardiometabolic risks in women of advanced maternal age.

Keywords: Gestational Diabetes Mellitus, Hypertensive Disorders of Pregnancy, Elderly Pregnancies, India

Empowering Healthy Ageing: A Generational Approach to Well-Being

1. Megha Paul, 2. Vasundra Kapoor, 3. Swati Mishra
Centre for Knowledge and Development, IPE Global

Women outnumber men in older ages biologically that leaves them exposed to multi-morbidity risks. Overarching reasons lie under biological susceptibility and gendered exclusion inflicted by societal norms. With a shift to focus on increasing health span rather than life span in modern gerontology, dietary behavior and choices of an individual become critical determinants of healthy ageing and quality of life. Malnutrition among women across all age groups is a persistent challenge globally wherein India is projected to have the largest proportion of older women by 2050. Indian women are facing triple burden of malnutrition (i.e. underweight, overweight and micro-nutrient deficiency) and when accompanied with multi-morbidity at older ages, ageing women experience heightened health vulnerabilities. Thereby, early and community driven nutrition interventions act as preventive investments for healthy ageing, especially in women due to multiplier effect of intergenerational nutrition benefits. This study explores the effects of stage specific Social and Behavior Change Communication (SBCC) intervention aimed to improve nutritional literacy. Pregnant lactating women and mother of young child in three districts across Gujarat and Maharashtra serve as the study population. Data from cross-sectional surveys of pre and post intervention assessments have been utilized to observe improvement in nutritional literacy through dietary diversity, uptake of minimal acceptable diet and adherence to micro-nutrient supplementation in the target population. The results also show, increased adoption of positive diet behavior in mothers of young children aided in reduction of malnutrition in early age of life. The evidence from this study suggests that SBCC interventions can act as a catalyst for supporting women in achieving healthier ageing trajectories.

Keywords: Maternal and Child Nutrition, Social Behavior Change Communication, Dietary Diversity, Minimum Acceptable Diet, Healthy Ageing.

Technostress and Procrastination: Comparing Young and Middle-aged Adults

Richa Nigam, Anushka Kararia, Vandana Singh
Thapar School of Liberal Arts and Sciences, Thapar School of Engineering and Technology, Patiala, Punjab

This current study examines the influence of technostress and screen time on procrastination among young and middle-aged adults. With a specific focus on age related differences between young and middle age, the study adopted a correlational research design to explore the predictive relationship between technostress and screen time on procrastination. The study also explored the potential mediating role of screen time in intensifying technostress-related procrastination using Hayes PROCESS Model 4. In particular, the mediation analysis explored how age influences procrastination, by testing whether technostress, internet addiction, or screen time mediate this relationship. Standardized self-report measures were administered to the two distinct age groups: young adults (Mean age=23.5 years; N = 100) and middle- aged adults (Mean age: 42.7 years; N = 100). Results indicated that both technostress and screen time were significant predictors of procrastination, but their impact varied by age. Young adults, despite being digitally fluent, demonstrated higher susceptibility to procrastination due to emotional fatigue and digital overload. In contrast, middle-aged adults experienced procrastination more as a result of complexity in technology and stress related to its adaptation. Additionally, of the mediators, only Internet Addiction (IA) significantly mediated the relationship between age and procrastination. These findings underscore the need for age-sensitive digital well-being interventions that address both emotional coping and task management in technology-driven environments. Overall, these findings suggest that while digital stress and screen duration are important contextual factors, it is internet related behavioral patterns, specifically internet addiction, that are directly shape age related differences in procrastination.

Keywords: Technostress, Screen Time, Procrastination, Digital Well-being, Age Differences

An Optimization-Driven Hybrid Deep Learning Model for Depression Prediction in Healthcare

Sahil
Department of Computer Application, RIMT University Mandi Gobindgarh, Punjab

Background: Depression is a widespread mental health disorder, and its early prediction is vital for improving patient outcomes. Traditional diagnostic approaches rely on clinical evaluations, which can delay timely interventions. The integration of Artificial Intelligence (AI), Machine Learning (ML), and big data analytics offer enhanced predictive accuracy by analyzing diverse features such as demographic, behavioral, and physiological data.

Methods: This study proposes an optimization-enabled hybrid deep learning framework for depression prediction. The approach is structured in three phases: simulation, routing, and prediction. Data collected during the simulation phase is transferred through a routing mechanism designed with DES-WaOA, which combines Double Exponential Smoothing with the Walrus Optimization Algorithm. Routing efficiency is assessed using parameters such as energy consumption, delay, link lifetime, and global efficiency. Depression prediction is then performed using the Deep Residual–Deep LSTM model, a hybrid of Deep Residual Networks (DRN) and Deep Long Short-Term Memory (LSTM).

Results: Experimental evaluations reveal that the proposed Deep Residual–Deep LSTM approach significantly improves prediction accuracy compared to conventional models. The framework achieved an MSE of 0.056, RMSE of 0.237, and MAE of 0.167. Additionally, the DES-WaOA routing technique demonstrated an energy efficiency of 0.639J and reduced delay to 0.367s.

Conclusion: The proposed optimization-enabled hybrid deep learning model offers an effective solution for early depression prediction. By combining efficient data routing and advanced predictive modeling, this research contributes to enhancing clinical decision-making and reducing the global mental health burden.

Keywords: Depression prediction, Deep learning, Walrus Optimization Algorithm, Residual Network, LST

An Application Of Machine Learning Technique In Predicting Hypertension In India

Vikas Kamble, Prof Murali Dhar
International Institute for Population Sciences, Mumbai

Introduction: Hypertension is a major risk factor for non-communicable diseases and significantly contributes to morbidity and mortality, particularly with the rising ageing populations globally. Often developing asymptomatically over years while causing health damage, hypertension is known as the "silent killer." Two types exist: primary (unknown cause) and secondary (underlying illness). While traditional regression methods have been used for hypertension risk prediction, their performance is limited by complex health datasets. Recent advances in artificial intelligence (AI) and machine learning (ML) offer opportunities to develop more accurate, data-driven predictive models for early identification of at-risk individuals.

Purpose: To identify risk factors and compare ML algorithms for hypertension prediction. Materials and Methods: This study utilized secondary data from LASI wave 1, a nationally representative survey conducted from 2017-2019, sampling 73,396 adults aged 45+ across all Indian states and union territories. Machine learning algorithms were implemented using Python scikit-learn on Google Colab and STATA 17. Data was split into training (70%) and testing (30%) sets. Classification reports provided a comprehensive model performance evaluation for predictive capability optimization in heterogeneous ageing populations.

Results: Analysis included 48,382 LASI participants (mean age 59 years). Among participants, 65.83% were hypertensive and 34.17% non-hypertensive. Hypertension prevalence increased with age, particularly after 60. XGBoost achieved the highest accuracy (67.89%), followed by support vector machine (66.7%) and logistic regression (66.69%). Permutation-based feature importance analysis identified age, BMI, and diabetes as the most influential risk factors.

Conclusion: Machine learning techniques effectively extracted knowledge from LASI data. XGBoost demonstrated superior predictive accuracy for hypertension classification. Age emerged as the most significant risk factor. This ML model using secondary datasets can forecast elderly patient conditions, enabling preventive measures. The research demonstrates machine learning's potential for disease prediction and prevention in ageing populations, supporting the principle that prevention is preferable to treatment.

Keywords: Hypertension, Decision Tree, Machine Learning, Random Forest, SVM

A Silent Tsunami: Alzheimer's Disease in India Linking Environmental Exposure, Gendered Burden, and Public Health Policy.

Neeloo Bharti
International Institute for Population Sciences, Mumbai

Dementia is a much broader term for cognitive and motor function decline that affects memory, thinking, and the ability to perform daily activities. While Alzheimer's disease (AD) is the most common form of dementia and a multifactorial disease, its detailed mechanism often remains poorly understood. The stigma around dementia, lack of access to specialists and lack of training among primary health workers are among the reasons many affected elderly remain undiagnosed. Using nationally representative data from the Longitudinal Ageing Study in India (LASI), this study examines key socio-environmental determinants among adults aged 45 years and above. As longevity increases, the burden of age-related diseases such as Alzheimer's is rising sharply, posing a major challenge for families, healthcare systems, and national policy. While genetics and ageing are key, there is a significant role of modifiable risk factors. Early childhood exposures i.e. individuals who spent most of their childhood in town as compared to villages are less likely to develop AD (OR= 0.648, p=0.046, 95% CI 0.42, 0.99). Individuals reporting well satisfied with life exhibited lower odds of Alzheimer's (OR=0.36, p<0.001, 95% CI 0.27, 0.47). Furthermore, social isolation and feeling depressed increases the odds of AD (OR=1.47, p=0.003). Despite the widespread belief, AD is not an inevitable part of ageing. Although this phase may resemble infancy in terms of dependence, their purpose in life should not be seen as lost. Instead, it can be redefined through continued engagement, care and connection, which are essential parts of healthy ageing. Findings reveal that being socially active and engaged in outdoor activities decreases the incidence of AD by 39% (OR= 0.61, p<0.05). Additionally, women face unseen burden of AD due to increased exposure to indoor air pollution (biomass fuel smoke), pesticides as in many rural communities' women are the ones involved in agricultural activities. Most women are primary caregivers for people with dementia who remains undiagnosed themselves. The findings also indicate that females have 36% higher odds of developing dementia than males (OR = 1.36, p = 0.01, 95% CI 1.07, 1.72). However, Pseudo R2 is very small (0.004) probably due to small sample size. While one single nationally representative dataset might not be enough to generate many more crucial insights, more data and study on this area is urgent and necessary. Case fatality of dementia may be low, but the quality of life is worsened posing a significant burden on caregivers.

Confronting the dementia epidemic in India requires a proactive strategy that moves beyond a purely clinical model. Train community health workers in early dementia screening. Develop robust public health policy involving pipeline of geriatricians and neurologists. Proactive investment in campaigns and programmes to spread awareness. Dementia prevention and care is not a cost, but an essential economic strategy to preserve India's demographic dividend and maintain a productive workforce by reducing the future dependency burden.

Keywords: Alzheimer's disease, public health policy, healthy ageing, modifiable risk factors, gendered vulnerability.

