

# ANNUAL REPORT



**2023-  
2024**

# Vision, Mission and Objectives

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## VISION

To achieve health, social inclusion and a high quality of life for older persons

## MISSION

- To provide an environment that promotes multidisciplinary research and education on ageing
- To inform policy and practice on ageing in Singapore

## OBJECTIVES

- To undertake multidisciplinary ageing research, with a focus on the social and psychological dimensions, for a holistic understanding of the potentials and challenges of ageing at the individual and population level
- To undertake research which facilitates the development and implementation of evidence-based policies, programmes, services and products for older persons and their caregivers
- To contribute to and develop research capacity for high-quality research on ageing research
- To organise education activities for stakeholders in the academic, policy and practice sectors

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# Message from the Executive Director



One of my greatest pleasures serving as Director of CARE is the chance to draw attention to the accomplishments of a talented and dedicated team in advancing research and education in service to the well-being of older Singaporeans and their families.

The CARE team has been highly productive; with six major projects in the field, the team has been collecting data, conducting data analyses, and producing reports and presentations for policy makers and for academic publications – in 2023, the team published 22 papers in peer-reviewed journals, and were invited to present at 9 local and international conferences. For example, our flagship project in partnership with the Ageing Planning Office, Ministry of Health (MOH), Transitions in Health, Employment, Social Engagement and Inter-Generational Transfer in Singapore (THE SIGNS Study), a longitudinal nation-wide survey of older persons that began in 2016, is now in its third wave. THE SIGNS Study captures the trajectory of physical and psychological health, productive ageing, social engagement and support, volunteerism, lifelong learning, and use of digital technologies by older persons.

In addition to research, CARE's education arm ran research method workshops targeted at academics, policy makers and practitioners in ageing. We ran an expert series in which we brought six international experts to describe the state-of-the-science in ageing research. A major educational highlight was a symposium CARE co-hosted with Tsao Foundation, Empowering Caregivers: From Research to Action, held on 13 March 2024, at The Ngee Ann Kongsi Auditorium, Academia.

The work at CARE produces high quality research evidence for policy and programming for older persons in Singapore. For example, the research emerging from THE SIGNS Study provides an ongoing resource to inform ageing policies in Singapore. Our evaluation studies have resulted in improvements to national programmes at the community level. Our workshops, which train the next generation of researchers, practitioners, and policy makers interested in addressing the challenges of a growing ageing population, continue to be in high demand and receive excellent reviews.

This report describes CARE's efforts that speak to the themes of the 2023 Action Plan for Successful Ageing. The efforts reported here are organized into eight areas in which CARE has notable expertise: Ageing and the Environment, Community-based Health and Social Care Services, Falls Prevention, Family Caregiving, Health Communication, Population Health, Productive Ageing and Social and Psychological Aspects of Ageing. This document highlights specific examples of how CARE's work provides evidence for policy and programming to the Ageing Planning Office at the Ministry of Health.

As important as the CARE team's skill and effort are to the success of our work, we truly enjoy working together. Indeed, CARE received the Best Team Spirit prize at the Duke-NUS Annual Dinner and Dance in 2023. This spirit will be key to the ongoing success of CARE's contribution to successful ageing in Singapore.

**Angelique Chan, PhD**

Executive Director

Centre for Ageing Research and Education

Duke-NUS Medical School

# Advisory Board



**Professor Brenda Yeoh (Chairperson)**

Raffles Professor of Social Sciences,  
National University of Singapore (NUS) and  
Research Leader, Asian Migration Cluster,  
Asia Research Institute (NUS)



**Ms Chan Su Yee (Member)**

Chief Executive Officer,  
NTUC Health Co-operative Limited



**Dr Ding Yew Yoong (Member)**

Senior Consultant, Department of Geriatric  
Medicine, Tan Tock Seng Hospital

Executive Director,  
Geriatric Education & Research Institute



**Mr Lee Kwok Ming (Member)**

Group Director, Ageing Planning Office,  
Ministry of Health



**Adj. A/Professor Tan Boon Yeow  
(Member)**

Chief Executive Officer & Senior Consultant,  
St Luke's Hospital



**Professor Aline Wong (Member)**

Advisor to SR Nathan School of Human  
Development,  
Singapore University of Social Sciences



**Dr Yap Lin Kiat Philip (Member)**

Senior Consultant, Department of Geriatric  
Medicine, Khoo Teck Puat Hospital



**Professor Thomas Coffman  
(Ex-Officio Member)**

Dean, Duke-NUS Medical School

# Staff

as of August 2024



*(Top row, left to right)*

**Mr Tan Kok Yang**, Research Associate  
**Ms Ng Jing Ting**, Research Assistant  
**Ms Nur Diyana Bte Azman**,  
Senior Research Assistant  
**Ms Daphne Lee**, Management Assistant Officer  
**Ms Thulase Thamootharam Pillai**,  
Research Assistant  
**Ms Atiqah Lee**, Research Associate  
**Mr Wong Yunjie**, Research Assistant  
**Ms Sumithra Devi Suppiah**,  
Senior Research Associate  
**Ms Meagan Goh**, Research Assistant  
**Mr Malcom Sujeeth Ravindran**,  
Senior Research Assistant  
**Ms Ha-Linh Quach**, Research Associate  
**Ms Christina Chai**, Research Assistant  
**Ms Catherine Lim**, Research Assistant  
**Ms Demiwyaty**, Assistant Manager  
**Ms Siti Syazwani Bte Mohamed Ariffin**, Executive

*(Bottom row, left to right)*

**Dr Ahn Seoyeon**, Research Fellow  
**Dr Ad Maulod**, Senior Research Fellow  
**Dr Abhijit Visaria**,  
Principal Research Scientist  
**Ms Tan Annie**, Associate Director  
**A/Prof Angelique Chan**, Executive Director  
**A/Prof Rahul Malhotra**, Deputy Director  
and Head of Research  
**Dr Goh Jing Wen**, Research Fellow  
**Dr Arthur Chia**, Senior Research Fellow  
**Dr Jeremy Lim-Soh**, Research Fellow

In absentia:

**Ms Sasha Rouse**, Research Associate  
**Ms Serine Thye**, Research Assistant

# Research Themes

Our multidisciplinary research helps identify demographic, social, psychological, physical, and economic factors that impact life transitions, morbidity, and mortality at older ages.

