Aged Care in Context and Across Disciplines

Aged Care in Context and Across Disciplines:

China and Nordic Regions in Focus

Edited by

Jing Wu and Chunrong Liu

Cambridge Scholars Publishing

Aged Care in Context and Across Disciplines:
China and Nordic Regions in Focus

Edited by Jing Wu and Chunrong Liu

This book first published 2024

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-0364-1423-8
ISBN (Ebook): 978-1-0364-1424-5

TABLE OF CONTENTS

Foreword by Stein Kuhnle vii

Foreword by Yijia Jing ix

Acknowledgments xi

Introduction xiii
Setting the Stage: Aged Care Experiences in China and the Nordic Regions
Jing Wu and Chunrong Liu

Chapter 1 1
In Pursuit of an Integrated Model of Care: Action on the UN Decade of Healthy Aging
Ninie Yan Wang

Chapter 2 16
What is the Future of Institutional Aged Care in China? A Systematic Review of the Attitudes of Chinese People toward Institutional Aged Care
Wenyu Li, Catherine Elliott O'Dare and Catherine Conlon

Chapter 3 33
Organizing and Leading Future Eldercare: Value-Integrated Through Distributed Leadership
Lotta Dellve and Maria Wolmesjö

Chapter 4 49
Unfolding Distributed Leadership: A Swedish Case Study of Influence and Responsibility in an Individualistic, Feminine Culture Context of Small Power Distance
Monica Andersson Bäck

Chapter 5 63
Organizing Community Home-Based Eldercare in Shanghai
Chunrong Liu

Chapter 6 74
The Shifting Landscape of Nordic Aged Care: De-universalization, Re-Familialism, Market Forces, and the COVID-19 Impact
Jing Wu

Chapter 7 85
Monitoring the Well-Being of Older People by Energy Usage Patterns: Systematic Review of the Literature and Evidence Synthesis
Sophie Korenhof, Yuan Fang, Jie Luo, Tischa van der Cammen, Hein Raat and Amy van Grieken

Chapter 8 105
Reshaping Postoperative Rehabilitation: A Case Study on Digital Remote Care for Thoracic Surgery Patients in China
Hong Li and Dongfang Tang

Chapter 9 126
AI in Aging-Related Digital Healthcare: An Insight into Lung Diseases
Xiaodan Xing, Yingying Fang and Guang Yang

Chapter 10 147
Mental Health in Older Adults: What Do We Know? What Do We Need to Find Out?
Margda Waern

FOREWORD

I am honored and pleased to have been invited to write a brief foreword to this cross- and multidisciplinary volume on care for older people in China and the Nordic countries. The care of rapidly aging populations represents a common or similar challenge across the two regions and beyond. The book addresses genuinely critical challenges of demographic changes of universal relevance. It is based on a hybrid meeting of researchers from Fudan University, University of Gothenburg, University of Oslo, Pinetree Care Group in Beijing, Trinity College Dublin, and Imperial College London. The book is a successful outcome of the workshop jointly organized and financed by the Nordic Centre at Fudan University, the Department of Culture Studies and Oriental Languages, and the Fudan-European Centre for China Studies, both at the University of Oslo. I think it can be proudly put on the record that the establishment of the Nordic Centre at Fudan University in 1995 has created a platform for Sino-Nordic collaboration in research and teaching on many topics of common interest and concern among scholars at Chinese and Nordic universities, and of interest and concern among policymakers. The manifold collaborative Sino-Nordic activities directly or indirectly channeled through the Nordic Centre have generally inspired comparative research and perspectives.

For some time, there has been growing academic and political interest in the "Nordic model of welfare" in China and worldwide, especially after the global financial crisis of 2007-2008. One indication is that the "Nordic Way" was one of the highlighted topics of the annual World Economic Forum in Davos in 2011. Another sign is that, to the great surprise of many observers, the liberal weekly British magazine *The Economist* argued for "why the world should look at the Nordic countries" under the heading "The next supermodel" in its February 2013 issue. It is a surprise because of its traditional critical stance on comprehensive welfare states. On the other hand, over a very short timespan since the 1980s China has experienced a unique and historically unprecedented rapid social and economic transition and the concomitant growth of general living standards, and, as a political response to socio-structural changes has introduced a large number of reforms on social welfare, social security, and public health services. China has emerged as one of the leading

economic powers, technological innovators, and crucial political players in the world. Knowledge about and lessons learned from the development of the "China model" are important for the rest of the world. Economic and political roads to welfare and well-being vary across the globe. Cultural and political perspectives as to what the scope of the welfare role and responsibility of the state should differ across time, space, political systems, and governments. From very different points of departure and developmental contexts, China and the Nordic countries currently face similar social, economic, and political challenges of demographic change. The challenges inspire cross-disciplinary competence-building. It is imperative to search for innovative social and digital technological policy solutions to the significant demographic challenges of eldercare and healthcare delivery facing our countries in the coming decades. The book is a compelling contribution to this effort.

Stein Kuhnle
Professor Emeritus of Comparative Politics, University of Bergen,
and of Comparative Social Policy, Hertie School of Governance, Berlin

FOREWORD

Aging in modern times is one major achievement of human civilization, yet is also an acknowledged public challenge for many countries around the world. Among the many issues in need of comprehensive policy feedback and solutions, aged care has been a most visible challenge, calling for new structures of governance and innovations. Complementing the prevalence of relevant academic explorations, discussions, and debates, this edited volume takes the lead in putting such debates in a China-Nordic comparative perspective and in targeting cutting-edge issues from a cross-disciplinary perspective.