Climate Change and Health of Elderly in India: Exploring Vulnerabilities and Adaptive Responses

Anuradha Banerjee, Abhinav Kumar Mishra, Abhishek Kumar Singh, Bhudev Sehra, Amisha Thakur

Climate change has emerged as a challenge to health outcomes in the twenty-first century; disproportionately affecting vulnerable groups such as the elderly. In India, where the population aged 60 years and above is expected to reach nearly 320 million by 2050 (United Nations, 2019), the health implications of climate variability demand urgent scholarly and policy attention. The present study, "Climate Change and Health of Elderly in India: Exploring Vulnerabilities and Adaptive Responses", investigates the relationship between climate stressors and elderly health outcomes exclusively through secondary data analysis, offering insights into vulnerabilities and adaptation gaps.

The methodology involves a systematic review and synthesis of publicly available national datasets, institutional reports, and peer-reviewed studies. Climate related data has been taken from the India Meteorological Department (IMD, 2023) to map trends in temperature rise, heatwaves, and precipitation variability. Health indicators and morbidity patterns have been analyzed from the National Family Health Survey-5 (NFHS-5, 2019–21) and the Longitudinal Ageing Study in India (LASI, 2020), with supplementary inputs from the Ministry of Health and Family Welfare (MoHFW, 2022). Additional evidence has been sourced from the Indian Council of Medical Research (ICMR, 2021) on climate-sensitive diseases and from the Intergovernmental Panel on Climate Change (IPCC, 2022) on global contextual framework. Comparative policy perspectives have been reviewed using the National Action Plan on Climate Change (Government of India, 2008) and the National Programme for Health Care of the Elderly (MoHFW, 2021).

Findings highlight that elderly population in India have acute exposure to heat stress, cardiovascular and respiratory illnesses aggravated by air pollution, and rising incidence of vector borne diseases such as malaria and dengue in climate-sensitive regions. Lack of resilience, malnutrition, reduced mobility and co-morbidities further amplify these risks, especially in resource-poor settings. The study also identifies socio-economic determinants—poverty, gender disparities, rural isolation, and inadequate access to healthcare—as central to shaping vulnerability. Adaptive responses documented in literature, such as reliance on public health systems, use of early warning systems, and adoption of cooling technologies, remain uneven and stratified, with wealthier groups better positioned to cope than the marginalized elderly population.

This study concludes that current national health and climate frameworks insufficiently address geriatric-specific vulnerabilities, with limited integration of climate considerations into

elderly healthcare services. Strengthening resilience requires climate-sensitive public health infrastructure, targeted social protection measures, and inclusive adaptation policies that explicitly prioritize older adults. By synthesizing secondary evidence, the research highlights the need for an integrated, evidence-based approach to safeguard the health and dignity of India's elderly in an era of accelerating climate change.

Keywords: Climate Change, Elderly Health, Vulnerability, Adaptation, Resilience.

Ageing Workforce, Age-old Solution: Apprenticeships as a Policy Tool for Age-Responsive Health Workforce Development

Dr Shruti Bhardwaj (Post-Doctoral Fellow), Prof. Kailash Chandra Das (Professor)
International Institute for Population Science, Mumbai

The healthcare sector in many countries is facing a dual challenge: an ageing population and an ageing workforce. A significant proportion of healthcare professionals are nearing retirement in the next decade, creating substantial skill gaps. These shortages are further exacerbated in rural and remote areas. This intersection of rising demand for geriatric care, an ageing workforce, and skill shortages in healthcare creates a complex set of challenges for employers and society, placing significant pressure on public health systems. Addressing these challenges requires innovative strategies that can adapt to demographic shifts and ever-evolving skill demands. Apprenticeship, a centuries-old idea, is a student-employee hybrid model where an apprentice receives on-the-job training from their employer, complemented by classroom instruction. Traditionally associated with craft systems, this concept of Vocational Education and Training has been transformed into advanced and degree apprenticeships in highly skilled professions in many advanced economies, such as Germany or Australia. It has emerged as a powerful workforce development tool, creating new career opportunities and advancing the careers of those already employed in the industry.

This study employs a comparative policy analysis approach across three countries, England, Germany, and Australia, to examine how each has leveraged healthcare apprenticeships, particularly in clinical professions, to create and develop an age-responsive workforce. Data were collected through a review of government reports, policy documents, industry guides, as well as peer-reviewed literature. The analysis was guided by Walt & Gilson Policy Triangle (1994) framework to understand how the Content, Context, Actors, and Process shape the policies in different countries. This framework, through its various lenses, provides a useful understanding for the customization of health workforce planning and policy transfer.

The rising interest in healthcare apprenticeships is due to its potential to fill difficult-to-fill jobs, reduce turnover, overcome the ageing workforce and improve the ability to recruit young people in ageing societies. The data suggests in the UK that apprenticeships in nursing have opened career paths for nurses twenty-five years and older who are less geographically mobile. The Australian apprenticeships enable mature-age workers to upskill or make career transitions in the health and aged care sectors. Similarly, Germany's dual vocational system supports older workers to formalize skills or retrain, ensuring a sustainable workforce.

These tailored apprenticeship programs serve the overarching purpose of widening the pool of competent people entering the labor market and have the potential to attract candidates who can serve their local communities and country-specific healthcare needs. This comparative analysis of international apprenticeship models in healthcare professions offers valuable country-specific lessons, as well as insights into potential roadblocks, for designing and implementing age- responsive workforce planning in countries facing similar demographic and labor market pressures.

Keywords: ageing workforce, apprenticeships, age-responsive policies, ageing population

A Threefold Approach Towards Universal Health Coverage: Assessing Health Care Financing for India's Ageing Population

Ankit Sharma1 (Presenting and Corresponding Author), Anjali Sharma2
1 B.Com. Honours student at Shri Ram College of Commerce (SRCC), University of Delhi, India; ankit456sharma@gmail.com
2 Ph.D. Scholar, International Institute for Population Sciences (IIPS), Mumbai, India

Introduction: With an increasing elderly population facing the triple burden of communicable diseases, non-communicable diseases, and injuries, the need for comprehensive financial protection is urgent and essential. Sustainable Development Goal-3 as well as National Health Policy 2017 give impetus to increasing government finances to health care. Existing studies have attempted to understand the level and determinants of overall health coverage among elderly with particular focus on publicly funded health insurance (Garg et al., 2022). However, to attain universal health coverage, there is need of studying health insurance coverage from a disaggregated lens across socio-demographic subgroups. This study fills the gap by examining the regional, educational, and gender-based disparities in different types of health insurance coverage among elderly.

Methods: The present study is based on unit level secondary data obtained from Longitudinal Ageing Study in India (LASI) with 31902 elderly of 60+ years age. The main outcome variables are health insurance coverage, social health insurance coverage, private health insurance, and employer health insurance. Bivariate analysis and multivariate logistic regression are employed.

Results and Discussion: Findings reveal that about 82% of elderly individuals in India lack health insurance. Coverage is largely dominated by social health insurance (15%), with private or employer-based insurance covering only 3%. Significant disparities exist by location and social group. It is usually expected that urban areas have better healthcare systems, so they might have better health insurance coverage, but, in our case, rural areas are likely to perform better. This might be because the majority of health insurance coverage is in form of publicly funded social health insurance which targets rural, poor and remote populations. Multivariate analysis confirms that health insurance coverage varies by age, education, and socio-economic status, highlighting persistent inequalities in financial protection for India's ageing population.

Conclusion: Our analysis points out that the situation of healthcare insurance coverage among elderly is very critical in India. Previous research has predominantly concentrated on publicly funded health insurance schemes, with limited attention given to the role and potential of private and employer health insurance. Our study underscores the importance of enhancing awareness and uptake of private health insurance and strengthening regulations of employer insurance schemes alongside existing public programs. Furthermore, improved implementation and targeting of publicly funded health insurance programs are essential to effectively reach and benefit the most vulnerable groups. In nutshell, economically better off population should be encouraged for private insurance and economically worse off population should be provided publicly funded health insurance along with expansion of employer health insurance to both formal and informal sectors, to ensure comprehensive financial protection.

Keywords: Health Insurance Coverage, Universal Health Care, Elderly, LASI, India

Self-report Oral Health and Life Satisfaction in Older Indian Adults: Examining the Mediating Role of Social Support

Amir Ali
International Institute for Population Science

Background: The aging population of India is growing rapidly, resulting in increased health challenges, particularly those related to oral health issues such as tooth decay and gum diseases. These conditions significantly impact the physical and psychosocial well-being of older adults, often leading to social isolation and diminished quality of life. This study examines the effect of oral health problems on life satisfaction among older adults in India and assesses the mediating role of social support.

Methods: Data from wave-1 of the Longitudinal Aging Study in India (LASI, 2017-2018) were used, with a focus on older adults aged 60 years and above. Bivariate analysis, including chi-square tests, was conducted to assess associations between oral health problems, social support, and life satisfaction. Structural equation modelling (SEM) was employed to examine the direct, indirect, and total effects of oral health on life satisfaction. Binary logistic regression was used to estimate the determinants of life satisfaction.

Results: The results revealed a significant direct negative impact of oral health problems on life satisfaction, indicating that individuals with poorer oral health reported lower levels of life satisfaction (β= - 0.81, 95% CI: -0.918789, -0.7005576). Additionally, we found that social support partially mediated the relationship between oral health problems and life satisfaction (β= -0.14, 95% CI: - 0.2679456, -0.0138797). Moreover, social support had a strong positive direct effect on life satisfaction (β= 6.70, 95% CI: 5.625346, 7. 840291).

Conclusion: Oral health problems are directly associated with decreased life satisfaction, as individuals experiencing such issues often report lower overall life satisfaction. However, the presence of strong social support serves as a partial buffer, alleviating some of the negative effects of oral health problems. The results suggest that social support is critical in mitigating the impact of poor oral health on life satisfaction.

Keywords: Oral health; Life satisfaction; Social support; Older adults; India

Gendered Dimensions of Ageing Alone: Examining Health and Quality of Life Among Older Adults in India

Abhishek Anand, T.R. Dilip

1 – Senior research fellow, International Institute for Population Sciences, Mumbai. 2 – Associate professor, Department of Family and Generations, International Institute for Population Sciences, Mumbai.