CARE collects quantitative population-level data on older persons and their caregivers through both cross-sectional and longitudinal community-based surveys, several of which are nationally representative. These data allow us to assess the prevalence, correlates, mediators, and moderators of various health and wellbeing outcomes, and inform policy and practice.

CARE's qualitative research provides a rich understanding of the complexity and diversity of older adulthood by focusing on the contexts and conditions in which people live, work and age, and the ways in which these factors interact and influence later life experiences. We use a variety of methods such as in-depth interviews, focus group discussions, ethnographic observations and photo-voice to capture the social worlds of older persons and their care environments. Our findings foreground the voices of older persons and/or their caregivers and have direct relevance to policy and practice.

Our research addresses eight core themes:



Ageing and the Environment



Health Communication



Community-Based Health and Social Care Services



Population Health



Falls Prevention



Productive Ageing



Family Caregiving



Social and Psychological Aspects of Ageing



## 1 Ageing and the Environment



The environment plays an important role in determining the physical, social, and mental capacities of individuals as they enter and progress through old age as well as in moderating the impact of decline in intrinsic capacity.

At CARE, we examine the diverse ways in which older individuals interact with their environment and how life space affects healthy ageing. Taking a broader view, the environment includes consideration of those factors that shape public understanding about what it means to age, such as discourses of ageing, cultural references, frameworks of ageing, and forces that mediate the processes and perspectives of ageing.

## 2 Community-Based Health & Social Care Services



As Singapore ages, community-based health and social care services are being re-imagined and expanded to reflect the unmet needs and aspirations of current and future older persons in Singapore. We examine the barriers and facilitators of the use of long-term care services in Singapore. We also evaluate models of care for older persons and their caregivers, to provide evidence for policy makers and community partners developing long-term care services in Singapore. Our work provides a deeper understanding of the models of health and social care services (e.g., use of community nurses, and eldercare centers) being delivered in Singapore.

## 3 Falls Prevention



The risk of falls and fall-related problems increases with age, and accounts for serious disability issues among older persons. Falls prevention is an important part of geriatric care and ageing research. Falls can have a wide range of contributing factors such as the health of older persons, the care provided by household members, home environment hazards, sleep quality, and others.

CARE conducts research on the determinants of falls at the population level using national longitudinal survey data. CARE also assesses the fidelity and the efficacy of different modes of fall prevention interventions such as peer-led community-based groups, gamification, and health technology.

## 4 Family Caregiving



Family caregiving for older persons is a complex, multifaceted experience, shaped by cultural, social, and family dynamics as well as government policies and programmes. Family caregivers provide significant long-term care and assistance to their loved ones, and often engage in several aspects of care, including direct physical and emotional care, decision-making, and coordination with or supervision of other caregivers including migrant domestic workers. The caregiving trajectory is seldom straightforward and is often filled with transitions and challenges. The impact of family caregiving is wide-ranging and varied, and caregivers experience both challenges and rewards throughout their caregiving journey.

At CARE, our research examines both the positive and negative experiences of caregiving as well as family dynamics in caregiving. We also study how health and social care services, and policies for family caregivers can be improved to recognize and validate the important role of family caregivers. We collect data on working caregivers and 'sandwiched' caregivers who must balance multiple responsibilities in the home and at the workplace and aim to inform supportive employment policies such as Eldercare Leave and Flexi-Time work.

## 5 Health Communication

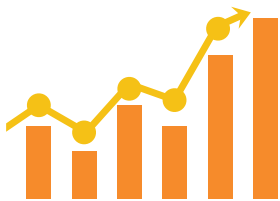


Health communication is an essential component of healthcare services, as good communication between healthcare providers and patients can contribute to successful treatment and patient satisfaction. Health communication also encompasses advocating for the health needs of care recipients across diverse care settings. Effective health communication needs to be delivered flexibly to provide quality care and services, especially within an ageing community. CARE's research includes projects and studies to improve the process of health communication for older persons, in order to maintain and improve the quality of care services and health outcomes.

## 6 Population Health



Population health encompasses the health outcomes of the whole population and the distribution of health outcomes across different population sub-groups. Measures of population health at older ages include health expectancy, i.e., the number of years of remaining life that older persons on average can expect to live in different states of health, prevalence estimates for various morbidities, limitations in activities of daily living, indicators for mental health such as cognition and depressive symptoms, and social health indicators such as social networks and loneliness.



Longitudinal data from our national studies of older persons allows us to track wellbeing indicators over time and identify the determinants of change in these indicators. The data also allows us to identify specific sub-groups of older persons defined by age, sex, ethnicity, socioeconomic status, or health status, who are at greater risk of adverse health and wellbeing outcomes. CARE has linked survey data from some of its national studies with administrative data held by the Ministry of Health, Singapore to further assess population-level segmentation, enable projections of health status and unmet health and social care needs, and examine patterns of healthcare utilization.

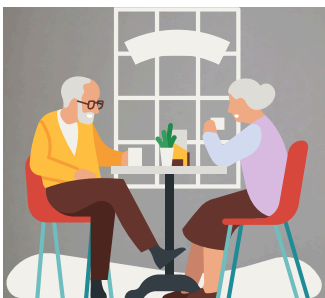
## 7 Productive Ageing



The concept of productive ageing emphasizes the contribution of older persons to their own lives, to their families and communities, and ultimately to society. Productive ageing covers a wide range of activities that older persons can participate in and technologies that they can use to improve their quality of life. Understanding how older persons aspire to be productive and generative and their diverse forms of engagement will inform the development of age-inclusive social policies.

At CARE, our research on productive ageing covers digital technology use, social engagement, generativity, volunteering, and life-long learning among older persons. Our work ties in with older-adult specific initiatives being undertaken in Singapore under the Action Plan for Successful Ageing.

## 8 Social & Psychological Aspects of Ageing




Social factors (for example, social engagement, social relationships, and loneliness) as well as psychological factors (such as mental well-being, resilience and stress) play a critical role in informing how people cope with and adapt to transitions in their later lives. A comprehensive understanding of the social and psychological aspects of ageing is needed to influence better health and well-being outcomes of older persons.

At CARE, we analyze the complex interactions and relationships between these aspects of ageing. Research conducted by CARE helps identify positive factors that benefit physical, cognitive, and mental health of older persons as well as risk factors for morbidity, mortality, and other age-related challenges.

