Embracing the Golden Years

A Guide to Happy and Healthy Ageing

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Edited by
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Foreword by
Justice M. N. Venkatachaliah
Former Chief Justice of India

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TESTIMONIALS

"An excellent compendium on an issue that humanity will have to contend with sooner rather than later: healthy ageing. Increased longevity made possible by modern medicare can only be enjoyed if the twilight years are free from debilitating diseases. *Embracing the Golden Years: A Guide to Happy and Healthy Ageing* is an exposition of well-thought-out and carefully chosen topics which encompass all that one needs to know to live a healthy and wholesome life." **Air Vice Marshal (Dr.) Sadhna S. Nair, VSM, Principal Medical Officer, Headquarters Training Command, Indian Air Force (IAF)**

"This book is a must-read for senior citizens in India. It delivers a comprehensive overview of the various aspects of ageing, and provides guidance on each one. Physical activity is especially important at this stage of life, and this book places a reassuring spotlight on both the physical and mental well-being of older adults." **Dr. Anju Bobby George, World Champion, Recipient of the Padma Shri and Khel Ratna, and Senior Vice President, Athletics Federation of India**

"Older adults are the world's fastest increasing and least appreciated assets. Often seen as burdens because their ageing bodies require more care, the wisdom gained from their longer experience of life is lost when they are isolated from communities. This timely book suggests how the re-integration of generations can improve the well-being of all." **Mr. Arun Maira, Chairman, HelpAge International**

"In our country, the percentage of ageing adults is estimated to be 19%, numbering around 320 million by the year 2050. This population faces multiple challenges, both culturally and otherwise. In India, as in most countries, this segment is the least technologically savvy, making it difficult for them to adapt to newer technological advancements that are part and parcel of day-to-day life. This book is an earnest attempt to equip the older adults of our country with the basics of all aspects pertaining to ageing and related issues,

with the aim of ensuring that one's golden years are peaceful, meaningful and happy." **Dr. Kiran Mazumdar-Shaw**, **Executive Chairperson and Founder, Biocon Limited and Biocon Biologics Limited**

"In the decades to come, the percentage of older adults in our country would constitute a significant proportion of our total population. The Government for its part is enacting and implementing various laws and programmes towards ensuring the welfare of this section of our society. However, lack of awareness of these laws and provisions, coupled with their ineffective implementation, leads to a situation where older adults are being put to immense difficulties. This book titled *Embracing the Golden Years: A Guide to Happy and Healthy Ageing* very aptly deals with the legal safeguards and provisions for older adults, enabling them to equip themselves to lead a safe, purposeful, peaceful and healthy life with dignity." **Justice S. R. Bannurmath, Former Chief Justice, Kerala, and Chairman, Law Commission, Karnataka**

"Ageing is a natural phenomenon, and the bodily changes which accompany the process of ageing predispose older adults to various physical, mental and social challenges. By being aware of these challenges and by adopting appropriate preventive and adaptive measures, one can ensure that the process of ageing can happen gracefully, meaningfully and with purpose. This volume, with inputs from experts, is bound to act as an authentic and valuable source of information to those approaching the twilight years of their lives, so that they can adequately prepare themselves to meet the challenges." **Dr. Devi Prasad Shetty, Chairman and Executive Director, Narayana Health**

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FOREWORD

Justice M. N. Venkatachaliah
Former Chief Justice of India

I am beholden to Dr. Alexander Thomas for the honour of his invitation to write the foreword to this excellent compilation titled *Embracing the Golden Years: A Guide to Happy and Healthy Ageing.*

The story is told of a successful scientist in Britain, Ms. Margaret Alice Murray, who after 100 years of a successful career, wrote her autobiography and called it *My First Hundred Years.*

In a rare exploration of the yet-unrevealed inherent potential of human life, Mr. Ray Kurzweil and Dr. Terry Grossman in their book *Fantastic Voyage: Live Long Enough to Live Forever* said: "Most of our conceptions of human life in the twenty-first century will be turned on their heads. Not the least of these is the expectation expressed in the adage about the inevitability of death and taxes. We will leave the issue of the future of taxes to another book. But belief in the inevitability of death and how this perspective will soon change is very much the primary theme of this book."