Comparing China and the Nordic regions in aged care is intellectually challenging yet intriguing, due to vastly different contexts that include politics, economics, culture, and demographics. China moved into an aging society in 1999 when its GDP per capita was less than US$ 900. Despite a quick growth to US$ 13,000 in 2022, general conditions still feature as "getting old before getting rich". Since its reform and opening up, China's aged care system first experienced a shift toward marketization, and then a reemphasis of state, family, and community responsibilities. For example, in 2007 the ancient city of Shanghai, China's most developed, proposed a "90-7-3 scheme", aiming to assign 90% of care for older people to family, 7% to community-based services, and 3% to institutions. There are huge local variations in aged care provision across the country. Meanwhile, the Nordic regions are among the most affluent in the world, with a total population equaling that of Shanghai. The Nordic Welfare Model is famous for its strong state intervention and generous welfare coverage and benefits. Both residential and non-residential care are largely publicly funded through social insurance contributions and taxes. Private financing, in contrast, comprises only a small part of total expenditures. Nonetheless, non-profit care providers are deeply involved in eldercare service delivery.

Despite contextual differences, similar challenges and global learning have resulted in converging public responses and innovations. The chapters in this book show that both sides are embracing hybrid modes of governance, engagement of various market and social actors, adoption of

emerging technologies, and further attention to complex political and economic consequences of aging. Factors such as perceptions of aging and its causes and effects; distribution of capacities among government, market, and society and their localized configuration; changes in economic, social and technological environments; and subsequent innovations have been affecting policy choices and performance in the arena of aged care. The "diverse case" comparison in this book may shed light on the impacts of institutional capacities and leadership on both sides in response to the common urgent challenges and disclose emerging trends of convergences and divergences in the two systems and their global implications. Both systems are quite dynamic and constantly evolving. The three-year COVID-19 pandemic and its aftermath, the rapid digitalization of human society under profound penetration by AI, increasingly conflictual global geopolitics, and other transformative factors have all been interacting with approaches to aging; they require new perspectives, research methods, and data to understand and unveil the intricacies of aged care and its subsequent policy processes.

To sum up, this exciting book, coedited by Assoc. Prof. Jing Wu and Prof. Chunrong Liu, has been an insightful contribution that develops useful comparative frameworks to decipher the many complexities related to aged care. The book pioneers by crafting a research stream from a China-Nordic comparative approach and a cross-disciplinary approach. Besides serious scientific inquiries and inspiring findings, it spurs new intellectual curiosities by inviting further research questions and academic explorations.

Yijia Jing
Professor, Institute for Global Public Policy, Fudan University

ACKNOWLEDGMENTS

This edited collection contains the selected papers that were presented at the symposium "Aged care in context and across disciplines" in April 2023, organized by Assoc. Prof. Jing Wu (University of Gothenburg) in collaboration with Prof. Chunrong Liu (Fudan University and University of Oslo), Assoc. Prof. Evandro Fei Fang (University of Oslo and Akershus University Hospital), Prof. Na He (Fudan University) and Dr. Ninie Yan Wang (Pinetree Care Group, Beijing). The symposium was funded by the Nordic Centre at Fudan University and the Fudan-European Centre for China Studies (FECCS) at the University of Oslo. Four keynote speakers from esteemed institutions, Prof. Xizhe Peng (Fudan University), Prof. Lotta Dellve (University of Gothenburg), Prof. Margda Waern (University of Gothenburg), and Dr. Ninie Yan Wang (Pinetree Care Group) were invited to share their valuable insights on aged care from diverse perspectives, which included social, organizational, medical, and innovative aspects. We were fortunate to have ten senior and junior researchers, including associate professors, assistant professors, postdoctoral fellows, and doctoral students from various international locations like Shanghai, Gothenburg, Oslo, London, and Dublin, presenting their latest research on aged care. We are grateful to all participants who were actively engaged in thematic discussions. For more information about the symposium, please visit https://www.nordic centre.net/events.

The edited collection was compiled by Jing Wu and Chunrong Liu. The introduction was written by Jing Wu and Chunrong Liu, who would like to acknowledge support by the National Social Science Foundation of China (18BZZ045). The authors of this book are: Chapter 1: Ninie Yan Wang (Pinetree Care Group); Chapter 2: Wenyu Li (Trinity College Dublin), Catherine Elliott O'Dare (Trinity College Dublin), Catherine Conlon (Trinity College Dublin); Chapter 3: Lotta Dellve (University of Gothenburg), Maria Wolmesjö (University of Borås); Chapter 4: Monica Andersson Bäck (University of Gothenburg); Chapter 5: Chunrong Liu (University of Oslo and Fudan University); Chapter 6: Jing Wu (University of Gothenburg); Chapter 7: Sophie Korenhof (Erasmus University Rotterdam), Yuan Fang (University of Oslo), Jie Luo (Erasmus University Rotterdam), Tischa van der Cammen (Erasmus University Rotterdam and

Delft University of Technology), Hein Raat (Erasmus University Rotterdam), Amy van Grieken (Erasmus University Rotterdam); Chapter 8: Hong Li (University of Stavanger), Dongfang Tang (Fudan University-affiliated Huadong Hospital); Chapter 9: Xiaodan Xing (Imperial College London), Yingying Fang (Imperial College London), Guang Yang (Imperial College London, Royal Brompton Hospital, and King's College London); Chapter 10: Margda Waern (University of Gothenburg and Sahlgrenska University Hospital).

We thank Mr. Veli-Matti Palomaki (Program Manager, Nordic Centre, Shanghai), Dr. Anna Peixoto (former Head of Department of Sociology and Work Science, University of Gothenburg), Ms. Ingrid Eskild (FECCS, University of Oslo), and Mr. Tarjei Brekke (formerly from FECCS, University of Oslo) for providing excellent administrative support, and Ms. Ruth Rose for professional proofreading. Finally, we thank Professor Stein Kuhnle (University of Bergen and Hertie School of Governance, Berlin) and Professor Yijia Jing (Fudan University), who share their valuable insights in the foreword to this edited collection.