To investigate the association of ageing alone on various health outcomes and quality of life (QoL) among older adults, with a focus on gender-specific differences we analyzed the nationally representative dataset of Longitudinal Ageing Study in India (LASI). Using unadjusted logistic regression models, we analyzed the association between ageing alone and self-rated health (SRH), multimorbidity, cognitive impairment, depression, and limitations in activities of daily living (ADL) and instrumental activities of daily living (IADL). Additionally, we examined differences in QoL across key domains such as general health, life satisfaction, physical, psychological, social, and environmental QoL. The findings show that ageing alone significantly increases the risk of poor health outcomes for both men and women. The findings show that ageing alone significantly increases the risk of poor health outcomes for both men and women. Men ageing alone have higher odds of poor SRH (OR: 1.88), cognitive impairment (OR: 2.03), and depression (OR: 2.71), along with increased ADL and IADL limitations. Similarly, women ageing alone experience greater risks of poor SRH, cognitive impairment, and depression. Functional limitations were also more prevalent among women ageing alone. These results suggest that social isolation contributes to significant physical and mental health challenges, particularly in terms of depression and functional decline. The study highlights the need for targeted interventions to improve social support for older adults ageing alone and calls for gender-sensitive policies to address the unique vulnerabilities faced by men and women in later life.

Keywords: Ageing alone; Social capital; Loneliness; Quality of life

Rural–Urban Differentials in Functional Disability and Its Associated Factors Among Elderly People in India: Evidence from LASI 2017–18

Gajendra Gupta
Delhi School of Economics

Introduction: Disability in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) has become a growing health concern among the elderly in India. With the steady rise in the proportion of older adults, it is important to assess whether they are able to live healthy, productive, and functional lives. Around 15.92% of the elderly population experience limitations in ADL and about 36.12% face difficulties in IADL.

This paper examines the rural–urban differences in the prevalence of ADL and IADL disabilities among older adults in India and explores their association with various socio economic and demographic factors. It also looks at the spatial variations in ADL and IADL disabilities across different states of the country.

Material and Methods: This study uses data from the Longitudinal Ageing Study in India (LASI) Wave 1, conducted in 2017–2018. LASI is a cross-sectional, nationally representative survey that provides detailed information on the health, demographic, and socioeconomic characteristics of India's ageing population. Bar graphs and tables are used to illustrate rural–urban differences in the prevalence of ADL and IADL, while ordered logistic regression is applied to examine their association with various demographic and socioeconomic factors.

Results: The prevalence of any form of ADL limitation is 24.41% in rural areas and 22.2% in urban areas, while IADL limitations are reported among 51.57% of rural elderly and 40.53% of urban elderly. The rural–urban difference is more pronounced in IADL (11.04%). States such as West Bengal (39.38%) and Goa (37.94%) show a higher prevalence of ADL limitations, whereas IADL limitations are highest in Jammu and Kashmir (64.88%). Nagaland reports the lowest prevalence of both ADL (6.95%) and IADL (18.73%). The largest rural urban differences in ADL and IADL are observed in Delhi (14.97%) and Chandigarh (35.08%), respectively.

Factors such as age, sex, education, and life insurance are significantly associated with both ADL and IADL limitations, while place of residence and marital status are significant only for IADL. Elderly individuals aged above 80 years have higher odds of experiencing ADL (OR = 2.97) and IADL limitations (OR = 3.24). Female elderly also have higher odds of ADL (OR = 1.33) and IADL (OR = 1.73) compared to males. Higher educational attainment is associated with lower odds of both ADL and IADL limitations. A clear association is observed between self-reported health and functional disability, as those reporting better health have significantly lower odds of ADL and IADL limitations.

Conclusion: We can observe that the prevalence of ADL and IADL varies both across states and between rural and urban areas. Elderly individuals in the higher age group (80+ years) are more likely to experience disabilities compared to those in younger age groups. Female elderly require more care, as they are more likely to suffer from both ADL and IADL limitations. Better education and life-insurance coverage appear to reduce the risk of functional disability among the elderly.

Mapping the Geography of Care Transitions: Spatial Inequalities in Elderly Care Deficits in India

Eugine Paul
International Institute for Population Sciences, Mumbai

Introduction: India's rapid demographic ageing is transforming traditional caregiving systems rooted in family and kinship networks. As older adults increasingly outnumber available caregivers, the spatial distribution of care deficits has become a critical but understudied issue. India's rapid demographic ageing brings up new challenges for caregiving systems traditionally rooted in family and kinship networks. This study explores the geography of inequality in elderly care across India and examines how demographic and structural changes shape these emerging geographies of caregiving.

Methods: Data were drawn from the Longitudinal Ageing Study in India (LASI) Wave 1, using both individual and household modules. Spatial clustering of care deficits was measured using Global and Local Moran's I statistics in GeoDa 1.2. To identify individual-level determinants, logistic regression models were estimated in Stata 18, controlling for demographic, economic, and household characteristics.

Results: Spatial analysis revealed significant clustering in care outcomes (Global Moran's I = 0.580). High–high clusters of care deficits were concentrated in southern and western states such as Kerala, Tamil Nadu, Karnataka, Maharashtra, Telangana, and Andhra Pradesh, while low–low clusters were found in northern states, including Jammu and Kashmir, Punjab, Haryana, Uttarakhand, and Uttar Pradesh. Logistic regression results showed that living arrangements, educational attainment, and economic status strongly influenced care deficits. Older adults living with both spouse and children had substantially lower odds of experiencing a care deficit ($p < 0.01$), while those with no schooling or poorer consumption quintiles were more vulnerable ($p < 0.01$).

Discussion and Conclusion: The findings indicate that socioeconomic modernization and family structural change are driving regional disparities in elder care. States with higher social development show greater care deficits, as family-based support systems erode faster than formal care infrastructure expands, a paradoxical outcome of demographic and economic advancement. The proposed care transition framework suggests a shift from family-based to system-dependent care in ageing regions. Policy responses should prioritize community-based and state-supported long-term care systems while reinforcing intergenerational co-residence and support networks to mitigate spatial inequalities in elder care.

Keywords: Elderly care; spatial inequality; Care transition; India; LASI; GeoDa

An Ageing Population and Demographic shift: A Sociological analysis of the Problems of Aged and the need for Social Security in Contemporary India

Jisu Ketan Pattanaik
Assistant Professor of Sociology, National University of Study and Research in Law,
Ranchi-Jharkhand, India

In Inda, Social Security of elders is a constitutional mandate and a basic human right recognized by the United Nations. Aged population is increasing all over the world and India is experiencing a huge demographic shift in future. According to UNFPA report (2023) elderly to make up 20% of the total population of the country by 2050. About 40% of the elderly in India are economically poor and the poverty situation among the elderly population is significantly affecting the health and life-expectancy and make them more vulnerable. The major challenges of the elderly population in India are increasing feminization as a result of increasing Life expectancy among women than men and ruralization of the population. Among the States in India, aged population is highest in Kerala and lowest in Bihar. According to 2011 census India has 104 million older people constituting 8% of the total population of country. With this backdrop, the present paper examines role and position of aged in Indian Society and analyze how in contemporary period, elderly people are experiencing personal to adjustment problems, financial to health problems and loosing voice in decision making process in the family. Once considered as the resource and revered in the family, it is now considered as burden in the family. This paradigm shift taken place in Indian society due to changing occupational structure, urban migration, disintegration of the Joint family system and changing trend towards nuclear family, stress on individuality at the cost of collectivity, impact of industrialization and urbanization. The paper is grounded on the theoretical frameworks of Life Course Theory of Glen Elder, Conflict Theory of Karl Marx, Symbolic Interaction of George Herbert Mead and Herbert Blumer and Structural -Functional theory of Talcott Parsons. The paper also reflects on different social security schemes of Govt India like Old age Pension, PM Awas Yojana, Annapurna Scheme etc and how it is empowering vulnerable ageing population. The paper critically analyzes implementation related challenges and bottlenecks. It offered evidence-based suggestions for improving the status of elderly in society with more focused on the rights, schemes and legal protection available for senior citizens in the country through awareness building, policy advocacy and community engagement.

Keywords: Demographic shift, vulnerability, feminization, empowerment

Morbidity Knocks the Door of the Economy: Understanding the Economic Strain on Elderly Populations in Bankura District, West Bengal

Dr. Ujjwal Das
Assistant Professor, P. G. Dept. of Geography, Fakir Mohan University, Balasore, Odisha, India

Backgrounds: Non-communicable diseases (NCDs) are the leading global cause of death, disproportionately affecting individuals in low- and middle-income countries. This study aims to assess the economic impact of NCDs in terms of out-of-pocket expenditure (OOPE) and its catastrophic effect on households affected by NCDs in the Bankura district.

Materials and Methods: A population-based cross-sectional study was conducted among participants aged 45 years and above in the Bankura district of West Bengal. The study included 480 participants. A linear regression model was used to identify the socio-economic factors associated with catastrophic health expenditure (CHE) among households with elderly individuals affected by NCDs.

Results: The findings reveal that 69.38% of elderly participants suffer from multiple morbidities, while 23.54% have a single morbidity. A higher burden of out-of-pocket expenditure (OOPE) was observed among households with elderly individuals aged 60 and above affected by NCDs. The mean monthly healthcare cost per elderly individual was highest among the poorest and richest households, amounting to INR 6,430. Households from higher caste groups spent significantly more on healthcare for the elderly in both public and private hospitals compared to lower caste households. Predicted probabilities indicate that the likelihood of incurring catastrophic health expenditure (CHE) was higher among older adults aged 75 and above (0.189) compared to those aged 45–54 (0.121).

Conclusion: An urgent need exists for the government to implement prevention strategies to reduce the economic burden of NCDs on households. To specifically address the impact of catastrophic health expenditure (CHE) related to NCDs, the government of India should introduce a customized, disease-specific health insurance plan accessible through both public and private healthcare facilities.

Keywords: Morbidities, Out-of-pocket expenditure, Catastrophic health expenditure, NCDs

Religiosity or Wealth: What Makes People Aged 60 and Above Happy in India?

Abhishek Rajak#, Sadanand Karun#
#Research scholar, International Institute for Population Sciences (IIPS), Mumbai, India

Background: Happiness is a complex phenomenon determined by a multiplicity of factors. Our objective was to examine the association between wealth, religiosity, and happiness among older adults aged 60 and above in India.

Methods: Utilizing data from a nationally representative survey, we first examined the association between wealth, religiosity, and happiness by chi-square test. Subsequently, logistic regression models were run to assess which factor – wealth or religiosity - determines happiness more strongly.