Mr. Aubrey De Grey, in *Engineered Negligible Senescence: Rational Design of Feasible, Comprehensive Rejuvenation Bio-Technology*, spoke of the potential for infinite expansion of the human lifespan.

All these are in the realm of possibilities with emerging new research in biology. This present compilation takes up the more immediate mundane concerns of ageing and its problems. Very eminent personalities have provided valuable guidance in every chapter, throwing light on the problems and solutions.

Indeed, everyone on the planet is a senior citizen, either actual or potential. In 2019, approximately 9% of the global population was over the age of 65. It is estimated that this will rise to 16% by 2050, reaching 1.4 billion.

The concerns and needs of the senior citizens, so vividly grasped by the eminent contributors, shed light on what is immediate and important. A well-planned inclusive system of financial security is of paramount concern. A welfare state needs to build up appropriate systems, enabling its citizens to

participate in affordable economic packages, ensuring security in the twilight of their lives. Many other countries have such systems in place.

This compilation comprehensively brings up all the relevant issues and makes valuable suggestions. Mr. Jonathan Swift said: "Whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together." Dr. Alexander Thomas and the contributors deserve this tribute.

ABOUT THE ASSOCIATION OF HEALTHCARE PROVIDERS – INDIA (AHPI)

www.ahpi.in

The Association of Healthcare Providers – India (AHPI), which represents the vast majority of healthcare providers in our country, is a not-for-profit organisation registered under the Indian Society Registration Act of 1860. AHPI works with all stakeholders in order to establish a national system where the common man can avail of assured universal access to basic health services, while facilitating its members and partnering bodies in carrying out health improvements to serve the community effectively and efficiently. In doing so, AHPI also collaborates and partners with other associations, accrediting bodies, regulatory agencies, councils, research organisations and academic institutions. The association, with its 20 regional chapters, undertakes advocacy for healthcare reforms, infrastructural issues, taxation and tariff issues, matters concerning health insurance and other difficulties relating to quality healthcare delivery faced by healthcare organisations or the community.

The AHPI Institute of Healthcare Quality develops and conducts various healthcare management courses focusing on patient safety and healthcare quality. The AHPI Healthcare Certification Centre develops standards for different categories of healthcare establishments, provides compliance certification of various standards by the healthcare agencies and runs customised certified training programmes (QMS and healthcare managerial training) for the sector.

AHPI played a pivotal role during the Covid-19 pandemic by effectively coordinating between its member hospitals and the Central and State governments in an implementing and advocacy role, as well as providing much-needed equipment support to many of its member hospitals. In recognition of these services rendered with distinction, Dr. Alexander Thomas, the President of AHPI, received the prestigious Waterfalls Global Award 2022 instituted by the Government of the United Arab Emirates.

ABOUT VAYAH VIKAS

www.vayah-vikas.org

Vayah Vikas is a not-for-profit organisation based in Bengaluru that is driven by the philosophy "*by the seniors, for the seniors, of the seniors.*" The platform is focused on giving older adults charge of their wellness and well-being, and providing opportunities for productive engagement so that they can build dignified and fulfilling lives.

Population ageing is being experienced in India and across the globe, and focused planning for a changing population structure is imperative. It calls for a full-fledged ecosystem in a symbiotic relationship with its senior members who receive from, contribute to and evolve with the ecosystem.

The idea behind the formation of Vayah Vikas was seeded in 2013, when a report on older adult care titled *Aspirations for the Elderly* was put together by Dr. Alexander Thomas (former Director of Bangalore Baptist Hospital) with a team of experts from the India Backbone Implementation Network (IbIn) at the behest of Dr. Arun Maira, Member, Planning Commission, Government of India. Subsequently, efforts continued at the community level in villages while lobbying with the Government of India to improve the quality of life for senior citizens.