INTRODUCTION

SETTING THE STAGE: AGED CARE EXPERIENCES IN CHINA AND THE NORDIC REGIONS

JING WU AND CHUNRONG LIU

As of 2022, people aged 65 and older comprised 14% of China's total population, 23% in Finland, 20% in Denmark and Sweden, 18% in Norway, and 15% in Iceland (World Bank 2022). Both China and the Nordic countries are facing significant demographic challenges due to their rapidly aging populations, necessitating urgent action in aged care. Population aging is a crucial global issue as it impacts social systems including health care, pensions, and social protection (Wu 2014, 16), and raises questions about how to ensure sustainable, high-quality aged care and harness social and technological innovations for it. The COVID-19 pandemic has exacerbated these challenges, raising the urgency for effective responses.

From a global and comparative perspective, the dynamics of formal and informal care between China and the Nordic regions present contrasting trends, which need to be crucially understood in their social and institutional contexts. After World War II, institutional and home-based care expanded significantly in the Nordic welfare states, where universalism implies free quality care for all, provided within a formally and professionally based long-term care system (Rostgaard, Jacobsen, Kröger, and Peterson 2022). A strong public preference for encompassing services has emerged and helped reduce the burden of care on families (Vabø and Szebehely 2012; Vabø et al. 2022), although family care still plays a role alongside public homecare—albeit less intensively than in countries with family-oriented welfare models (Heintze 2013; Vabø et al. 2022). By contrast, in China family-based care remains a cornerstone, with its relevance of a filial piety tradition that prescribes adult children to

fulfill their moral obligations in caring for their aging parents (Fang et al. 2020; Wu et al. 2016).

In recent decades, Nordic countries have witnessed a shift toward informal care where adult children and family members increasingly take part in caregiving—a trend not mandated by law but influenced by policy expectations (Rostgaard, Jacobsen, Kröger, and Peterson 2022). For instance, in Finland and Norway policies encourage family involvement in both home and residential care settings, often supported by care allowances (Christensen 2012; Åkerman, Zechner, Nyqvist, and Nygård 2021). In Sweden and Denmark family involvement in care has emerged more from necessity due to reductions in municipal care services rather than explicit policy changes, highlighting the unintended consequences of care service retrenchment (Rostgaard, Jacobsen, Kröger, and Peterson 2022; Szebehely and Meagher 2018; Ulmanen 2017). Conversely, in China the traditional expectation that families, especially adult children, will care for aging parents remains strong, compounded by cultural values and economic developments that challenge the traditional family care model (Gao and Wu 2024; Wu, Li, and Yan 2018). As family roles in caregiving shrink due to smaller family sizes and the migration of adult children (Fan, Zhan, and Wang 2018, 205), China is enhancing its institutional and community care infrastructure. This development serves both as a substitute and a complement to traditional family care (Chen et al. 2022).

In addition, New Public Management (NPM) influences organizational practices in global aged care. The impact of NPM on the aged care sector appears particularly profound in Nordic countries like Sweden and Denmark, where there seems to be a strong preoccupation with privatization and efficiency (Rostgaard 2018, 35). In Sweden, the aged care system is largely funded by municipal taxes and grants, with a growing privatization that allows private providers to operate (Stranz and Szebehely 2018, 49). China also adopts NPM principles, particularly through Public-Private Partnerships (PPPs) in its eldercare sector (Du and Wang 2016), to tackle challenges of its aging population. This focus on profit and private provision does have complex implications for care quality and worker conditions (Fan, Zhan, and Wang 2018, 214).

Furthermore, the rise of smart technology is to some extent reshaping the landscape of aged care in terms of service quality and effectiveness. China is developing a “smart eldercare” model to meet the social service needs of older people, with policies from both central and local governments

supporting this sector's growth (Chen, Hagedorn, and An 2023). This includes the use of the Internet of Things (IoT), enabling devices like phone pedometers, pacemakers, and insulin trackers to enhance health monitoring (Fang et al. 2020). Additionally, radiomics is being explored for its potential in dementia prevention, leveraging advanced imaging analytics to support clinical decisions (Fang et al. 2020). Meanwhile, in Nordic countries policymakers are increasingly focusing on "welfare technology" to address budget constraints, demographic shifts, and staffing shortages through digitalization in eldercare (Frennert and Baudin 2021; Lydahl 2024; Nilsson, Andersson, Magnusson, and Hanson 2024). Examples of welfare technologies are door sensors, social alarms, video-communication technologies, and robot pets (Lydahl 2024).

Against this backdrop, this edited collection explores whether and how China and the Nordic countries are adopting similar strategies in aged care. It aims to present cross-disciplinary insights into the complex challenges and responses surrounding aged care in both the Chinese and Nordic contexts. Alluding to the experiences and practices in China and the Nordic regions, the collection seeks to identify commonalities, disparities, and potential areas for collaboration. The contributors have employed diverse research approaches that include systematic literature reviews, theoretical and conceptual explorations, and empirical qualitative and quantitative studies, and presented an array of rigorous scholarly analysis of policy frameworks, healthcare infrastructure, organizational and management systems, and innovative care models.

While acknowledging its limitations, this collection provides a comprehensive overview of the challenges and opportunities in aged care across China and the Nordic regions. Its value lies in its capacity to inform policymakers, researchers, and practitioners about the pressing issues confronting aging populations in these areas. By integrating research findings and offering cross-regional insights, this collection contributes to the development of evidence-based policies and fosters innovative practices in aged care.