Results: We found a happiness level of 65.03% (95% CI: 62.43, 67.54) in 2024. Happiness was significantly varying with wealth and religiosity. The crude odds ratios indicated that an individual attending religious functions daily was 4.2 times (cOR: 4.20; 95% CI: 1.9, 9.2; p value <0.001) more likely to be happy compared to those who never attended, whereas a person with highest wealth quintile was 3.2 times (cOR: 3.20; 95% CI: 2.50, 4.1; p-value <0.001) more likely to be happy than a person from poorest wealth quintile. After adjusting the model for age, sex, caste, religion, marital status, education, and place of residence, the adjusted odds ratios indicated that a person attending religions function daily was 3.02 times (aOR: 3.02, 95% CI: 1.50, 6.11; p-value <0.001) more likely to be happy than a person never attending, and a person with highest wealth quintile was 2.20 times (aOR:2.20; 95% CI: 1.70, 2.90; p-value <0.001) more likely to be happy than a person with poorest wealth quintile.

Conclusions: Finally, the interaction of wealth and religiosity showed that religiosity and wealth independently impact happiness among people in India.

Keywords: Happiness, religiosity, wealth, subjective well-being, happy ageing.

Are children a source of old-age security? The role of parity in elderly food insecurity in India

Ankita Roy
Department of Population and Development, International Institute for Population Sciences, Mumbai-400 088, India

Background: In low-and middle-income countries, such as India, children have long been considered as a source of old-age security, offering both financial and emotional support. However, in India, fertility is declining, and the old-age population continues growing. So, understanding how parity affects old age food security is crucial. This study aims to evaluate the association between parity and food security among older adults aged 60 and above in India.

Methodology: This study utilizes 31,588 samples using the Longitudinal Ageing Study (LASI) data. Descriptive, bivariate, and logistic regression analyses, as well as sensitivity analysis, were employed to examine the relationship between parity and food insecurity.

Findings: Results suggest that 43.3% (95% CI: 43.8, 46.8) of older adults encounter food insecurity, with 36.7% (95% CI: 35.5, 38.0) mild, 2.1% (95% CI: 1.8, 2.4) moderate, and 6.6% (95% CI: 5.9, 7.3) experienced severe food insecurity. Among the states, Madhya Pradesh recorded the highest proportion of older adults who experienced severe food insecurity (84.6%, 95% CI: 76.0, 90.4), while Himachal Pradesh recorded the lowest proportion (9.5%, 95% CI: 6.8, 13.3). However, the presence of children within the household is also an important determinant of food insecurity. Older adults who do not reside with any of their children were found to experience a higher prevalence of food insecurity (48.9%, 95% CI: 46.9, 51.0) compared to those with children present (43.6%, 95% CI: 41.9, 45.2). The traditional expectation that having more children ensures greater support in later life does not hold in this context; older adults residing with six or more children were found to experience the highest levels of severe food insecurity. Our regression analysis revealed that parity has a significant impact on food security at later ages. Older adults who have children residing in their household are 6.9 percentage points less likely to experience food insecurity compared to those without any children residing in the household, controlling for other factors in the model.

Conclusion: In conclusion, while living with children reduces food insecurity in older adults, increased parity does not inherently improve food security in later life.

Keywords: Food insecurity, children, older adults, India

Does Aging Matter? Determinants of Government Health Expenditure in South Asian Countries

Soumyanayani, Mahali
National Institute of Technology Rourkela

The share of the population aged 65 and older is increasing in South Asia, leading to a global rise in health spending due to the growing demand for healthcare services. This is becoming a significant obstacle to economic progress. The present study examines the influence of population aging on general government health expenditure per capita in South Asian countries, considering the period from 2000 to 2022. The study has also considered other crucial determinants of health expenditure, such as population density, labor force total, gross domestic product per capita, unemployment, and physician. Driscoll-Kraay standard error method has been used for the empirical analysis. The study results show a positive and statistically significant association between the domestic general government health expenditure per capita and the population aged 65 and above. Therefore, the government should promote healthy aging by promoting education on diet and physical exercise and implementing improved coordination of care across health and social services in conjunction with policies that aim to reduce health expenditure.

Health and Ageing among Tribal and Non-Tribal Older Adults in India

Venkata Raja Malla1, Raghunath Mandi2 & Dr. Dhananjay W. Bansod3
1 Ph.D. Research Scholar, International Institute for Population Sciences, Mumbai. Email: venkatarajamalla77@gmail.com (Presenting Author)
2 Ph.D. Research Scholar, International Institute for Population Sciences, Mumbai
3 Professor, Department of Public Health and Mortality Studies, International Institute for Population Sciences, Mumbai, India

Introduction: Health among the Tribal is a debate among Older Adults around the globe. However, research on ageing has seldom considered the plight of marginalized groups aged among the tribal communities in India. From this perspective, this paper explores the data available on the tribal elderly population to study the health status of the tribal elderly population in India.

Methods: Data on the tribal and Non-tribal in India based on the Longitudinal Ageing Study in India (Wave-1) 2017–18 for the study of the elderly population aged 60 years and above. STATA 17.0 has been used to perform all the statistical analyses.

Results: Among older adults (60+), Tribes were predominantly rural, less educated, and concentrated in lower wealth quintiles, with higher workforce participation than non-tribes. Tribal older adults report better perceived health, prevalence of Chronic Conditions, and Functional Limitations. Lifestyle patterns show higher alcohol use and smoking among tribes, but greater engagement in social visits, religious events, and community meetings. In contrast, non-tribal older adults were more concentrated in urban areas and had better education. However, they face a higher burden of chronic diseases, lower work participation, and greater involvement in outdoor games and cultural activities. Overall, tribal older adults experience socioeconomic disadvantages yet maintain relatively better health and active social engagement, while non-tribes benefit from higher education and urban living but show higher morbidity.

Conclusions: Promoting a positive outlook toward ageing is as crucial as encouraging healthier lifestyles in achieving successful ageing (Bansod & Mandi, 2025). Lifestyle risk factors such as smoking and alcohol consumption are more prevalent among men, rural residents, individuals with no formal education, those engaged in employment, and those belonging to the poorest wealth quintiles (Mandi et al., 2023).

Keywords: Ageing, Health, Tribe, Non-Tribe, India

Understanding the Morbidity Gap for Multiple Long-Term Conditions in India: Roles of Modified Health

Himanshu Jaiswal*1, Suryakant Yadav1, Chandan Kumar1, Solveig A.
1: International Institute for Population sciences, (IIPS), Mumbai, India.
2: Emory University & Netherlands Interdisciplinary Demographic Institute, USA

Background: Multiple long-term conditions (MLTCs) is the simultaneous existence of two or more chronic diseases. The experience of MLTCs has emerged as a frequent phenomenon that poses a challenge to public health, which is alarming in the context of the ageing population. Besides clinical and biological factors, the severity, duration, and outcome of MLTCs are associated with socioeconomic, demographic, and risk factors.

Objectives: The objective of the study is: (1) to examine the prevalence and distribution of MLTCs, (2) to examine the determinants of MLTCs, and (3) to examine differentials and differences in MLTCs prevalence, i.e., morbidity gap in the Indian population ages 45 years and above.

Methods: Multinomial logistic regression and Fairlie decomposition analyses were employed to examine the role of contextual factors that explain their role for rising MLTCs using the LASI wave-1 (2017-18) data.

Results: The study unravels the differentials and differences in demographic, socioeconomic, and modified health behaviors/risk factors within Andersen's framework that explains the morbidity gap between men and women. The morbidity gap between men and women widened with the differences in their age gradients. Working status has shown the largest contribution to the narrowing of morbidity gaps. The study highlights that disparities in socioeconomic developments have a determinate role in the high MLTCs in the Indian population aged 45 years and above, in addition to the contemporary role of modified health behaviors.

Conclusions: Modified health behaviors advocate for an increase in MLTCs. The distributional features of working status, education, and marital status are shaping the gender-based disparity in MLTCs. In order to further lower the MLTCs, the disparity in work status and marital status by gender provides a scope in the ambit of reducing disparity in education and employment.

Keywords: Chronic diseases, Morbidity gap, MLTCs, Health and Morbidity, Decomposition analysis, Population ageing, LASI, India.

Ageing Without Care: The Rise of Elderly-Only Families in West Bengal, India: Evidence from NFHS (1992–2021)

Sourav Mondal and Manas Ranjan Pradhan
International Institute for Population Sciences (IIPS), Mumbai, India

Introduction: India is witnessing a rapid demographic transition, with population ageing emerging as a critical public health and social challenge. By 2050, individuals aged 60 years and above are projected to constitute over 20% of the total population, with their numbers expected to surpass those of children by 2046. This shift, driven by increasing life expectancy and declining fertility rates, poses significant implications for healthcare systems, social support mechanisms, and economic structures.

Traditionally, extended family systems in India provided care and emotional support for older adults. However, urbanization, migration, and socio-cultural changes have contributed to the rise of Single Person Families (SPFs) and Nuclear Pair Families (NPFs), where older adults live alone or with one other person, often without adequate caregiving support. Despite their growing prevalence, limited research has explored the living conditions and vulnerabilities of older adults in these family settings. This study addresses the gap by examining trends in SPFs and NPFs in West Bengal over nearly three decades, with an emphasis on socio-economic factors that influence these family structures.

Data and Methods: Data was drawn from five rounds of the National Family Health Survey (NFHS) for West Bengal, covering 1992/93 to 2019/21. The outcome variables were family structures classified as SPFs and NPFs. Independent variables included the age, education, caste, religion, and marital status of the household head, as well as household wealth quintile, agricultural land ownership, and place of residence. Descriptive, bivariate, and multivariate analyses were conducted.

Results: Between 1992/93 and 2019/21, SPFs rose modestly from 3.2% to 4.2%, while NPFs increased sharply, more than doubling from 3.6% to 9.6%. Among SPFs, the proportion of household heads aged 60 years and above doubled, rising from 14% to 32%, while those below 30 years dropped from 18% to 7%. Marital status patterns also shifted considerably: widowed, divorced, or separated household heads increased from 39% to 63%, with a stark gender difference—92%–100% among women versus 27%–71% among men.

In NPFs, the share of individuals under 30 years declined sharply from 29% to 6%, while those aged 60 and above increased from 26% to 40%, indicating a growing concentration of older adults in minimal family units.

Conclusion: The findings reveal a demographic shift toward an ageing population increasingly concentrated in SPFs and NPFs, particularly among women who are disproportionately widowed or living alone. The absence of caregivers leaves many elderly individuals vulnerable to social isolation, economic hardship, and neglect. Addressing these challenges requires strengthening social security systems, expanding community-based care services, and implementing gender-sensitive policies to ensure financial and emotional support for older adults.

As India approaches a rapidly aging future, understanding how evolving family structures impact the well-being of the elderly is crucial for developing comprehensive policies that promote healthy and dignified aging.