Some years later, Dr. Alexander Thomas, who by then was President of AHPI, mooted the idea of setting up a senior citizens' forum with various members of AHPI and the Think Tank on Health at the National Law School of India University (NLSIU). The discussions culminated in the setting up of Vayah Vikas in April 2021, under the leadership of Mr. Kris Gopalakrishnan and Dr. Devi Prasad Shetty, with eminent luminaries who agreed to be the founding members including Prof. Omprakash Nandimath V.; Dr. K. Srinath Reddy; Ms. Gauri Devi, IAS; Dr. Girdhar Gyani and Mr. Arun Seth.

Vayah Vikas is a compassionate, senior-driven ecosystem of well-designed services and opportunities enabling seniors to lead independent lives with dignity and meaning.

ABOUT THE EDITORS

Dr. Alexander Thomas is the President of the Association of Healthcare Providers – India (AHPI), former President of the Association of National Board Accredited Institutions (ANBAI) and Founder-President (2010–2021) and Patron of the Consortium of Accredited Healthcare Organizations (CAHO). He has served the health sector for over four decades and effected far-reaching policy changes within the healthcare landscape at the national and the state levels, such as introducing healthcare communication into the medical curriculum, increasing the number of post-graduate medical seats and making violence against doctors a non-bailable offence. He has pioneered many training initiatives, founded several associations and sits on numerous government committees and boards of reputed healthcare organisations for the betterment of healthcare quality and medical education. His recent publications on issues affecting the health sector include books on communication, climate change, law and ethics, technology, healthcare quality, violence against healthcare workers and white papers submitted to the Government of India. He has received several awards including the *Waterfalls Global Award 2022* from the Government of the UAE for exceptional contributions to the community during the Covid-19 pandemic, and the *Dr. M. G. Garg All-Time Achievement Award for Outstanding and Distinguished Services* from the Indian Medical Association in December 2022.

Mr. Kris Gopalakrishnan, co-founder of Infosys, was its CEO and Managing Director from 2007 to 2011 and Vice Chairman from 2011 to 2014. Since his retirement from Infosys in 2014, he has invested in a slew of start-ups through his business incubator, Axilor Ventures, and some venture funds. He funded and created Itihaasa, a digital app that chronicles the evolution of India's IT industry. He was the President of India's apex industry chamber, the Confederation of Indian Industry (2013–2014), and co-chair of the World Economic Forum in Davos (2014). Internationally recognised as a global business and technology thought leader, he was voted the top CEO (IT services category) in *Institutional Investor's* inaugural ranking of Asia's Top Executives, a winner of the second Asian Corporate Director Recognition Awards by *Corporate Governance Asia* in 2011 and on the *Thinkers 50*, an elite list of global business thinkers in 2009. He chairs the Board of Governors of IIIT, Bangalore, and serves on the Board of Governors of IIT-M, IIM-B and the Chennai Mathematical Institute. He holds Master's degrees in Physics and Computer Science from the Indian Institute of Technology, Madras. In January 2011, the Government of India awarded Kris the Padma Bhushan, the country's third highest civilian honour.

Ms. Divya Alexander has over 15 years of expertise in health and public policy research, having drawn up policy recommendations and drafted healthcare legislation through her work with the Association of Healthcare Providers – India, the United Nations Population Fund and Amnesty International USA. She provided technical expertise for the development of the Karnataka State Public Health Policy, the committee for SDG Goal 3 (Health) to the Government of Karnataka and projects for the World Bank, UNDP and UN Women. During the Covid-19 pandemic, she was a member of expert committees to develop health-based recommendations for the safe reopening of various sectors. She has co-edited five books and several papers for the health sector on policy issues relating to communication, climate change, violence against healthcare workers and health technology. She has co-authored an Adolescent Health Education resource manual which has reached more than 450,000 students in India as of December 2022. She read for her Master's degree at the University of Oxford as a Commonwealth Scholar and is a gold medal-list from Bangalore University (Mount Carmel College), India.