Chapter 1 outlines how the policy framework of the United Nations Decade of Healthy Ageing (2021-2030) and China's national strategy both prioritize person-centered, integrated care to address the needs of the country's rapidly aging population, such as harmonizing health determinants, care settings, and technological innovations. The China Pilot of WHO's Integrated Care for Older People (ICOPE) showcases the benefits of

integrated care through age tech, innovative care models, talent development, age-friendly environments, and social prescriptions, all aimed at enhancing individual and family health for a society with high-quality longevity.

Chapter 2 presents a review of the perspectives of current and prospective aged care service users in China, drawing on research from the China National Knowledge Infrastructure, JSTOR, and Scopus databases. It synthesizes findings from 15 journal articles published between 2017 and 2023 on the preferences and reasons for the willingness or reluctance of various demographic groups—including urban and rural older, middle-aged, and disabled persons, and ethnic minorities—to opt for institutional care.

Chapter 3 examines how eldercare policies in Sweden have been transformed into practical models to enhance the eldercare sector's capacity. Analyzing policy documents, manager interviews, and questionnaires from 33 municipalities, it finds a shift toward value-integrating models and distributed leadership practices. These approaches are linked to improved capabilities for both users and employees in the eldercare sector.

Chapter 4 delves into how distributed leadership, a method aimed at empowering staff and enhancing organizational capabilities, serves as a potential solution to the severe challenges in aged care. Through case studies in Sweden, analyzed using Hofstede's cultural dimensions and comparing Swedish and Chinese leadership ideals, it uncovers that distributed leadership in aged care manifests in management team meetings, self-managing teams, and coaching. The findings highlight a leadership style characterized by low power distance, individualism, and a relational, holistic approach, contrasting with more masculine, collectivist, and hierarchical styles.

Chapter 5 explores the development of community-based eldercare services in Shanghai, underscoring the challenges and contradictions within China's eldercare system. It delves into the institutional ambiguities of aging governance and argues that local institutional arrangements are crucial to shaping the evolution of eldercare. There is a focus on the emergence and operation of "Community Home-Based Eldercare" (CHEC) within this complex framework.

Chapter 6 discusses aged care services in Denmark, Finland, Iceland, Norway, and Sweden, presenting the transition from universal care models to more market-driven, familial-oriented approaches due to demographic shifts and economic pressures. It discusses the varied national responses to the COVID-19 pandemic, exposing systemic frailties in aged care and advocating for enhanced collaboration. The chapter concludes with the Nordic countries' endeavors to merge social and health care, support caregivers, leverage technology, and engage care users in co-creation to address these challenges and sustain high-quality care for a diverse aging population.

Chapter 7 is a reprint and provides a comprehensive review of the use of energy (such as electricity and gas) and water consumption data to monitor the health and well-being of older people living independently. A systematic search identified only one relevant study highlighting a significant research gap in the field: this solitary study found that monitoring via smart energy meters was non-intrusive and positively received, but it lacked substantial evidence due to its small participant pool and low event observation. This suggests a need for further research to explore the effectiveness and implementation of such monitoring systems.

Chapter 8 examines the impact and potential of digital remote care in transforming healthcare delivery, spotlighting its rise during the COVID-19 pandemic through a three-year case study in China focusing on thoracic surgery patients' home-based rehabilitation. The study, involving 250 postoperative patients in a randomized control trial, evaluates the user experience and therapeutic effectiveness of digital remote care solutions. Insights from this implementation draw attention to the evolving digital healthcare landscape, offering valuable lessons for future innovations.

Chapter 9 examines the impact of Artificial Intelligence (AI) on the diagnosis and management of age-related lung diseases, such as Idiopathic Pulmonary Fibrosis (IPF) and Chronic Obstructive Pulmonary Disease (COPD). Highlighting the limitations of traditional diagnostic methods, especially for older people, it underscores AI's potential in offering precise diagnostics, personalized treatments, and efficient remote monitoring. Through a review of AI algorithms in research and their clinical applications, the chapter presents AI as a transformative force in pulmonary care, aiming to better manage diseases and improve quality of life for aging populations.

Chapter 10 discusses how, despite the high prevalence of mental disorders among older people, they are less likely to seek mental health services and receive specialist care than younger individuals, according to the Swedish Board of Health and Welfare. This issue is exacerbated by limited non-pharmaceutical treatment options for common mental disorders like anxiety and depression among older people, contributing to the highest suicide rates observed in this demographic. Factors such as ageism, rising alcohol consumption, loneliness, and impaired cognition further compound the mental health challenges faced by seniors. This stresses an urgent need for research into effective prevention and treatment interventions for mental illness in aging populations.

Bibliography

Chen, Honglin, Aaron Hagedorn, and Ning An. 2023. "The Development of Smart Eldercare in China". The Lancet Regional Health – Western Pacific, 35: 100547. https://doi.org/10.1016/j. lanwpc.2022.100547

Chen, Xinxin, John Giles, Yao Yao, Winnie Yip, Qinqin Meng, Lisa Berkman, He Chen, Xi Chen, Jin Feng, Zhanlian Feng, Elena Glinskaya, Jinquan Gong, Perry Hu, Haidong Kan, Xiaoyan Lei, Xiao Liu, Andrew Steptoe, Gewei Wang, Harold Wang, Huali Wang, Xiaoyu Wang, Yafeng Wang, Li Yang, Luxia Zhang, Quan Zhang, Jing Wu, Zunyou Wu, John Strauss, James Smith, and Yaohui Zhao. 2022. "The Path to Healthy Ageing in China: A Peking University-Lancet Commission". The Lancet Commissions, 400(10367): 1967-2006. https://doi.org/10.1016/S0140-6736(22)01546-X

Christensen, Karen. 2012. "Towards a Mixed Economy of Long-Term Care in Norway?". Critical Social Policy, 32(4): 577-596. https://doi-org.ezproxy.ub.gu.se/10.1177/0261018311435028

Du, Peng, and Yongmei Wang. 2016. "Population Ageing and the Development of Social Care Service Systems for Older Persons in China". International Journal on Ageing in Developing Countries, 1(1): 40-52.