# Research Projects: Ongoing

## **Ageing Well in the Urban Environment: Meeting the Health and Social Needs of Older Adults**



Ageing and the  
Environment


Both Singapore and Germany are ageing rapidly, which is challenging traditional family structures and models of caregiving, stressing health systems and increasing the focus on primary care and highlighting the importance of financial security among older persons. This project was developed under the Berlin University Alliance (BUA) – National University of Singapore (NUS) Strategic Research Partnership. It aims to investigate to what extent four key dimensions of wellbeing at older ages– health, mobility, loneliness and equity– are related to potentially modifiable aspects of older persons’ living environment, specifically health service availability and accessibility, built environment characteristics, and its age friendliness. This project is awarded as a BUA–NUS Global Health Exploration Project under the BUA–NUS Strategic Research Partnership.

## **Assessment of Fall and Fracture Risk: Targeted Assessment and Recruitment of Geriatrics for Effective Fall Prevention Treatments (TARGET)**



Falls Prevention

TARGET is a cohort study led by CARE in collaboration with ETH Zurich, Singapore ETH Centre, Singapore Eye Research Institute, and Bond University, as part of the ‘Future Health Technologies’ research programme. It aims to assess the risk factors of falls and fractures amongst community–dwelling older persons in Singapore, including psychosocial, cognitive and sociodemographic characteristics (measured through a survey questionnaire), and gait quality parameters, (measured during a 5–minute walk, using the ZurichMOVE set of wireless wearable sensors developed by ETH Zurich). The project is funded by the ETH Zurich and the National Research Foundation Singapore.




Family Caregiving,  
Social &  
Psychological  
Aspects of Ageing,  
Population Health,  
Productive Ageing

## **Grandparenting and Caregiving Exchanges in Sandwiched Families (GRACES)**

Sandwiched families, or families supporting both grandparents and grandchildren, may be involved in intergenerational exchanges such as grandparenting and caregiving to grandparents, which have important implications for family formation and ageing-in-place policies in Singapore. The study will interview up to 600 Singaporean grandparents, aged 60 years and older, on their past, present and potential intergenerational exchanges, including instrumental, socioemotional and financial exchanges. Quantitative methods will be applied to describe the typologies of sandwiched families, and investigate their patterns of exchanges, leading to policy insights for family formation and ageing in place. This project is funded by the Ministry of Social and Family Development.


## **A Qualitative Study to Understand and Evaluate the ABCs of the Active Ageing Centre (AAC) Service Model**



Community-Based  
Health and Social  
Care Services

Under the Age Well SG national programme, active ageing centres (AACs) will evolve to better support older persons to age actively, stay socially connected, and be cared for within their communities. Improvements to the operating model of AACs will seek to enhance accessibility and convenience to older persons, improve the range and quality of programmes and increase collaboration with community partners and healthcare providers to bring activities and services into the community, nearer to older persons. The objective of this study is to (i) understand the context and mechanisms of implementing the (new) AAC model, (ii) evaluate its effectiveness, and (iii) co-develop a practical toolkit to help individual centres implement the model and achieve Age Well SG objectives. This project is funded by the Agency for Integrated Care.


## **The Qualitative Insights into Caregiving Transitions (Quali-T) Study**



Family Caregiving,  
Community-Based  
Health and Social  
Care Services

Quali-T is a longitudinal qualitative study that follows 40 caregivers across 4 different archetypes (Balanced, Satisfied, Dissatisfied, Intensive) over a 12-month period. In-depth interviews were conducted at Baseline (Wave 1) and followed-up a year later (Wave 2). At Wave 1, the study provided a nuanced understanding of caregiving experiences, including challenges and coping strategies, and identified key levers that amplified positive caregiving experiences. At Wave 2, the study focused on changes that occurred in the past year and explored the context and mechanisms of change. Data analysis of both Waves 1 and 2 show that caregivers who are well-resourced and supported by the family and community (e.g. balanced and satisfied) are better able to cope and adapt to stressors and have the capacity to mitigate the risk of burnout more effectively. In contrast, caregiving stressors are further intensified for caregivers who are resource-deprived and have limited family, social and community support (e.g. intensive and dissatisfied). Key findings have been shared with our collaborator, Tsao Foundation, who is developing appropriate interventions that can enhance positive caregiving aspects, tailored to different caregiver profiles. The project is funded by Temasek Foundation.

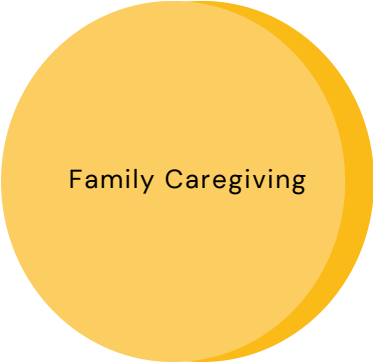
## **Transitions in Health, Employment, Social Engagement and Intergenerational Transfers in Singapore Study (THE SIGNS Study) - III and IV**



Population Health,  
Social &  
Psychological  
Aspects of  
Ageing,  
Productive Ageing

THE SIGNS Study - III and IV are the continuation as well as expansion of a nationally representative longitudinal study on the physical, mental and social health and wellbeing of older Singapore citizens and permanent residents aged 60 years and older. Being conducted over 2023-2025, THE SIGNS Study - III is following up previous participants from the first two waves of THE SIGNS Study as well as recruiting a new representative cross-section of older Singaporeans aged 60 and older. THE SIGNS Study - III and - IV will contribute data to assessing developments following the 2023 Action Plan for Successful Ageing, which has a focus on Care, Contribution, and Connectedness. The first two waves of THE SIGNS Study were conducted in 2016-2017 and 2019, while the fourth wave is planned for 2027-2028. The project is funded by the Ageing Planning Office, Ministry of Health.

# Research Projects: Completed



## Family Caregiving

### Caregiving Transitions Among Family Caregivers of Elderly Singaporeans (TraCE)

This project was a longitudinal study of dyads of older persons and their family caregivers in Singapore. It described the longitudinal patterns of health, work and caregiving-related outcomes among family caregivers, and identified factors that predict or affect these patterns. Other findings included an estimation of the duration and cost of caregiving time, a better understanding of how caregiving tasks are shared among multiple caregivers, and insights into the impact of positive caregiving experiences on caregivers' grief in bereavement. The project tapped on the National Medical Research Council – Health Services Research Grant.