Keywords: Older adult, Single-person family, nuclear pair family

Educational Gradient and Cognitive Health among Middle-Age and Older Adults in India: Insights from the Longitudinal Ageing Study in India (LASI), 2017-18

Sadanand Karun1

1Research Scholar, International Institute for Population Sciences (IIPS), Mumbai, India. Email: sadanandkarun40@gmail.com. ORCID ID: https://orcid.org/0009-0004-1949-8723.

Background: There are studies linking body mass index, physical activity, and indoor air pollution with cognitive health, but how education determines the cognitive health remains less explored in low-and middle-income countries, specifically India. This study aimed to examine the association between educational gradient and cognitive health among individuals aged 45 years or above in India.

Methods: The data on 57,794 individuals aged 45 and above were extracted from the Longitudinal Ageing Study in India (LASI), Wave-I (2017-18). The mean cognitive health scores were estimated by educational gradient. A linear regression model was employed to assess the association between educational gradient and cognitive health. Finally, the Oaxaca Blinder decomposition was performed to capture the factors creating the cognitive health gap among educationally advantaged and disadvantaged individuals.

Results: Among people aged 45 or above, 50.7%, 17.7%, 21.1% and 10.5% had 0 years, 1-5 years, 6-10 years, and above 10 years of education, respectively, indicating an educational gradient. The mean cognitive health score varied between 20.5 among people with 0 years of education and 31.6 among people with above 10 years of education. The fully adjusted regression model found that with reference to 0 years of education the β-coefficient was 3.71 (SE: 0.116; p-value<0.001), 6.38 (SE: 0.126; p-value<0.001), and 8.21 (SE: 0.355; p value<0.001) for 1-5 years, 6-10 years, and above 10 years of education, respectively, indicating a clear educational gradient in cognitive health. The Oaxaca-Blinder decomposition result showed that sex, place of residence, body mass index, age, and caste-group differences contribute most to the mean cognitive health score gap among educationally advantaged and disadvantaged groups.

Conclusion: Tailored efforts are needed to encourage lifelong learning among middle-aged and older adults to promote cognitive health in India's rapidly ageing population.

Keywords: Cognitive Health, Cognitive Function, Education, Ageing, Oaxaca-Blinder Decomposition.

Socioeconomic Determinants of Social Support among Elderly Populations: A Comparative Analysis of Old Age Homes and Family Settings in Uttar Pradesh, India

Anil Kumar Pal
International Institute for Population Sciences

Background: The rapid demographic ageing of India's population underscores the critical need to understand the social support systems for the elderly, a key determinant of their well-being. The housing arrangement, whether in traditional family settings or institutional old age homes (OAHs), is posited to significantly influence the level of social support experienced, yet comparative studies in the Indian context, particularly in populous states like Uttar Pradesh, are limited.

Objective: This study aimed to assess the prevalence and identify the socio-demographic and economic determinants of social support among elderly individuals residing in old age homes compared to those living in family settings in Uttar Pradesh.

Methods: A cross-sectional comparative study was conducted among 364 elderly individuals (aged ≥60 years), comprising an equal sample of 182 from family settings and 182 from Old Age Homes. From July 2024 to December 2024, participants were selected using a random sampling method and met the inclusion criteria of ≥6 months of residence in the current setting and ability to provide informed consent. Data was collected through structured interviews using a socio demographic schedule and a standardized social support scale. Social support was categorized as low, medium, or high. Bivariate analyses: Chi-square tests (χ^2) were used to examine associations between variables. Ordered logistic regression models, both unadjusted and adjusted for covariates, were employed to identify the key factors associated with levels of social support.

Results: Bivariate analysis revealed a stark disparity in social support based on living arrangement: a significantly higher proportion of the elderly in family settings reported high social support (63.2%) compared to those in OAHs (31.9%) ($p<0.001$). Other factors significantly associated with social support included sex, marital status, residence, occupation, asset ownership, and financial responsibility. The multivariate ordered logistic regression, controlling for confounding factors, confirmed that residing in an OAH remained a strong independent predictor of lower social support (Adjusted Odds Ratio [AOR]=0.40, 95% CI: 0.22-0.74) compared to family settings. Notably, occupation was a major positive determinant; those with formal employment (AOR=4.60, 95% CI: 1.95-10.87), self-employment/business (AOR=4.44, 95% CI: 1.90-10.38), or agricultural work (AOR=3.18, 95% CI: 1.57-6.47) had significantly higher odds of reporting greater social support than those never employed. Additionally, widowed individuals had higher odds of social support (AOR=1.92, 95% CI: 1.01-3.64) compared to those never married. Factors like external financial support, which were significant in the unadjusted model, were attenuated in the adjusted model, suggesting their effect is mediated by other variables.

Conclusion: The findings strongly indicate that elderly individuals living in family settings in Uttar Pradesh experience substantially higher levels of social support than their counterparts in old age homes. Beyond housing arrangements, economic engagement through occupation is a critical protective factor. These results highlight the enduring importance of familial structures for elderly well-being in India and suggest that policies and interventions for institutionalized elderly should prioritize enhancing social connectivity and fostering opportunities for meaningful engagement to mitigate the risk of low social support.

Keywords: Social Support, Elderly, Ageing, Old Age Home, Family Setting, Uttar Pradesh.

A Bibliometric analysis and visualization on Ageing-in-Place (AIP) in the gerontological research

Subham Sharma1* Dhananjay W. Bansod1

1. Department of Public Health and Mortality Studies, International Institute for Population Sciences, Mumbai, India- 400088

Introduction: The rapid demographic transition towards an ageing society has made Ageing-in-Place (AIP) a central paradigm in gerontological research and policy discourse worldwide. The notion of Ageing-in-place indicates supporting older adults to remain in their own homes and communities for as long as possible, which has gained significant traction for its contribution to well-being, quality of life, and cost-effective nature. It is emphasized as a preferred model of long-term care (LTC), as it focuses on home and community-based support rather than institutionalization. In India, the National Policy on Senior Citizens and other programmes on senior citizens also highlighted the importance of AIP by promoting community-based care and enabling older adults to remain in their homes and familiar surroundings for as long as possible for their well-being. This bibliometric study aimed to: (i) trace the trends and development of research on AIP over the years, (ii) examine the methodological approaches and theoretical frameworks applied in the field, and (iii) identify the key dimensions of AIP.

Data and methods: This study analyzed a dataset of 1,113 peer reviewed publications retrieved from the Scopus database, English language and publication year range 2000-2025 which were screened following the protocols of PRISMA guidelines. This study applied trend analysis as well as performance analysis using R Studio Biblio shiny package and utilized VOS viewer for science mapping which included co-authorship analysis, co-occurrence keywords analysis, citations analysis, co-citation analysis and bibliographic coupling to visualize the intellectual structure and evolving research themes in the form of bibliometric maps.

Results: The findings reveal a steady growth of AIP research between 2000 and 2010, with an accelerated increase after 2010. The intellectual foundation of the field is shaped by seminal works of Wiles et al. (2012) and Sixsmith and Sixsmith (2008), which conceptualize AIP from the perspectives of older adults and found to be core aspect of environmental gerontology. Ageing and Society, The Gerontologist, and Journal of Housing for the Elderly emerged as the leading publication outlets. The developed nations were pioneers to adopt this policy for the well-being of the elderly. Later, contributions from Asian countries including China, Singapore, Malaysia, and India have grown in recent years, highlighting a gradual diversification of research hubs. Science mapping highlights the multidimensionality of AIP, spanning housing and environmental adaptations, health and care, social support and networks, and emerging technological solutions. Methodologically, qualitative approaches dominated early research, while recent years have witnessed greater use of quantitative surveys, mixed methods design, and technological assessments.

Conclusion: This bibliometric study contributes to the understanding of AIP as an evolving interdisciplinary field, identifies global research trajectories, and underscores the need for greater engagement from low and middle-income countries. For India, prioritizing AIP research and practice can help address various challenges of population ageing, foster inclusive and age-friendly environments, and support healthy and successful ageing for its rapidly expanding elderly population.

Keywords: Ageing in place, older adults, bibliometric analysis, gerontology, Asia, India

Challenging the Dependency Narrative: Recognizing the Hidden Contribution of the Elderly through Reciprocity and Solidarity

Raghunath Mandi1 & Dhananjay W Bansod2
PhD Scholar, International Institute for Population Sciences, Mumbai-400088

Introduction: The demographic transition in India, marked by declining fertility and increasing life expectancy, has led to an increase in the number of the older population in the country. This structural change highlights both as a symbol of socio-economic progress, and also poses several implications for families, communities, and the state mechanisms, especially due to the limited institutional provisions for the ageing population.

In academic research, policy debates, and media discourse, population ageing is often framed as a challenge, if not an outright problem, with older adults predominantly portrayed as dependent. Consequently, the study of population ageing frequently focuses on how society deals with the growing proportion of 'old age' 'dependents. However, in reality, a significant proportion of the elderly play active roles within the household and community beyond retirement, yet these contributions are overlooked and remain underacknowledged in the mainstream discussion on ageing. Therefore, the present paper seeks to contribute to the growing body of evidence on the often-hidden caring role of older persons in families by examining their dependency status, mapping the forms of support they extend, and analyzing the variations in these contributions across different socio-demographic and health contexts.

Methods: A cross-sectional study was conducted in the Hooghly District of West Bengal, India, with 400 elderly individuals. The sample was selected through multistage stratified sampling with a semi structured interview schedule using Kobo Toolbox. Before data collection, ethical approval was obtained from the Student Research Ethics Committee (SREC) of IIPS, Mumbai, to conduct the survey. Descriptive statistics and inferential statistics, such as frequency, percentage distribution, chi-square test, and regression analysis, were used to determine the factors associated with the types of care and support.

Results: The findings of the study revealed that around one-third of the elderly aged 60 years and above are still actively engaged in the workforce (29%), more than half of them were in good health (51.2%), and only 7% percent were functionally dependent on others for ADL. In terms of the elderly's contribution, a larger proportion of elderly regularly provide economic (44%) and instrumental support (50.7%) within families. A significant proportion of the elderly hold decision making within family in terms of property transactions (39%) and organizing social events (24%). There are noticeable gender differentials, while elderly men are more engaged in financial contributions, elderly women predominantly shoulder caregiving and household responsibilities, reflecting traditional gendered divisions of roles even in later life.