Fan, Xiying, Heying Jenny Zhan, and Qi Wang. 2018. "The Emergence of the Eldercare Industry in China: Progress and Challenges". In The Routledge Handbook of Social Care Work Around the World, edited by Karen Christensen and Doria Pilling, 203-217. Oxon: Routledge.

Fang, Evandro Fei, Chenglong Xie, Joseph Schenkel, Chenkai Wu, Qian Long, Honghua Cui, Yahyah Aman, Johannes Frank, Jing Liao, Huachun Zou, Ninie Yan Wang, Jing Wu, Xiaoting Liu, Tao Li, Yuan Fang, Zhangming Niu, Guang Yang, Jiangshui Hong, Qian Wang,

Guobing Chen, Jun Li, Hou-Zao Chen, Lin Kang, Huanxing Su, Brian Gilmour, Xinqiang Zhu, Hong Jiang, Na He, Jun Tao, Sean Xiao Leng, Tanjun Tong, and Jean Woo. 2020. "A Research Agenda for Ageing in China in the 21st Century (2nd Edition): Focusing on Basic and Translational Research, Long-Term Care, Policy and Social Networks". Ageing Research Reviews, 64: 101174. https://doi.org/10.1016/j.arr.2020.101174

Frennert, Susanne, and Katarina Baudin. 2021. "The Concept of Welfare Technology in Swedish Municipal Eldercare". Disability and Rehabilitation, 43(9): 1220-1227. https://doi.org/10.1080/09638288.2019.1661035

Gao, Yunfei, and Jing Wu. 2024. "Aging in Place in Rural Northeast China: A Mixed Methods Examination of the Influence of Social Capital on Mental Well-Being in Middle and Late Adulthood". Frontiers in Public Health, 11: 1261132. https://doi.org/10.3389/fpubh.2023.1261132

Heintze, Cornelia. 2013. On the Highroad – The Scandinavian Path to a Care System for Today: A Comparison between Five Nordic Countries and Germany. WISO Diskurs. Friedrich-Ebert-Stiftung.

Lydahl, Doris. 2024. "Good Care and Adverse Effects: Exploring the Use of Social Alarms in Care for Older People in Sweden". Health, 28(4): 559-577. https://doi-org.ezproxy.ub.gu.se/10.1177/13634593231185260

Nilsson, Maria, Stefan Andersson, Lennart Magnusson, and Elizabeth Hanson. 2024. "Keeping the Older Population and Their Informal Carers Healthy and Independent Using Digital Technology: A Discourse Analysis of Local Policy". Ageing and Society, 44(4): 812-842. https://doi.org/10.1017/S0144686X22000514

Rostgaard, Tine. 2018. "Revisiting the Public Care Model: The Danish Case of Free Choice in Home Care". In The Routledge Handbook of Social Care Work Around the World, edited by Karen Christensen and Doria Pilling, 29-44. Oxon: Routledge.

Rostgaard, Tine, Frode Jacobsen, Teppo Kröger, and Elin Peterson. 2022. "Revisiting the Nordic Long-Term Care Model for Older People—Still Equal?". European Journal of Ageing, 19: 201–210. https://doi.org/10.1007/s10433-022-00703-4

Stranz, Anneli, and Marta Szebehely. 2018. "Organizational Trends Impacting on Everyday Realities". In The Routledge Handbook of Social Care Work Around the World, edited by Karen Christensen and Doria Pilling, 45-57. Oxon: Routledge.

Szebehely, Marta, and Gabrielle Meagher. 2018. “Nordic Eldercare—Weak Universalism Becoming Weaker?”. Journal of European Social Policy, 28(3): 294-308. https://doi-org.ezproxy.ub.gu.se/10.1177/0958928717735062

Ulmanen, Petra. 2017. “Childcare and eldercare policies in Sweden”. In The Sandwich Generation: Caring for Oneself and Others at Home and at Work, edited by Ronald Burke and Lisa Calvano, 242-261. Cheltenham: Edward Elgar.

Vabø, Mia, and Marta Szebehely. 2012. “A Caring Sate for All People?”. In Welfare State, Universalism and Diversity, edited by Anneli Anttonen, Liisa Häikiö, and Kolbeinn Stefánsson, 121-144. Cheltenham: Edward Elgar.

Vabø, Mia, Minna Zechner, Anneli Stranz, Lea Graff, and Sigurveig Sigurðardóttir. 2022. “Is Nordic Elder Care Facing a (New) Collaborative Turn?”. Social Policy and Administration, 56(4): 549-562. https://doi-org.ezproxy.ub.gu.se/10.1111/spol.12805

World Bank. 2022. “Population Ages 65 and Above (% of Total Population) – China, Denmark, Finland, Norway, Iceland and Sweden”. United Nations Population Division. World Population Prospects: 22 Revision. Accessed April 13, 2024. https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS?locations=CN-SE-DK-FI-NO-IS.

Wu, Jing. 2014. European Older Adults’ Well-Being and Suicide in the Societal and Family Context. PhD diss., University of Tallinn.

Wu, Jing, Kairi Kasearu, Airi Värnik, Liina-Mai Tooding, and Gisela Trommsdorff. 2016. “Associations between Quality of Relationships and Life Satisfaction of Older Mothers in Estonia, Germany, Russia and China”. Ageing and Society, 36(6): 1272-1294. https://doi.org/10.1017/S0144686X15000355

Wu, Jing, Xianyun Li, and Shengming Yan. 2018. “Suicide Prevention in Old Age in China 2002-2017: The Linkage to the Madrid International Plan of Action on Ageing (MIPAA)”. International Journal on Ageing in Developing Countries, 3(1): 60-68.