## Social & Psychological Aspects of Ageing

### Care Needs of Middle-and Upper-Income Seniors (CaMUS)

This study sought to understand the care needs of middle to higher-income older persons to age-in-place or age well in Singapore. It investigated their met and unmet needs; described their ageing aspirations; understood how those needs have been managed and identified areas for improvement to address and/or better manage those needs to support ageing-in-place. The findings show that respect and dignity, staying physically and mentally healthy, and maintaining independence are important but also challenging aspects of ageing well. Addressing social support, safety, health, and emotional care needs are key to enabling quality of life and supporting independence. Ageing-in-place considerations include right-sitting and right-sizing decisions about housing; good quality care and wellness facilities as well as services; having choices and access to these facilities and services, and a community that could provide instrumental, social, and emotional support. All these suggest that there are market opportunities for new product and service offerings for older persons who have the means and resources but are able to meet their needs and aspirations to age well. The project was funded by the Ministry of Health.



## **The Elderly Life Activity-Space (EASE) Project: The Environmental, Health and Social Factors Determining Seniors' Life Spaces in the Community**

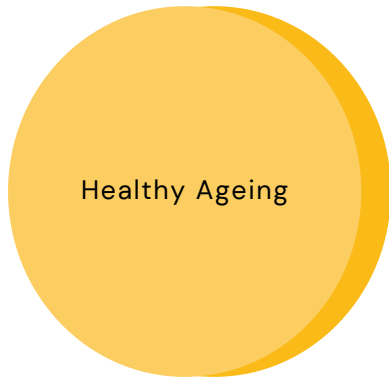
Life space analysis represents the interface between the environment and health/social factors, whereby diminishing life spaces predict poor health outcomes and quality of life. CARE conducted in-depth and walk-along interviews with 60 older persons and highlighted four key dimensions of frailty (e.g. physical, cognitive, social and economic) and the ways these interact with environmental and social factors that promote or restrict older persons' mobility in the community. Since walking is the most preferred mode of travel among older Singaporeans, this study highlighted the importance of having amenities, services, and social activities within "walking distance" (<30 minutes) in the neighbourhood. Walking distance is more than just objective travel distance- perceived walkable distance assumes familiarity, ease in movement, convenient access and navigation within the neighbourhood. Study findings also highlighted how perceived walkable distance correlates with weekly walking duration, which contributes to active ageing. Walking patterns are determined by a complex suite of built environment, health, and social factors. Understanding these factors can inform the suitability of locating key amenities and services in the neighbourhood to support mobility and ageing-in-the-community. This project was funded by the Ministry of National Development - National Research Foundation: Cities of Tomorrow Research and Development Programme.



Ageing and the  
Environment

## **Towards Personalization: Identifying Life-History Patterns of Loneliness as the Basis for Effective Early Interventions**

The study drew upon life history and photo-elicitation interviews with older persons to unpack the complexities of loneliness in later life, particularly considering how differences in life trajectories between participants have contributed to and affect their subjective experience of loneliness. Experiences of loneliness were catalyzed by disruptions in identity due to role loss, a lack for self-mastery to seek meaningful engagement, and discomfort in being perceived as vulnerable during social interactions. Particularly in Singapore, role loss triggers feelings of being unneeded which further exacerbate loneliness. Although some older persons were able to adopt a variety of strategies to manage loneliness, including repurposing of generative roles in the family, and establishing routines that validate personal goals, older persons who experienced compounded losses (e.g. health, loss of kin) found it difficult to cope with their loneliness. Without a supportive environment, older persons are unable to negotiate role transitions and begin to feel unneeded and thereby experience loneliness; therefore, environments must support older persons' need to be needed to support their ability to pursue meaningful and purposeful endeavors in later life. This project was funded by the Ministry of Health - National Research Foundation.



# Publications

CARE published 22 peer-reviewed papers in scientific journals.

1. A'Azman, S., Sung, P., & **Malhotra, R.** (2023). Engagement in Physical Activity and Quality of Life Among Informal Caregivers of Older Adults. *Journal of Aging and Health*. Published online November 7, 2023. <https://doi.org/10.1177/08982643231209086>
2. Ang, S., & **Malhotra, R.** (2024). How Helping You Helps Me: A Longitudinal Analysis of Volunteering and Pathways to Quality of Life Among Older Adults in Singapore. Published online February 14, 2024. *The Journals of Gerontology: Series B*, 79(5). <https://doi.org/10.1093/geronb/gbae013>
3. **Chan, A., Malhotra, R.**: Equal contributor co-author in the 'Country and Regional Data' group of NCD Risk Factor Collaboration (2024). Worldwide trends in underweight and obesity from 1990 to 2022: a pooled analysis of 3663 population-representative studies with 222 million children, adolescents, and adults. *The Lancet*, 403(10431), 1027-1050. Published online February 29, 2024. [https://doi.org/10.1016/S0140-6736\(23\)02750-2](https://doi.org/10.1016/S0140-6736(23)02750-2)
4. Fenwick, E. K., Gupta, P., **Chan, A. W. D.**, et al. (2023). The Impact of Hearing Impairment on Health Indicators in a Multiethnic Population of Older Adults in Singapore. *Innovation in Aging*, 7(8). Published online September 16, 2023. <https://doi.org/10.1093/geroni/igad101>
5. Kim, D., & **Lim-Soh, J.** (2024). Between-sibling inequality in inheritances: Intergenerational support and patrilineality in South Korea. *Journal of Marriage and Family*, 86(1), 30-48. Published online September 26, 2023. <https://doi.org/10.1111/jomf.12944>
6. Kiuchi, S., Cooray, U., Aida, J., Osaka, K., **Chan, A., Malhotra, R.**, & Peres, M. A. (2023). Effect of Tooth Loss on Cognitive Function among Older Adults in Singapore. *Journal of Dental Research*, 102(8), 871-878. Published online June 6, 2023. <https://doi.org/10.1177/00220345231172109>
7. Koh, V., Matchar, D. B., & **Chan, A.** (2023). Physical strength and mental health mediate the association between pain and falls (recurrent and/or injurious) among community-dwelling older adults in Singapore. *Archives of Gerontology and Geriatrics*, 112, 105015. Published online April 3, 2023. <https://doi.org/10.1016/j.archger.2023.105015>
8. Lee, J. M.-L., Sung, P., **Tan, K. Y.**, et al. (2024). Trajectories of adherence to a falls prevention exercise intervention in Singapore: A mixed methods study. *Aging and Health Research*, 4(1), 100181. Published online February 7, 2024. <https://doi.org/10.1016/j.ahr.2024.100181>