Discussion: Recognizing the care contribution of the elderly is vital, presuming their dependency with age. Therefore, moving beyond a burden-centric narrative to the reciprocal role of the elderly can help reframe societal perception of ageing and responsive policies that value intergenerational solidarity and reciprocity of care.

Keywords: Elderly, Caregiving, Solidarity, Dependency, India

Opportunities and Challenges of Mobility among the Elderly Population: Evidence from Gurugram City, India

Sumedha Sumedha1,*, Anuradha Banerjee2, Abhinav Kumar Mishra3, Abhishek Kumar Singh4
1PhD Scholar, Centre for the Study of Regional Development, Jawaharlal Nehru University (JNU), New Delhi,
2Professor, Centre for the Study of Regional Development, Jawaharlal Nehru University (JNU), New Delhi,
3PhD Scholar, Centre for the Study of Regional Development, Jawaharlal Nehru University (JNU), New Delhi,
4PhD Scholar, Centre for the Study of Regional Development, Jawaharlal Nehru University (JNU), New Delhi,

Urban ageing is rapidly emerging as a critical concern in Indian metropolitan regions, where mobility serves as both a necessity for daily functioning and a determinant of social inclusion. Gurugram, a rapidly transforming satellite city of Delhi, represents an illustrative case of how ageing intersects with mobility in the context of rapid urban expansion, unequal infrastructure distribution, and digitalized service delivery. This paper explores the mobility experiences of older adults in Gurugram.

The study employed a mixed-methods approach, combining a household survey of 300 elderly respondents (aged 60 and above) across gated colonies, resettlement areas, and urban villages with 20 in-depth interviews and field-level mobility audits. Findings reveal that mobility infrastructure in Gurugram is unevenly accessible to older residents. Approximately 62% of elderly respondents in gated colonies reported reliance on private cars, while only 14% in resettlement areas could afford this option. Public buses were most used among lower-income elderly (48%), yet over 70% of them expressed dissatisfaction due to overcrowding, irregular frequency, and absence of low floor or shaded waiting spaces. By contrast, metro usage was reported by only 18% of the elderly overall, limited by poor last-mile connectivity and long walking distances to stations.

Mobility is also shaped by gendered vulnerabilities. Elderly women, particularly in lower-income neighborhoods, were more dependent on walking and shared autos, with 42% citing safety concerns as a major deterrent to independent travel. They also reported reduced participation in social and recreational activities, linking immobility with social isolation. Health-related travel emerged as the most common purpose across all groups, but respondents in urban villages travelled on average 5.6 km to reach healthcare, compared to 2.9 km in gated societies, revealing sharp spatial inequalities in service access.

Digital exclusion adds to the restriction. Although Gurugram is at the forefront of app-based mobility, only 21% of elderly respondents reported using Ola or Uber independently. The majority required assistance from younger family members due to difficulties with smartphones, e-payment systems, and a lack of trust in digital platforms. Consequently, a strong sense of mobility dependency was observed, where older adults avoided travelling alone and relied on family networks to maintain mobility.

The findings highlight that mobility for the elderly extends beyond physical transportation. Compromised mobility due to mobility barriers contributes to dependency, isolation, and reduced quality of life, making ageing in urban India a multidimensional challenge.

The paper highlights the need for an age-friendly mobility framework in Gurugram. Drawing on the WHO's Age-friendly Cities initiative, the study recommends retrofitting of existing public infrastructure, targeted interventions for women, and community engagement to promote inclusive mobility. In conclusion, ageing and mobility in Gurugram reflect not merely a deeper question of equity, dignity, and social participation.

Keywords: Ageing, Urban Mobility, Age-friendly planning, Socio-spatial inequality, Digital exclusion

Impact of Adult Children's Migration on Well-being of Left-Behind Elderly Parents: Evidence from an Out-Migration-Prone Region in India

Pintu Paul1, *
1Assistant Professor, Indian Social Institute, New Delhi, India

With rapid urbanization and industrialization, millions of people are migrating from economically disadvantaged regions of India to other areas in search of better employment opportunities. While adult children's migration can improve household income through remittances, it may also disrupt traditional caregiving structures and emotional support for elderly parents left behind. This study examines the impact of adult children's migration on the material living satisfaction and psychological well-being of left-behind elderly parents in the Middle Ganga Plain (MGP), one of the most out-migration-prone regions in India. Using cross sectional data from 1,080 elderly individuals aged 60+, the study employed Ordinary Least Squares (OLS) and negative binomial regression models to analyze the associations. Regression results showed that left-behind elderly parents had significantly higher satisfaction with material living conditions ($\beta = 0.33$, $p < 0.05$) than their non-left-behind counterparts. It suggests an economic benefit associated with migration that could be used to improve material living conditions. Moreover, left-behind parents were less likely to report emotional distress ($\beta = -0.20$, $p < 0.001$) compared to non-left-behind parents. This finding may reflect the perceived economic security, household improvements, and social recognition from migration. However, frequent visits to parents were positively associated with emotional distress ($\beta = 0.04$, $p = 0.005$) among left-behind parents, perhaps due to heightened parental anxiety during visits driven by health or family crises. Findings highlight that economic and symbolic gains from migration may offset the psychosocial costs of separation in the resource-poor rural context of eastern Uttar Pradesh and Bihar.

Depressive Symptoms and Life Satisfaction by Various Living Arrangements Among Elderly Population in India (2017-2018)

Shaoni Das (PhD Scholar), Prof. Sukanya Das, Dean (Research and Partnership)
TERI School of Advanced Studies

Background/Introduction: The increasing life expectancy and declining fertility rates have significantly reshaped the demographic structure globally, including in India. Projections indicate that the proportion of Indians aged 60 and above will rise from 7.5% in 2010 to 11.1% by 2025, reaching nearly 323 million by 2050. While this demographic shift marks epidemiological progress, it also brings substantial challenges in ensuring healthy and satisfactory ageing, particularly in developing countries like India where social support systems are often weak. Older adults increasingly face issues such as limited access to affordable healthcare, shrinking family support due to migration and individualism, and inadequate institutional care. As a result, the focus of research and policy has shifted from simply increasing life span to improving the quality of later life.

Two key indicators of elderly well-being—life satisfaction and depressive symptoms—reflect both psychological health and subjective experiences. These are influenced by multiple factors including financial security, health status, social support, and especially living arrangements. Understanding these interconnections is critical for designing inclusive ageing policies and community-based interventions that promote independence, mental well-being, and dignity for India's elderly.

Objectives: The primary objective of this study is to examine the mental and subjective well-being of the elderly population in India in relation to their living arrangements. Specifically, the study aims to assess the prevalence and patterns of depressive symptoms and levels of life satisfaction among older adults across various living arrangements. Additionally, it seeks to explore the association between these living arrangements and the psychological outcomes of depression and life satisfaction. Through this analysis, the study endeavors to provide insights into how different household contexts influence the mental health and overall well-being of the ageing population in India.

Data and Methodology: This study utilizes data from Wave 1 of the Longitudinal Ageing Survey of India (2017–18), a nationally representative survey of 73,396 individuals aged 45 and above. The analysis focuses on those aged 60 and older. Key outcomes—life satisfaction and depressive symptoms—were measured using the Satisfaction with Life Scale and a shortened CES-D scale, respectively. Living arrangements, morbidity status, and various socio-demographic factors were included as explanatory variables. Descriptive, bivariate, and binary logistic regression analyses were conducted using STATA 17, and spatial maps were generated using QGIS.

Results: The study reveals that elderly individuals living alone experience significantly higher levels of depressive symptoms (46.01%) and lower life satisfaction (58.72%) compared to those living with both spouses and children. Spatial mapping highlights states such as Tamil Nadu and Nagaland with high proportions of elderly living alone, while regions like Jammu & Kashmir report high depressive symptoms and low life satisfaction despite a smaller proportion living alone.

Logistic regression analysis confirms that living arrangement is significantly associated with both life satisfaction and depressive symptoms. Elderly people living alone are less likely to report high life satisfaction (AOR: 0.577) and more likely to experience depression (AOR: 1.370) compared to those living with spouses and children. Other significant predictors include depressive symptoms, wealth, education, age, morbidity, and place of residence. Notably, higher education and urban residence are associated with better life

satisfaction and lower depression, while multimorbidity and older age increase the likelihood of depressive symptoms. Religion, caste, and marital status also show statistically significant associations.

Conclusion: As India transitions into an ageing society, the focus of research is increasingly shifting from longevity to the quality of ageing. This study highlights how companionship and living arrangements significantly influence the mental and subjective well-being of the elderly. Rising individualism and youth migration have left many older adults isolated; a reality reflected in the study's findings. While the Government of India has initiated age-friendly policies—such as promoting inclusive urban planning under the Smart Cities Mission—understanding the impact of various living arrangements remains key to improving elderly care.

However, the study has limitations. Its cross-sectional design limits causal inference between living arrangements and well-being. Additionally, life satisfaction and depressive symptoms may be shaped by recent life events and not solely by household composition. Despite these constraints, the study offers important insights into the lived experiences of India's ageing population and calls for more targeted, empathetic interventions.

Keywords: Life Satisfaction, Living Arrangements, Health, Elderly Population, LASI, India.

Embodied Devotion: Daily Practices of End-of-Life Migrants in the Sacred City of Kashi

Vineet Kumar
Doctoral Fellow, Department of Geography, Banaras Hindu University Varanasi, Uttar Pradesh, India.
Email: vkgeog@gmail.com, ORCID: 0000-0003-1104-8336

This study explores Varanasi's sacred geography with an emphasis on embodied spiritual practices among end-of-life migrants- those who come to the city in their last days in search of moksha (freedom). In this study, the relationship between religion, migration, and embodied spirituality is explored through In-depth fieldwork conducted in a sample of Varanasi ashrams. These migrants, who are referred to as "salvation-seekers," follow religious doctrines based on Hindu cosmologies. The study explores how spatial, cultural, and metaphysical mappings of Kashi as the ultimate tirtha (sacred crossing) mediate these activities using participant observation, semi-structured interviews, and visual ethnography. The results of the study show how ascetic eating habits, mantra chanting, Jap maala (rosary), silence (maun-vrat), satsang, and Ganga snan (ritual bathing) serve as a means and medium of achieving spiritual goals. The ashram is discussed in the study as a transitional and therapeutic setting where death is ritualized. Additionally, the study touches on Varanasi's discourses on sacred city-making, embodied religion, and religio-migration. In light of ageing populations and cultural shifts, the study makes the case that urban spiritual landscapes should be redesigned as dynamic hubs for religious fulfilment and social care. The study concludes by outlining implications for senior welfare, spiritual care policy, and culturally sensitive urban planning in pilgrimage cities.