Åkerman, Sarah, Minna Zechner, Fredrica Nyqvist, and Mikael Nygård. 2021. “Capabilities in Care for Older Adults in Finnish Familialistic Policy Transformations: A Longitudinal, One-Case Study”. International Journal of Care and Caring, 5(2): 229-246. https://doi.org/10.1332/239788220X16065616064747

CHAPTER 1

IN PURSUIT OF AN INTEGRATED MODEL OF CARE: ACTION ON THE UN DECADE OF HEALTHY AGING

NINIE YAN WANG

Abstract

Providing person-centered, integrated care is not only one of the key actions of the United Nations Decade of Healthy Aging (2021-2030), but also a national strategy for advancing the health and care system for China's fast aging population. It emphasizes the mobilization and coordination of all determinants of health throughout the life course, which includes the continuum across different care settings and the application of various technological solutions. The China Pilot of World Health Organization's Integrated Care for Older People (ICOPE) set an example of society benefiting from an integrated system approach to care through age tech products/systems, innovative care models, talent development, age-friendly environments, and social prescriptions, all of which jointly work effectively to improve the health and well-being of each individual and family on the way to high-quality longevity.

The UN Decade of Healthy Aging and China's National Strategy

According to data released by the World Bank in 2022, 795 million people are 65 and older, accounting for 10% of the world's total population; this will double to 20% in 2040 (United Nations Population Fund 2022). The United Nations (UN) announced that 2021-2030 is the Decade of Healthy Aging, calling for all member states to work on advancing research,

practice, education, and policy that are inclusive of all ages and support the population to age with better quality of life, continuously improving physical and mental capacity (Dixon 2021, 2).

Among the four health-related action areas to achieve the UN Decade of Healthy Aging, "person-centered integrated care in primary care" provides the unique opportunity to bring together the other three areas: the attitude and knowledge change in how we think of and act upon age and aging; the establishment of age-friendly environments; and improved access to long-term care when needed (Decade of Healthy Aging Platform 2020). As the recommended model of care, integrated care is not about adding a new piece in healthcare delivery, but about integrating currently fragmented efforts toward one systematic approach from a holistic understanding of individual and family needs.

Although most developed countries became aging societies sooner, developing countries like China have the fastest growth rate and largest number of older people. By the end of 2022, there were 209.8 million (14.9%) Chinese over the age of 65 (NSB 2022). Instead of 26 years as previously projected, it took less than 22 years for China to double its proportion of population aged 65+ from 7% to 14% and reach the next level of population aging. By comparison, the same structural change took 115 years in France, 85 in Sweden, 73 in Australia, and 24 years in Japan (Kinsella and He 2009).

China is clear about the imperative for health needs to be included in all the sustainable development goals of the government in its quest for high-quality development during the 14th five-year plan (NDRC 2020). In the new development philosophy and paradigm, China will actively address population aging as a national strategy; highlighting this emphasizes that people's well-being is directly included in seven out of 20 major indicators.

In 2021, the Chinese government issued its mid-to-long-term plan for responding proactively to population aging, in which the integration of health and social care was considered central to building the healthcare system toward healthy aging. A comprehensive, continuous healthcare and social care system became one of the key goals of the national strategic plan, which represents the evolvement of aging-related policies in China from "home-based, community-backed, institution-supported care system" to "integration of health and social care", clearly aiming to "establish a

home-community-institution coordinated, medical-health-social integrated care system" (NDRC 2020).

With a 210 million 65+ population in China by the end of 2022, China is responsible for the health and wellbeing of 25% of the world population aged 65 and older. Favorable policies and continuous investments in relevant research and practice in China are not only important for those living in China but are expected to showcase opportunities for value-based interventions in low- and middle-income countries, supporting the world's pursuit of a healthy aging future.

The Population and Life Course Approach

Our health conditions in later life are reflections of the accumulated effects of different factors in our life course. In order to better meet the health and care needs of an aging population, different approaches are needed. In disease-oriented healthcare systems, health education and self-management are most important for those at risk of diseases and other health challenges because they will only get treated after they become ill. To improve overall health outcomes, clinical support is critical for persons suffering from symptoms of early-stage diseases, while greater numbers of terminal or advanced-age patients would require a holistic care continuum beyond clinical settings.

From a population health perspective, there are four groups that require different services in an aging or aged society:

1. The healthy and robust population only use health care services periodically when having acute illness or injuries, and will benefit most from disease prevention, screening, and health promotion (WHO 2015).
2. The chronically ill make regular use of healthcare services, mostly outpatient, and will benefit most from disease management approaches.
3. Persons with advanced illnesses make frequent visits to the emergency room, may be admitted to hospital often, and tend to have multiple complex issues. They benefit more from intensive case management.
4. Those who are severely frail or approaching the end-of-life use healthcare services erratically partly due to poor access to care. They would benefit from palliative and hospice care, which are

more focused on comfort and quality of life for both patients themselves and their families.

According to the Chinese National Health Commission, life expectancy in China increased from 35 to 78.2 years between 1949 and 2021. The more-than-double number of years come with many changes, including different disease spectrums and demand for stratified healthcare services.

As humankind moves from a young society (shorter life expectancy and a larger young population) to an old society (longer life expectancy, large and growing older population), the main causes of death have changed from war, plague, infectious diseases, and acute diseases to chronic diseases, and the focus of medical care has also shifted. In the 19th century, medicine mainly worked on relieving symptoms. The diagnosis and treatment of specific diseases was the theme of 20th-century medicine. Now in the early 21st century, the orientation around "health" rather than sickness or disease has introduced policies and practices to consider the various factors that can impact people's health. Such factors or determinants of health may include socioeconomic conditions, environmental conditions, health-related behaviors, and accessibility and quality of medical care (Dang 2021). When considering how to achieve a healthier, high-quality and long life for the whole population—that is, to achieve healthy aging—all determinants of health need to be mobilized.