# Publications

9. Lim, S. H., **Malhotra, R.**, Østbye, T., et al. (2023). Assessing the reliability and feasibility of frailty screening tools among hospitalised older adults. *Proceedings of Singapore Healthcare*, 32, 20101058231215167. Published online November 9, 2023. <https://doi.org/10.1177/20101058231215167>
10. **Lim-Soh, J.**, Ang, S., & **Malhotra, R.** (2023). Trajectories of Informal and Formal Social Participation After Retirement. *Work, Aging and Retirement*. Published online July 26, 2023. <https://doi.org/10.1093/workar/waad022>
11. **Lim-Soh, J.**, Kim, D., & Kim, K. (2024). Within-Family Differences in Intergenerational Contact: The Role of Gender Norms in a Patrilineal Society. *Research on Aging*, 46(3-4), 258-270. Published online January 5, 2024. <https://doi.org/10.1177/01640275231225379>
12. **Lim-Soh, J.**, Tan, P. L., & Mathew, N. M. (2023). Too close for comfort? Impact of pandemic residential environment on women's life satisfaction and spousal relationships. *Housing Studies*, 1-24. Published online October 25, 2023. <https://doi.org/10.1080/02673037.2023.2272840>
13. Malhotra, C., Chaudhry, I., Shah, S. U., Østbye, T., & **Malhotra, R.** (2024). Trajectories of negative and positive experiences of caregiving for older adults with severe dementia: application of group-based multi-trajectory modelling. *BMC Geriatrics*, 24(1), 172. Published online February 19, 2024. <https://doi.org/10.1186/s12877-024-04777-w>
14. Malhotra, C., Huynh, V. A., Østbye, T., & **Malhotra, R.** (2024). Caregivers' Absenteeism and Its Association With Health Shocks and Functional Impairment Among Persons With Severe Dementia. *Journal of Aging & Social Policy*, 36(4), 603-620. Published in print 03 July 2024. <https://doi.org/10.1080/08959420.2023.2196232>
15. **Malhotra, R.**, **Suppiah, S. D.**, Tan, Y. W., et al. (2023). Older adult patient preferences for the content and format of prescription medication labels – A best-worst scaling and discrete choice experiment study. *Research in Social and Administrative Pharmacy*, 19(11), 1455-1464. Published online July 20, 2023. <https://doi.org/10.1016/j.sapharm.2023.07.009>
16. **Maulod, A.**, Lee, J. M. L., Lu, S. Y., Cheng, G. H. L., **Chan, A.**, Thang, L. L., & **Malhotra, R.** (2023). Mismatch Between Older Persons' Generative Concern and Internalized Generative Capacities: Leveraging on Generative Ambivalence to Enhance Intergenerational Cohesion. *Journal of Aging & Social Policy*, 1-25. Published online December 27, 2023. <https://doi.org/10.1080/08959420.2023.2297606>

# Publications

17. Qin, V. M., **Visaria, A.**, & **Malhotra, R.** (2023). Impact of a COVID-19-Related Lockdown on the Experience of Informal Caregiving in Singapore. *Gerontology*, 70(1), 102-114. Published online October 21, 2023. <https://doi.org/10.1159/000534723>
18. Sung, P., **Chan, A.**, & **Lim-Soh, J.** (2024). Feeling Alone Together: Loneliness in Older Adults with Cognitive Impairment and Their Family Caregivers with Low Mastery. *Dementia and Geriatric Cognitive Disorders*, 53(2), 66-73. Published online February 14, 2024. <https://doi.org/10.1159/000536644>
19. Sung, P., **Lim-Soh, J.**, & **Chan, A.** (2023). Health Profiles among Community-Dwelling Older Adults with Cognitive Impairment and Their Implications for Caregiving Experience. *Dementia and Geriatric Cognitive Disorders*, 52(3), 169-176. Published online April 13, 2023. <https://doi.org/10.1159/000530606>
20. Sung, P., **Lim-Soh, J.**, & **Malhotra, R.** (2024). Informal Caregiver Social Network Types and Mental Health: The Mediating Role of Psychological Resilience. *Journal of Aging & Social Policy*, 36(4), 693-708. Published online February 29, 2024. <https://doi.org/10.1080/08959420.2024.2319535>
21. Zhu, G., **Malhotra, R.**, Xiong, S., et al. (2023). Community Efficacy for Non-Communicable Disease Management and Medication Adherence: The Sequential Mediating Role of Self-Efficacy and Depressive Symptoms. *Patient Preference Adherence*, 17, 3421-3433. Published online December 14, 2023. <https://doi.org/10.2147/ppa.S436419>
22. Zhu, G., Xiong, S., **Malhotra, R.**, et al. (2024). Individual perceptions of community efficacy for non-communicable disease management in twelve communities in China: cross-sectional and longitudinal analyses. *Public Health*, 226, 207-214. Published online December 11, 2023. <https://doi.org/10.1016/j.puhe.2023.11.008>

# Research Briefs

Research briefs at CARE present policy or practice-oriented summaries of research undertaken by CARE.