Keywords: Cultural Diversity, Hindu Pilgrimages, Salvation Seekers, Aging Population, Sacred Spaces, Varanasi

Divergent Mortality Trajectories of Major NCDs Among Older Adults in India: A 2036 Forecast

Priyanka Kumari & Rahul Kumar
Senior Research Scholar
International Institute for Population Sciences, Mumbai

This epidemiological study quantifies and projects the mortality burden attributable to selected Non-Communicable Diseases (NCDs) among the elderly population (aged 60+ years) in India and its constituent major states for the period 2008–2036. Given the context of India's protracted demographic transition and accelerating population ageing, accurate forecasting of disease-specific mortality is crucial for national health policy formulation and effective resource prioritization. The diseases under investigation include Diseases of the Circulatory System (CVDs), Diseases of the Respiratory System (CRDs), Diabetes Mellitus, and Neoplasms (cancer).

The methodology utilizes a robust multi-source data integration approach, combining aggregated cause-of-death data from the Medical Certification of Cause of Death (MCCD) reports and population denominator data from the Sample Registration System (SRS) spanning 2008 to 2020. Mortality rates were estimated by applying the proportional distribution of cause specific deaths (MCCD) to the overall mortality estimates (SRS). Future projections were generated via the application of optimally fitted linear and polynomial regression models, where model selection was statistically guided by goodness-of-fit metrics applied to the temporal mortality rate series.

The overall NCD mortality rate in India showed a declining trend, decreasing from 29.0 per 1,000 in 2008 to 25.4 per 1,000 in 2020. This downward trajectory is projected to continue, reaching 21.9 per 1,000 by 2036. Analysis reveals a general projected decline in mortality rates for both CVDs (from 16.7 to 13.3 per 1,000) and Cancer (from 2.2 to 1.8 per 1,000), reflecting the positive impact of improved healthcare and disease management. CRD mortality is also projected to see a modest decline, dropping to 3.5 per 1,000 by 2036.

However, the mortality trend for Diabetes Mellitus presents a significant concern, showing a consistent slow increase, particularly among females, with the rate projected to rise to 3.1 per 1,000 by 2036. This contrasts with the general national decline and signals a growing public health challenge. State-level results highlight considerable regional disparities, with Delhi showing the lowest projected NCD mortality rates, and others, like Karnataka, exhibiting mixed and persistent burdens.

In conclusion, while India is projected to achieve overall reductions in NCD-related mortality, the persistent rise in diabetes deaths and considerable regional variations underscore the urgent need for targeted, disease-specific interventions. Sustained policy focuses on enhancing healthcare systems, especially in resource-limited areas, and addressing lifestyle and environmental risk factors is essential to mitigate the differential burden of chronic disease among the rapidly ageing population.

Investigating the Role of Public Policies in Enhancing the Well-Being of the Elderly Population in Delhi

Abhishek Kumar Singh, Preeti Devi, Dr. Hemant Kumar
Centre for the Study of Regional Development (CSRD), School of Social Sciences, Jawaharlal Nehru University (JNU), New Delhi, India.

The demographic shift towards an ageing population in India underscores the urgent need to safeguard the rights and welfare of elderly. This research paper examines the legal and constitutional framework governing elderly rights, with a particular focus on statutory provisions such as the Maintenance and Welfare of Parents and Senior Citizens Act, 2007 and constitutional mandates like Article 41 of the Indian Constitution. Utilizing a doctrinal legal methodology, the study analyses major statutes and landmark judicial pronouncements that shape the discourse on senior citizen's rights and their contemporary legal position. Complementing this, a comprehensive policy review is undertaken, drawing from government reports, national committees, and international human rights instruments, to assess the alignment of domestic laws with global standards. The socio-legal component draws on secondary data and case illustrations to contextualize the law within lived experiences of the elderly, highlighting systemic challenges such as inadequate access to justice, procedural barriers, weak enforcement, and limited accessibility of welfare schemes. The findings reveal substantial gaps between normative protections and their implementation. In response, the paper proposes targeted reforms, including enhanced monitoring mechanisms, strengthened legal aid systems, clearer enforcement protocols under the 2007 Act, and improved coordination between judicial, administrative, and community-based institutions to ensure holistic protection of elderly rights in India.

Can laws replace love? Testing the effectiveness of India's Maintenance Act

Shweta Kalla Baxi1, Sarthak Gaurav2, Usha Ananthakumar3

1 Corresponding author. Shweta Kalla Baxi is a Ph.D. candidate at the Indian Institute of Technology Bombay, studying retirement preparedness and the effects of pension systems on household financial decisions. Email: shweta.kalla@iitb.ac.in

2 Sarthak Gaurav is an Associate Professor in Economics area at SJM School of Management, Indian Institute of Technology Bombay. Email: sgaurav@iitb.ac.in

3 Usha Ananthakumar is a Professor in Decision Sciences area at SJM School of Management, Indian Institute of Technology Bombay. Email: usha@iitb.ac.in

Taking cognizance of the changing social fabric in India that could jeopardize the welfare of older people, the Maintenance and Welfare of Parents and Senior Citizens Act was enacted in 2007 in India. However, whether the act increased the welfare of senior citizens remains understudied. Leveraging the difference in the timing of implementation of the act between Bihar and Jharkhand, the authors use a difference-in-difference model to estimate the causal impact of the act. Using the India Human Development Survey (IHDS) panel data for 2005 and 2011-12, they find that the medical expenses on a per capita basis as a proportion of total expenses increased in the treatment region of Jharkhand compared to the control state of Bihar after controlling for standard covariates. The household's medical expenses are primarily attributable to the older adults in the family and, hence, representative of the intra-household allocation towards the elderly members. The authors discuss pragmatic issues like low awareness, administrative hurdles, and social stigma as possible devices that can impair the effectiveness of this act.

Intersections of National Social Assistance Programme & Digital Governance: Situational Analysis of Pension Schemes for Old Age in Rural India.

*Dr. Pankaj Kamal Shankar Kumbhar

*Assistant Professor, Centre of Excellence in Sustainability, Environment and Climate Change, MIT-World Peace University Pune Maharashtra India. Mail Id: pankajaapk12@gmail.com

This paper reframes pension schemes for ageing as a social and economic protection phenomenon in rural India, arguing that care, accessibility of benefits, digital hurdles, vulnerability and social assistance must be understood together rather than in isolation. It is expected by UNDESA (United Nations Department of Economic and Social Affairs) in 2008, that the Indian population of elderly 60 and above will grow up to 11.1 % in 2025. In today's context changing patterns of social systems such as shifting from Joint family to nuclear family leading elderly more vulnerable. Therefore, the well-being and comprehensive welfare of elderly has become an issue of great concern. Aging population is a crucial issue in India in order to provide care, support and welfare of this elderly population. National Social Assistance Programme which consists of five major social assistance programmes in which Indira Gandhi National Old Age Pension Scheme (IGNOAPS) is one of the core social old age pension schemes initiated by the government in 1995to provide social security for the senior citizens from below poverty line. Nearly 30% of senior citizens from BPL families getting benefits from the Indira Gandhi National Old Age Pension Scheme (IGNOAPS), estimated a recent government survey on the country's ageing population. The ground reality is that awareness and enrolment for this scheme among the old age people are lower. Even Majority of the elderly population have not heard about the Indira Gandhi National Widow Pension Scheme (IGNWPS). In spite of many efforts in social security pension schemes for senior citizens, a larger elderly population section is still vulnerable especially in rural and remote areas. This situational analysis examines pension schemes for the older population in rural India, focusing on how social assistance programmes intersect with emerging digital governance mechanisms. Despite policy advances and expanded coverage of old-age pensions over the past two decades, rural older populations continue to face multidimensional insecurity which includes limited coverage, low benefit adequacy, administrative exclusion, gendered disparities, and barriers to access. At the same time, state-driven digitalization like the Aadhaar linked payment system and Direct Benefit Transfer (DBT) is producing new sources of exclusion. This study maps the current landscape of the National Social Assistance Programme with focus on pension schemes and assesses implementation outcomes in rural areas and interrogates how digital governance leads to exclusion for older and vulnerable populations in rural areas. The present paper adopts a mixed-methods secondary source of approach. The existing reviews and synthesis of secondary sources of information will be assessed.

Keywords: National Social Assistance Programme, Pension, rural ageing, digital governance, inclusion, Direct Benefit Transfer (DBT) and Situational Analysis

Life in Old Age Homes: A Social and Demographic Analysis in Goa, India

Ms. Amrita Samuy* and Dr. Neethu Naik**
*Former PG Student, PG Dept. of Geography, Government College of Arts, Science, & Commerce, Khandola, Goa.
**Assistant Professor, PG Dept. of Geography, Government College of Arts, Science, & Commerce, Khandola, Goa.

The social and demographic realities of India's ageing population have created growing dependence on institutional care such as old age homes, especially for elderly individuals lacking adequate family support. This study investigates the social and demographic characteristics of elderly residents in two old age homes in Ponda taluka, Goa, India-2024, with a sample of 138 residents. Data was collected through structured and semi-structured interviews. The quantitative analysis employed univariate methods, while the qualitative responses were examined through narrative analysis, allowing a complete understanding of the residents lived experiences.

Findings reveal that most residents are aged 70–89 years, with education limited to primary or secondary levels, reflecting historical socioeconomic barriers, particularly for women. Gender disparities are striking women outnumber men, with widowed females comprising the largest group, indicating the intersection of longevity, widowhood, and societal constraints on women's independence. Marital status and absence of caregivers emerged as decisive factors leading elderly individuals to seek institutional support. Loneliness and health problems further contribute to residency decisions, particularly among those without children or those whose children fail to provide care due to migration, employment, or changing family structures. Occupational history shows homemakers as the majority, followed by private sector employees, government workers, and teachers, underscoring the reliance of non-earning elderly, especially women, on institutional support. Analysis of duration of stay and social interactions indicates mixed adaptation patterns: residents staying for 1–3 years exhibit moderate engagement, while longer stays often correlate with declining socialization due to age-related health issues. Financial dependence is another crucial dimension, with family support and savings as the primary sources of income, while pensions and government aid remain underutilized. The findings emphasize that even elders with children or stable pensions may resort to institutional living when familial caregiving fails. Overall, the study demonstrates how elderly residents' demographic and social backgrounds shape their vulnerability and reliance on old age homes. It highlights critical challenges such as gender ageing, insufficient caregiving, weakening family bonds, and financial insecurity. Strengthening social welfare programs, expanding pension coverage, and promoting inclusive community-based support systems are essential to enhance the dignity, security, and well-being of India's ageing population.