Integrated Care Continuum with Pathways and Algorithms

Although an integrated life course approach to health and social care is increasingly emphasized, its practice is challenging for two main reasons. First is the specialization of the healthcare workforce. It may not be easy for professionals who have been trained to excel in treating specific diseases (doctors) or performing certain tasks in their own domains (nurses, therapists) to become familiar with other disciplines or roles. Training specialists into generalists may be a solution that can work over time.

Second is the difficulty of implementing on a large scale. A multidisciplinary team (MDT) approach has been recommended since the 1960s and adopted in geriatric care settings. However, the MDT approach requires a high level of communication and collaboration among team members and is usually more costly for patients and payers, hence is even

more difficult in outpatient care settings and when non-medical personnel are involved. It may not be affordable in lower-income areas with a large population of older adults.

In order to introduce a holistic, integrated care continuum in our aging/aged society, before it even becomes possible to train the vast majority of specialized healthcare professionals with a less labor-intensive approach or for the number of care providers to increase significantly, chances are greater of leveraging artificial intelligence to empower both providers and patients. Let's take the process of delivering a person-centered care continuum in geriatric settings as described in the World Health Organization's (WHO) integrated care for older people (WHO 2017, 18-19). In the first and second steps of "screening" and "assessment", objective data of a person's health and consensus among the person, his/her family caregivers, and healthcare professionals on subjective goals can be seen as the input, and the person-centered care plan developed in the third step is the output. Not only is the input data comprehensive, but also the care plan needs to cover all modules of intervention such as health monitoring and education to improve self-management capabilities, physical and mental activities to prevent functional losses, etc.

Between input and output there are generic and localized pathways that guide the care managers to conduct necessary assessments, activate next-step actions, and/or coordinate among different providers. Data-driven algorithms following international and domestic guidelines are used to support care managers' decisions when identifying causative and planning issues, in order to provide person-centered and appropriate intervention. Given the different determinants of health that need to be included, individual care managers with different specializations can be empowered by these algorithms to follow the comprehensive care pathways instead of missing important factors or avoiding resources of unfamiliar disciplines.

As the USA's National Academy of Medicine report points out, we humans make mistakes (Loeb 2000). In order to continuously improve the health system's safety, we must introduce processes that can capture potential risks or threats to safety as early as possible and intervene at the right points in time, to either prevent the materialization of such risks/threats or minimize the possibility of mistakes and their impacts on patients.

It is with the same goal in mind that care pathways' built-in algorithms of support systems are recommended, to accelerate the development of an integrated care continuum through roughly two mechanisms. First, by making the training of multidisciplinary talents more efficient and standardized. Instead of the "mission impossible" of requiring specialists to go through heavy training programs aimed at making them equally strong in other disciplines, healthcare professionals will mostly be taught how to use such systems and tools—an online training with easy-to-complete modules followed by short quizzes to test their learning results. Second, by increasing each care provider's efficiency. Unlike traditional MDTs that need to be organized coordinating different team members' availability, in the algorithm-embedded system a care manager from any relevant background may be trained and empowered to conduct comprehensive assessments which otherwise may have required completion by the MDT and collaboration with other providers. Utilization of resources can be optimized, which may contribute to better cost control and thus reduce the financial burden for individuals, families, and society.

International and Domestic Age Tech Trends

When it comes to the development and application of AI in care for the aging and aged population, many believe that we are approaching an era of "smart aging". In the International Consumer Electronics Show this year (CES 2023), the American Association of Retired Persons (AARP) co-organized the first Age Tech Summit, introducing a large number of products targeting a variety of needs from senior consumers:

Mobility assistance:

- Electric wheelchair Autonomous Model A from the Japanese company WHILL, equipped with LiDAR sensors and cameras. It would make autonomous driving possible for people with limited mobility.
- Camino is a smart walker with automatic power assist system and AI gait detection which automatically increases power in uphill and flat trajectories and automatically reduces speed when going downhill. It can travel 8 km with one hour of charging. The built-in camera can track gait, monitor walking stability, and assess the risk of falls.

Augmented reality:

- The lightweight smart glasses developed by Xander in collaboration with AR smart glasses company Vuzix can help people with hearing impairments "see" what the other person is saying during a conversation. The glasses have built-in voice-to-text conversion technology and do not require an internet connection, pairing with phones, or downloading programs. Real-time subtitles of conversations are displayed on one side of the glasses.
- South Korean company CELLICO showed its new product, smart glasses for age-related macular degeneration patients. By using a small 4K camera on the front and an application to capture and process images in real time, the central field of view is moved to the peripheral field of view for display, allowing users to see the blurry central area in AR glasses.

Digital health and care:

- Remote patient monitoring and chronic disease management platform VitalOn provides older people and patients with integrated remote care and telemedicine, continuously monitoring health parameters and vital signs from multiple devices to detect and alert for abnormal activity. It enables older people and their formal/informal caregivers to easily monitor their vital signs and connect them directly to healthcare and social care providers without relying on smartphone or tablet applications.
- Care@Home is an end-to-end solution that continuously learns and adapts to the routine behavior of older people to identify significant deviations from daily life. It provides real-time alerts for timely intervention, which may prevent the deterioration of personal health conditions. It includes an MDsense multidimensional fall detection solution that eliminates the risk of missed falls or false alarms, enabling caregivers to respond to events faster. This wearable device powered by wireless battery utilizes advanced multi-sensor technology to ensure continuous monitoring without infringing on user privacy.
- The CarePredict system, which has won several digital health innovation awards from CES, includes wearable devices such as Tempo, supporting sensors, and applications that can perceive and analyze users' daily activity data; share data with family members, caregivers, and others; and prompt for abnormalities.