## **Research Brief Series 17:**

Empowering Older Persons:  
Health Coaching in the  
Community

*Sasha Rouse, Arthur Chia,  
Ad Maulod*

## **Research Brief Series 18:**

Implementing Intergenerational  
Befriending Programmes In The  
Community: More Than Just  
Putting The Young And Old  
Together

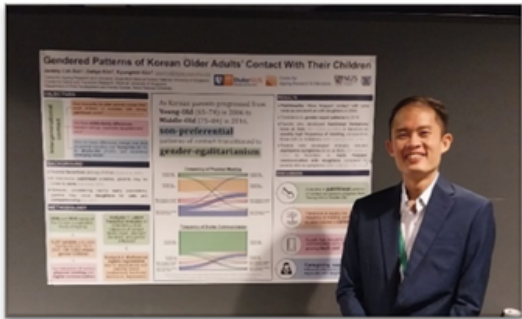

*Ad Maulod, Wong Yunjie,  
Sasha Rouse*

## **Research Brief Series 19:**

Ageing Well in Singapore: Needs of  
Middle – and – Upper  
Income Senior (CaMUS)


*Arthur Chia, Ad Maulod*

# Conference Presentations

S/N	Name of Conference	Date and venue	Participants from CARE
1.	<p>Population Association of America 2023 Annual Meeting</p> 	<p>12-15 April 2023 New Orleans, US</p>	<p>Jeremy Lim-Soh</p>
2.	<p>Population Association of Singapore 2023 Annual Meeting</p> 	<p>11-12 May 2023 Singapore</p>	<p>Abhijit Visaria Jeremy Lim-Soh Ha-Linh Quach Pildoo Sung</p>
3.	<p>34<sup>th</sup> REVES Meeting (by Network on Health Expectancy and the Disability Process)</p>	<p>24-26 May 2023 Padova, Italy</p>	<p>Abhijit Visaria Rahul Malhotra</p>

S/N	Name of Conference	Date and venue	Participants from CARE
4.	<p>8<sup>th</sup> Singapore Palliative Care Conference (by Singapore Hospice Council)</p> 	1-2 July 2023 Singapore	Nur Diyana Bte Azman Ha-Linh Quach
5.	<p>32<sup>nd</sup> Singapore Pharmacy Congress (by Pharmaceutical Society Of Singapore)</p>	9-10 September 2023 Singapore	Sumithra Devi Suppiah
6.	<p>81<sup>st</sup> FIP World Congress of Pharmacy and Pharmaceutical Sciences (by The International Pharmaceutical Federation)</p> 	24-28 September 2023 Brisbane, Australia	Sumithra Devi Suppiah



S/N	Name of Conference	Date and venue	Participants from CARE
7.	<p>Workshop on Healthy Ageing and Adult Caregiving (by London School of Economics and University of Pennsylvania)</p>	<p>25-26 October 2023 London, UK</p>	<p>Jeremy Lim-Soh (Virtual Attendee)</p>
8.	<p>Gerontological Society of America 2023 Annual Scientific Meeting</p> 	<p>8-11 November 2023 Florida, US</p>	<p>Ad Maulod Rahul Malhotra Arthur Chia</p>
9.	<p>National Education Services Bereavement Annual Conference 2023 (by National Health Service Education for Scotland)</p>	<p>23 November 2023 Scotland, UK</p>	<p>Ha-Linh Quach (Virtual Attendee)</p>

# In the News

## Op-Eds

S/N	Title, Author(s)	Media Outlet	Date
1.	<u>Old and lonely after a successful career, and even when living with family</u>  <i>By: Angelique Chan, Ad Maulod</i>	The Straits Times	16 May 2023
2.	<u>Food and ageing: A hunger for pleasure</u>  <i>By: Ad Maulod</i>	The Straits Times	14 June 2023
3.	<u>How to care for the elderly without their caregivers burning out</u>  <i>By: Arthur Chia</i>	The Straits Times	10 July 2023
4.	<u>Loneliness is an overlooked public health challenge in ageing Singapore</u>  <i>By: Angelique Chan, Rahul Malhotra, Ad Maulod</i>	Channel News Asia	11 July 2023
5.	<u>Live long and prosper? A super-aged Singapore society does not have to be a sad one</u>  <i>By: Rahul Malhotra, Abhijit Visaria</i>	The Straits Times	26 August 2023
6.	<u>More support may be needed for Singapore seniors who can no longer work</u>  <i>By: Rahul Malhotra, Jeremy Lim-Soh</i>	Channel News Asia	27 August 2023

## Op-Eds

S/N	Title, Author(s)	Media Outlet	Date
7.	<u>Ageing Singapore offers a blueprint for action</u> <i>By: Rahul Malhotra</i>	360info	1 October 2023
8.	<u>Older Adult Informal Caregivers</u> <i>By: Rahul Malhotra</i>	Population Association of Singapore	30 November 2023

## Media Coverage

S/N	Title	Media Outlet	Date
1.	<u>Old and lonely after a successful career, and even when living with family.</u>	NUS Faculty of Arts and Social Sciences	24 May 2023
2.	<u>Significant share of caregivers to elderly face health woes themselves: Duke-NUS study</u>	The Straits Times	10 June 2023
3.	<u>Daily Cuts - The dangers of being lonely.</u>	Channel News Asia 938 Asia First	12 July 2023
4.	<u>看护者的人生 谁来看护? (The life of a caregiver - Who will take care of it?)</u>	Lianhe Zaobao	26 July 2023
5.	<u>Singaporeans Turn Empty Spaces in Public Housing into Libraries, Gardens</u>	Bloomberg	28 July 2023

S/N	Title	Media Outlet	Date
6.	<u>New nationwide study to shed light on health, social and mental well-being of seniors</u> 本地将展开新一轮调查 助制定更有效护老政策 (“New round of surveys to develop more effective policies for elderly care”).	The Straits Times  Also, on Lianhe Zaobao	31 July 2023
7.	<u>Solitary seniors – you are not alone, help is near</u>	The Straits Times	1 August 2023
8.	<u>Improved fittings and facilities for elderly welcome, but other residents need to be accommodated too: Experts</u>	Channel News Asia	21 August 2023
9.	<u>Do you frequently take the wrong medication? Nation’s weak medical literacy</u>	Channel 8 Morning Express	27 November 2023
10.	<u>The problem with being alone: Social isolation, loneliness biggest enemy for seniors in S’pore</u>	The Straits Times	2 December 2023
11.	<u>KampungKakis buddy system pairing elderly with volunteers living close by attains charity status</u>	The Straits Times	2 January 2024
12.	<u>Deciphering the signals from the ageing brain</u>	Duke-NUS MEDICUS	7 February 2024
13.	<u>Loneliness among Older Adults in Singapore</u>	Public Mental Health	6 February 2024

S/N	Title	Media Outlet	Date
14.	<u>The 100-year-old era: the way of health for calligraphers and painters</u>	Channel 8	27 February 2024
15.	<u>Caregivers face not only burden, but reward and benefits in their journey: Study.</u>  <u>Pengasuh bukan saja pikul beban, tetapi raih ganjaran, manfaat: Kajian (Caregivers face not only burden, but reward and benefits in their journey: Study).</u>	Channel News Asia  Also, on Berita Mediacorp	14 March 2024
16.	<u>调查：看护者心理正面要素太低 或影响健康 (Caregiver stress)</u>	Lianhe Zaobao	14 March 2024
17.	<u>研究：更多妇女在冠病疫情期间改变生育计划 (A study on how Singaporean women's childbearing plans were affected by the Zika &amp; COVID-19 outbreaks)</u>	Lianhe Zaobao	24 March 2024

# Education Programmes

CARE organised one conference, six research methods workshops, six expert programmes, one industry outreach session and one roundtable.