Population ageing succeeded by demographic dividend: the state of the Arab World Countries

Asharaf Abdul Salam
Assistant Professor AS Consultants, Thiruvananthapuram, India

The recent developments delineate the Arab World as an entity with population patterns and trends. Although it has undergone slow and delayed demographic transformations, this region has gained momentum and thus rapidly improving in epidemiological and health prospects. Such a momentum has driven the Arab World beyond its historical superiority in living quality and lifestyle. Aims and objectives: This analysis explains the ageing process as an outcome of the demographic dividend of the Arab World in the last three decades. Methodology: The US Census Bureau International Database for 21 Arab countries extracted for four time periods – 1992, 2002, 2012, and 2022. The dataset gives age-wise (five-year age groups) – from 0-4 to 100+, paving the way for ageing analyses from 60-64 years onwards. Analyses were made to explore hexagenerians, septuagenarians, octogenarians, nonagenarians, and centenarians in addition to proportions, percentages, rates, and ratios. Results: The Arab World, as a whole, has a very complex demographic and gerontologic scenario, characterized by homogeneity in many dimensions but diversity in prominence. Demographic dividend, as the current scenario gives way to population ageing, shortly. Even with the ageing of the population, this homogeneity versus diversity is reflected in the region, with many populations recording a faster ageing process. The elderly persons of hexagenerians, septuagenarians, octogenarians, nonagenarians, and centenarians are increasing in numbers and even in proportions. Discussion: While immigration replaces and camouflages the ageing process in the GCC, the political unrest in the Other West Asia and the Arab Maghreb affects the scenario: the Nile Valley African Horn has a resource-thrift as the basis. Moreover, there are countrywide differentials within each geographic sector. Conclusions and recommendations: With all these considerations and the increasing ageing of the aged, the Arab World demands ageing care from many dimensions to develop policies and programs.

Association of Spirituality and Religiosity with Mental well-being of Elderly in India: Evidence form Longitudinal Aging Study in India

Bishwajeet Besra1
1PhD Scholar, International Institute for Population Sciences, bishwajeet.besra@gmail.com

Ageing is a triumph of development. People today live longer than usual due to better nutrition, sanitation, healthcare, education and economic well-being. In 2019, there were 1 billion people aged 60 and up and is projected to be more than double (2.1 billion) by 2050 (UN Population Prospects, 2019). While this ageing phenomenon is global, its rates are unprecedented in developing countries, including India. Elderly (60+ years) constituted about 8.6% (103 million) of total Indian population according to the 2011 census and is projected to rise further to 19.5% (319 million) by 2050. With this rapid growth in elderly population, studying their holistic well-being is of utmost importance. This study uses to LASI wave-1 data to understand the effect of religiosity and spirituality on depressive symptoms among elderly in India. Depressive symptoms were assessed using the Composite International Diagnostic Interview-Short Form (CIDI-SF), a validated instrument for diagnosing probable major depression. Bivariate and multivariate analysis is utilized to understand the association of religiosity, spiritualty and socio-demographic variables on mental health. Urban residents and highly educated individuals are more religious and spiritual than their counterparts. Religious minorities in India are more religious than Hindus. The logistic regression analysis revealed that religiosity and spirituality was associated with lower likelihood of experiencing major depressive symptoms OR~ 0.90 and OR~0.81 respectively, highlighting the mental health benefits of religious practices and community participation. These effects were observed after controlling for key demographic and socio-economic factors, suggesting that religiosity and spirituality operate as independent protective factors against depression in the aging population. This study underscores the significant role of religiosity and spirituality in mitigating major depressive symptoms among older adults in India. Given the growing elderly population in India and the mental health challenges they face, these findings carry substantial implications for public health policy. Incorporating spiritual and religious practices into community-based interventions and mental health programs could provide an accessible and culturally relevant strategy to address depression among older adults.

Keywords: Ageing, spirituality, mental health, religiosity, elder population

Reproductive Burden, Caregiving Responsibilities, and Long-Term Ageing Outcomes: Evidence from India

Roni Sikdar
Research Scholar, International Institute for Population Sciences, Mumbai

Introduction: Caregiving and long-term care are critical components of healthy ageing, yet the gendered dimensions of these roles remain underexplored in India. Women often shoulder a dual responsibility: intensive reproductive labor during their younger years and unpaid caregiving across the life course. These responsibilities, combined with cultural norms and limited institutional care, restrict women's participation in paid work and weaken their long-term economic security. With demographic transitions reducing fertility and shifting households from joint to nuclear systems, women face new caregiving pressures that profoundly shape their later-life wellbeing.

Objectives: This study investigates the relationship between reproductive burden, caregiving responsibilities, and women's economic and health trajectories that influence ageing outcomes. It aims to assess how unpaid caregiving, alongside changing family structures, impacts women's participation in the labor market and access to resources essential for healthy ageing. The analysis also examines the role of cultural norms and social support in reinforcing or alleviating these burdens, highlighting their implications for women's financial independence and quality of life.

Methodology: The study draws on longitudinal data from the India Human Development Survey (IHDS, 2005 and 2011–12) and cross-sectional insights from the National Family Health Survey (NFHS-5, 2019–21). The analysis focuses on women of reproductive age at baseline, tracing their fertility histories, caregiving roles, and employment transitions alongside health and socioeconomic outcomes. Key indicators include number of children ever born, age at first birth, household structure, and caregiving responsibilities. Multivariate regression and fixed-effects models are employed to examine how reproductive and caregiving burdens influence labor market exits and health outcomes, controlling for age, education, caste, religion, and regional factors.

Results: Findings indicate that women with higher reproductive burdens and intensive caregiving responsibilities are less likely to sustain labor force participation and are more vulnerable to economic insecurity as they age. The erosion of joint family systems has intensified caregiving demands in nuclear households, where responsibilities are less shared. Women who exit paid employment to meet caregiving obligations also report poorer health indicators, reflecting the cumulative toll of unpaid labor. In contrast, women with fewer children, supportive household structures, and access to social networks are better able to combine paid work with caregiving, which contributes to improved financial security and healthier ageing outcomes. Limited institutional long-term care services further reinforce women's unpaid caregiving role, creating intergenerational cycles of disadvantage.

Conclusion: This study highlights how reproductive and caregiving burdens across the life course set the stage for women's ageing outcomes in India. Addressing these challenges requires integrating reproductive health, labor market participation, and ageing into a unified policy framework. Expanding access to institutional care, strengthening social safety nets, and promoting gender equitable labor policies can reduce women's disproportionate caregiving responsibilities. Recognizing caregiving as both a social necessity and a gendered burden is essential to ensure women's dignity, financial independence, and healthy ageing in the decades ahead.

Keywords: Reproductive Burden, Caregiving Responsibilities, Ageing Outcomes

Synbiotics: A Key for Healthy Ageing in Menopausal Women

Sulabha Deokar
All India Institute of Medical Sciences

Menopause is a natural physiological transition marked by the decline of estrogen production, which induces a range of metabolic, cardiovascular, psychological, and urogenital changes. This hormonal alteration also disrupts gut microbiota composition, leading to reduced microbial diversity and increased intestinal permeability, inflammation, and metabolic dysregulation. Recent evidence highlights the pivotal role of the gut– microbiota–estrogen axis, or estrobolome, in modulating estrogen metabolism and influencing postmenopausal health outcomes. Restoring gut microbial balance through nutritional and microbial interventions has therefore emerged as a promising strategy to support healthy ageing in menopausal women. Synbiotics are combinations of probiotics and prebiotics that work synergistically to enhance women's health. Probiotic strains such as Lactobacillus acidophilus, Bifidobacterium bifidum, and Saccharomyces boulardii promote intestinal homeostasis, enhance mucosal immunity, and support metabolic and hormonal regulation. Prebiotics, including inulin, fructooligosaccharides (FOS), and galactooligosaccharides (GOS), selectively stimulate the growth of beneficial bacteria. Together, synbiotics improve gut integrity, reduce oxidative stress, and downregulate pro inflammatory cytokines, thereby mitigating chronic inflammation commonly seen after menopause. Synbiotics provide numerous health benefits for menopausal women. They help regulate lipid and glucose metabolism, reducing the risk of cardiovascular disease and type 2 diabetes. Fermentation of prebiotics by probiotic bacteria generates short-chain fatty acids (SCFAs), which enhance calcium absorption and bone mineral density, offering protection against osteoporosis. Furthermore, synbiotics positively influence the gut–brain axis, improving neurotransmitter balance, mood, and cognitive performance. Restoration of vaginal Lactobacillus populations also supports urogenital health by preventing recurrent infections. Overall, these findings reinforce the emerging role of synbiotics as promising, evidence-based, and non-hormonal interventions for improving health outcomes in menopausal women. Common dietary sources include probiotic-rich foods such as yogurt, kefir, and fermented vegetables, along with prebiotic foods like bananas, garlic, onions, asparagus, and whole grains. Regular inclusion of these foods in the diet supports beneficial gut microbes essential for overall menopausal health. Synbiotics offer a comprehensive nutritional approach to promoting healthy ageing in menopausal women. By targeting gut microbiota and hormonal regulation, they contribute to improved metabolic, immune, mental, and urogenital health. Continued clinical research on strain specific effects, optimal dosages, and long-term outcomes will further establish synbiotics as a key component in women's health and geriatric nutrition programs.

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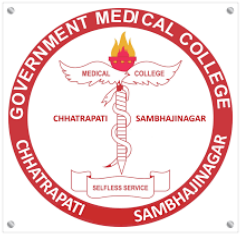


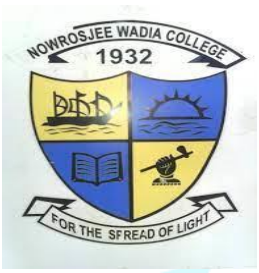

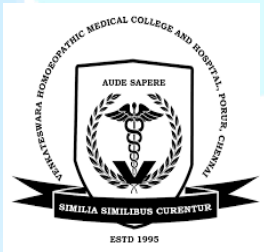


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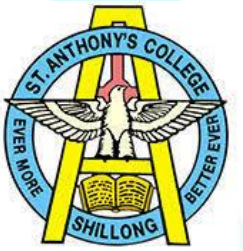


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