Entertainment and social networking:

- As a fitness application designed specifically for people over 50, Mighty Health provides training content that is more suitable for the physical condition and exercise needs of middle-aged and older people, with personalized exercise and nutrition plans as well as tailored private coaching sessions to serve individual needs.

Smart home:

- Addison Virtual Care System from Electronic Caregiver can help patients who require complex medicated treatment plans, regular physical therapy, or daily vital sign monitoring plans. This 3D virtual nursing assistant can provide on-demand healthcare services to users through a dynamic, constantly changing, and personalized experience of emotional companionship. Addison can educate, demonstrate, inquire, and contact; it can customize settings based on language, gender, decoration, position, tone, color, and clothing. Addison meets the challenges that small screens and buttons pose to people with impaired vision or unstable hands. Users can interact with objects, animals, musical instruments, and media in the virtual nursing system.
- SomaSleep of Somalystics, the first household sleep mask, can be used to monitor rapid eye movement, helping consumers better understand their sleep stages, quality, and interruptions; this is key to improving sleep. Its carbon nanotube paper composite capacitive sensor technology can sense the presence of humans within a range of up to 200 mm.

Other products that also attracted wide attention at the CES 2023 exhibition included AEO and Labrador assisted robots, AeviceMD wearable stethoscopes, urine monitoring devices from Withings and Vivoo, CONNECTQT Pulse blood pressure and arterial health monitors, medical wearable devices from BioIntelliSense, and various over-the-counter hearing aids.

In pace with international trends, an increasing number of age tech and products are shown at silver industry exhibitions in China. Most recently, Tencent—one of China's largest internet companies—released The Silver Tech Bluebook 2022 (Tencent Research Institute, 2022), which discussed how the opportunities in smart healthy aging may be achieved through advances in:

- AI (and AI-generated content or AIGC), including human-machine interaction, deep learning, computer vision, and voice recognition.
- Big data, such as data mining, visualization, data analytics, big data preprocessing.
- 5G, with beamforming, large-scale multiple-input multiple-output (MIMO), micro base station, millimeter wave.
- Cloud computing, such as programming model, network virtualization, distributed storage, cloud native.
- Internet, including wireless connection, network service platform, core protocol, mobile internet.
- New materials, such as advanced composite materials, inorganic non-metals, organic polymers, carbon fibers.
- Internet of Things (IoT), such as sensor technology, RFID tags, embedded systems, close-range channels.
- Edge computing, with edge management system, edge network, isolation technology, data processing platform.
- Virtual reality, such as tactile/force feedback, VR visual presentation, environmental modeling technology, stereo synthesis.
- Blockchain, including smart contract, consensus mechanism, distributed storage, encryption technology.
- The Bluebook proposes that technologies can provide an "invisible guard" to seniors, making life in old age more convenient, safe, and enjoyable, supporting people in aging with quality and dignity.

Use of Telecare When Piloting Integrated Care for Older People (ICOPE) in China

In 2020 and 2021 the COVID-19 lockdown challenged health systems in many countries, with pandemic control measures making community and home-based in-person assessments and treatments largely impossible—yet the development of eHealth infrastructure has significantly increased the accessibility of telemedicine/telecare (Lim and Liang 2020; Singer 2020). These two dueling factors accelerated innovative approaches for implementing the ICOPE approach virtually (WHO 2022). The first phase of ICOPE implementation pilot was completed in four countries, including China.

In mainland China, hospitals saw an accelerated trend of setting up "internet hospitals" and offered online consultations and refill prescriptions to older patients. Providers of pre- and post-hospitalization care services turned to online tools to continuously support most vulnerable older

persons and their family caregivers through the remote delivery of care services and supplies. For example, virtual webinars were organized to empower older patients and their family caregivers; and social media groups were activated and monitored to quickly identify and respond to potential needs from at-risk seniors for consultation, care, rehabilitation, medication, and medical supplies that can be arranged using telecommunication platforms (Lim et al. 2020).

By study design, the ICOPE implementation pilot in China followed the care pathways of the WHO guidelines and used telecommunication platforms to facilitate screening/assessment of at-risk or older/aging populations (Wang et al. 2024). The ICOPE approach and the pilot got broad coverage through media (local newspapers, TV channels, online news portals) and partner networks (community health centers, senior day care centers, etc.), reaching more than 500,000 people in the pilot area. Potential participants were encouraged to complete the first screening questionnaire by either using the self-screening version at their convenience or going through a healthcare professional-assisted version when visiting care providers. Both versions were offered on the mobile phone embedded in the most broadly used social media application called “WeChat”.

The screening questionnaire was used as recommended by the ICOPE guidelines, and consisted of questions about older persons’ cognition, mobility, vitality, vision, hearing, mental health, and self-rated health. Questions were translated into the local language according to local culture and context, as well as made accessible on mobile phones. Video assistance was added to help prospective participants understand unfamiliar instructions such as for doing sit-up tests.

For those who had been identified by the screening process as “at-risk of declines in intrinsic capacity/function ability”, a comprehensive assessment was then conducted videoconferencing between the prospective participants and a fully trained integrated care manager (ICM) whose background could be in geriatrics, nursing, primary care, social work, etc. Once participants joined the intervention or control group, different tools along the process were used by ICMs. Teleconsultation, video-based rehabilitation therapy, and other telecare measures were used, plus occasional offline visits, and were considered the main methods of care delivery. If medical intervention or advice from geriatricians or other doctors was necessary whenever offline visits to hospitals weren’t feasible, teleconsultation via social media applications like WeChat were