## Conference

### Empowering our Caregivers: From Research to Action

The symposium was co-organised by CARE and Tsao Foundation to share key insights from the Qualitative Insights into Caregiving Transitions (Quali-T) study. The study aims to better support caregivers by understanding their different needs, which can help the sector to come up with more targeted assistance. The symposium brought together about 200 experts from the practice, research and policy sectors.



# Conference

Empowering our Caregivers: From Research to Action



## Research Methods Workshops

S/N	Title	Date	Trainer (s)
1.	Latent Class Analysis	27 April 2023	Dr Pildoo Sung
2.	Designing and Conducting Focus Group Discussions in Qualitative Research: Theory and Practice	12–13 July 2023	Dr Arthur Chia and Ms Atiqah Lee
3.	Causal Inference in Social Research	3 August 2023	Dr Abhijit Visaria
4.	Data Visualisaton	7 September 2023	Dr Jeremy Lim-Soh
5.	Designing and Conducting Qualitative Interviews for Health-Related Research Methods	31 January – 1 February 2024	Dr Ad Maulod and Ms Sasha Rouse
6.	Data Visualisation	21 February 2024	Dr Jeremy Lim-Soh



## Expert Programmes

S/N	Title	Date	Presenter, Affiliation
1.	End-of-life Planning Among Middle Aged and Older Adults without Children	11 October 2023	Dr Bussarawan Puk Teerawichitchainan, National University of Singapore
2.	Long-Term Care Around the World	9 November 2023	Professor Kathleen McGarry, University of California
3.	Adult Children's Marital Timing and Their Financial Support to Ageing Parents: Variation Across Gender, Race and Ethnicity	16 November 2023	Dr Anna Marie Hammersmith, Grand Valley State University and Dr Sherry Zhang, Arizona State University
4.	End-of-Life and Palliative Care Policy Recommendations for the Growing Global Population of Unpartnered and Childless Older Adults	12 January 2024	Dr Christine A. Mair, University of Maryland Baltimore County
5.	Frailty, Intrinsic Capacity, and Functional Ability: Linkages and Implications for Healthy Ageing in Singapore	19 January 2024	Associate Professor Ding Yew Yoong, Geriatric Education & Research Institute
6.	Developing Responsive Physical Environment for People with Dementia in Long-Term Care Settings	28 February 2024	Professor Habib Chaudhury, Simon Fraser University

## Industry Outreach

On April 13, 2023, an industry outreach session was organized with the Agency for Integrated Care (AIC), during which Dr Ad Maulod presented valuable insights into the needs of older persons and ways to enhance and support current Active Ageing Centre (AAC) programs. Drawing from previous qualitative research findings, Dr Maulod's presentation highlighted key areas such as:

- Client archetypes
- Met and unmet needs of older persons, particularly those residing in public rental flats
- Challenges faced by service providers in establishing AACs

The participants from AIC engaged in a robust discussion on the importance of translating the shared insights from CARE into practice and policy. They emphasized the need for future client care designs to be client-centric while adhering to existing policies. Moreover, it was noted that future policymaking should ideally be informed by evidence-based research. One participant proposed a potential model for the next phase of AAC development, which includes consulting older persons on care model development and refinement.

## Roundtable

### Implementing Community-Based Falls Prevention Programmes

Building on the work done from previous roundtables, the Implementing Community-Based Falls Prevention Programmes Roundtable 2024 was organised on 1 Feb 2024 to engage a group of multi-disciplinary stakeholders well-versed in falls prevention, to critique our current understanding of implementing falls prevention programmes and develop strategies to ensure effective implementation of such programmes. A total of 31 representatives from various sectors including the government, hospitals, and community organisations participated in this meeting.

A participatory problem-solving approach, Group Model Building, was used to elicit insights from stakeholders. This led to the development of a comprehensive conceptual model describing the demand and supply of community-based falls prevention programmes. Stakeholders also prioritised future action steps for the effective implementation and scaling up of community-based falls prevention programmes in Singapore. Insights from this roundtable inform qualitative and quantitative policy analyses, to advocate for a systematic approach to implementing community-based falls prevention programmes in the near future.

This roundtable was led by Ms Vanessa Koh (PhD Candidate in the Programme in Health Services & Systems Research (HSSR)) and co-facilitated by Dr Abhijit Visaria, Mr Lai Wei Xuan (PhD Candidate in HSSR), Professor David Matchar (Inaugural Director of the Programme in HSSR) and Associate Professor Angelique Chan. Dr Goh Jing Wen assisted in documenting the insights.



# Networks

## National

### Ageing Research Network (ARN)

ARN was formed in February 2016 to nurture collaborations between the different ageing research centres in Singapore. Other than CARE at Duke-NUS, members include the Ageing Research Institute for Society and Education, Nanyang Technological University (ARISE), Centre for Healthy Longevity, National University Health System (CHL), Centre for Productive Longevity, National University of Singapore (CPL), Centre for Research on Ageing and the Environment, National University of Singapore (CARE, NUS), Centre for Research on Successful Ageing, Singapore Management University (ROSA), Geriatric Education and Research Institute (GERI), Gerontology Research Programme, National University of Singapore (GRP), Institute of Geriatrics and Active Ageing, Tan Tock Seng Hospital (IGA), Next Age Institute, National University of Singapore (NAI) and Research Centre for Excellence in Active Living for the Elderly, Nanyang Technological University (LILY). CARE hosted a meeting on 2 May 2023, with the objective of reviving the group's commitment to working together to advance the ageing research agenda in Singapore. The Ageing Population Office, Ministry of Health, was also invited to understand the work of each network member, which would help structure their future grant calls.

## International

### Association of Pacific Rim Universities (APRU) Ageing Hub

CARE is a member of the APRU Research Hub on Population Ageing formed to deepen the collaboration among junior and senior researchers on Aging in the Asia-Pacific. Launched in 2015, the objective of the hub is to share best practices and showcase research, engage with governments and industry, and to stimulate new and relevant research collaborations. CARE has presented one of its community evaluation projects at the Association of Pacific Rim Universities (APRU) 2020 Global Health Conference (October). Associate Professor Angelique Chan was the Population Ageing Programme Director and Chair of the Population Aging Scientific Committee from 2021-2023. APRU is currently re-structuring its programmes and a new ageing network is expected to be established in 2025.

### International Alliance of Research Universities (IARU) Ageing, Longevity and Health Initiative

CARE was invited to join the IARU Ageing, Longevity and Health Initiative in 2018. The group examines issues of ageing, longevity and health with a multidisciplinary approach. The initiative encompasses biological, psycho-social, cultural and public health policy issues arising from changing human population age demographics and the global human longevity transition. NUS is represented by Associate Professor Angelique Chan on the Steering Committee of IARU-Ageing, Longevity, and Health Stream where she was the chairperson from 2021 to 2023.

# Internships

## Programme Overview

The CARE Internship Program is designed to provide both diploma-level and undergraduate interns with meaningful, hands-on experience that bridges the gap between academic learning and professional work environments. Our programme aims to develop the next generation of researchers by offering opportunities to work on ongoing CARE projects, develop essential skills, and gain valuable industry insights. By engaging in real-world research that informs policy decisions, interns will gain an understanding of how their contributions can impact societal issues and drive change. This experience not only enhances their academic and professional development but also provides them with a deeper appreciation of the role of evidence-based research in shaping effective policies.

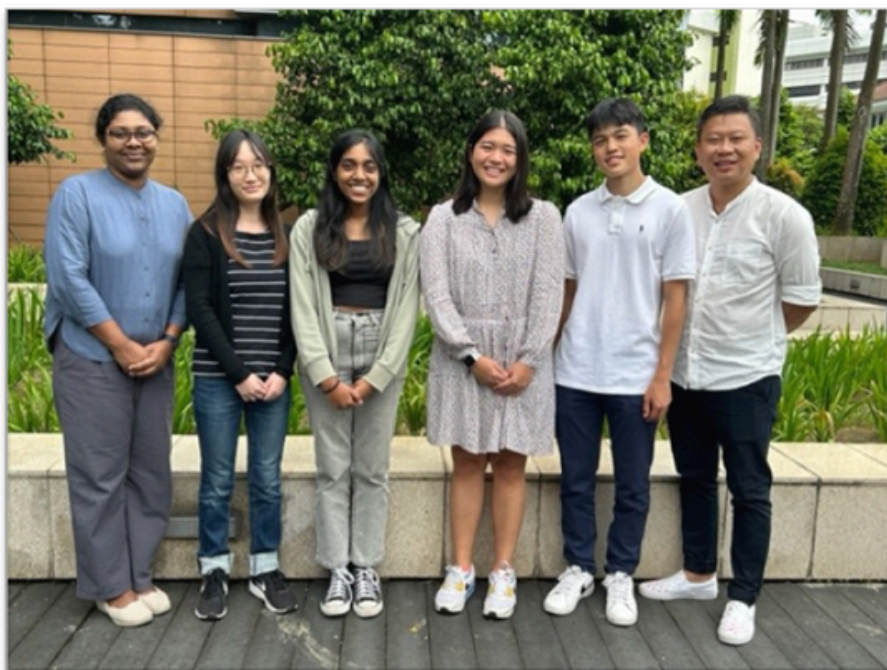
## Interns

CARE hosted five interns from prestigious local institutions, namely the National University of Singapore (NUS), Nanyang Technological University (NTU), Singapore Management University (SMU), and Temasek Polytechnic (TP), along with one intern from Winchester College (WC) from May 2023 to February 2024. These interns were integral to various ongoing projects at CARE. The interns also supported the educational and communication initiatives at CARE.

CARE values the contributions of these interns and remains committed to nurturing future researchers and professionals through meaningful internship opportunities that align with CARE's mission and values.

## Professional Development

Diploma-level interns at CARE are paired with dedicated mentors for extra handholding to foster leadership skills through personalised support, constructive dialogue, networking opportunities, and the development of interpersonal communication abilities. This mentorship framework aims to cultivate both personal and professional growth among interns. Moving forward, we plan to extend this mentorship model to all interns in future rounds, ensuring comprehensive support for their development.



From left to right:  
Sumithra Devi Suppiah (CARE Supervisor), Malorie Yoong (Intern, NUS), Nithiya Manikavasagam (Intern, NTU), Natalia Mai (Intern, SMU), Euan Woodworth (Intern, WC), Tan Kok Yang (CARE Supervisor)



From left to right:  
Nur Diyana Azman (CARE Supervisor), Sumithra Devi Suppiah (CARE Supervisor), Tan Kok Yang (CARE Supervisor), Wong Yunjie (CARE Intern's Mentor), Keith Tay (Intern, TP), Nur Mohd Azli (Intern, TP)



## Hear From Our Interns...

"Being an intern at CARE brings many opportunities to unravel the research industry with a supportive network. CARE is indeed where they care for your learning and well-being." - Keith Tay (Intern, TP)



"Working in CARE was truly an enriching experience, which allowed me to satisfy my curiosity about ageing research!" - Nur Adrianna Mohd Azli (Intern, TP)

# Staff Retreat

CARE staff retreat, held on 1 March 2024, at Park Royal Collection Pickering Hotel started off with an engaging ice breaker game - "Fun Fact about Yourself" which got everyone on their toes for the next activity. During the next activity, colleagues participated in a "Future Envisioning" session, conducted by Senior Research Fellows Dr Ad Maulod and Dr Arthur Chia. The session was crucial to help CARE plan the research direction for the next 5 years. The team enjoyed a scrumptious buffet lunch at the hotel restaurant before embarking on the final activity of the day - "Puzzle Hunt" at Fort Siloso.





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Ageing Research & Education

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