Ms. Sugandhi Baliga, CEO of Vayah Vikas, is a professional with 33 years' experience in project management, capacity building and training, human resources, organisational development, networking and advocacy. She has had a deep interest in the field of health, particularly geriatric care through research. With an MBA from the Jamnalal Bajaj Institute of Management, Mumbai, she spent the initial years of her career with different corporates before deciding to move to the development sector, where she worked with Indian and international NGOs before joining the Tata Trusts in 2003. She anchored the older adult care programme and was instrumental in conceptualising, designing, piloting and scaling a national helpline for older adults along with the Ministry of Social Justice. In July 2021, she was awarded for her exemplary leadership in the Social Impact arena by the Vedica Women's Alliance. As the CEO of Vayah Vikas, she leads the organisation in creating an eco-system for older adults in India through a membership model. She is currently pursuing studies in art-based therapy practice for older adults in a geriatric facility. She is an art lover with a passion for painting, and puts this interest to use in the form of therapy.

PREFACE

The shift in the global ageing population from about 10% in 2022 to about 20% in the next few decades is a window of opportunity for social, economic and political transformation. By 2030, older adults will number about one billion people – a force to reckon with. This economic segment carries a wealth of institutional knowledge, social maturity and stability. Yet, most healthcare, government and social systems are not designed to be inclusive of their needs. A coordinated response is essential in order to develop solutions, and it is crucial that older adults be at the centre of this change.

This book is intended to serve as a comprehensive guide for older adults in India and their caregivers. It aims at sensitising the target audience on the process of ageing and how to prepare for it. We hope it will be helpful to those who are retired or approaching retirement, those who support and look after older adults, and those who want to learn particularly about issues that affect older adults in India.

It is endorsed by two premier national organisations: the Association of Healthcare Providers – India (www.ahpi.in) which represents the vast majority of healthcare providers in our country, and Vayah Vikas (www.vayah-vikas.org), a registered not-for-profit organisation which is building an eco-system of services and opportunities for older adults to lead independent and dignified lives with meaning.

The eminent contributors to this compilation are experts in their field, and have generously given of their time, knowledge and effort *pro bono* for the benefit of older adults across India. It has been a privilege to work with each one of them and learn from them. In the spirit of accessibility, the entire book will be available online to download free of cost, and efforts are underway to have it translated into other Indian languages. Royalties from the sale of the print copies will go to Vayah Vikas.

The book aims to empower through awareness and education, by providing clear and comprehensive information on different topics for the older adults under health, social concerns, economic issues (including legal and policy frameworks), and technology and research. Using case studies to help engage

the reader, it aims to provide an overview of the situation both in the urban and rural context and, where possible, sheds light on the state of particularly vulnerable groups such as older women and older persons with disabilities.

The introduction provides an overview of ageing populations in India and across the world. Section 1 on *Health* contains four chapters: *An Apple a Day: Living Well and Ageing Gracefully* looks at the factors within our control that impact ageing; *How We Grow Old: The Science Behind Healthy Ageing* describes normal physiological changes that come with ageing, and what red flags to watch out for; *Adding Life to Years: Mental Health in Older Persons* examines loneliness, depression and other mental health issues faced by older adults and how to treat them; and *Ageing in the AYUSH Context: A Holistic View* provides an overview of AYUSH concepts of ageing to enable a holistic understanding of the process.

Section 2 on *Social Concerns* comprises four chapters: *Devotion with Dignity: The Caregiver's Perspective* explores the challenges, joys and critical aspects of caregiving for an older adult; *From Boomers to Zoomers: Multi-Generational Social Bonding* looks at the dynamics in a joint household, especially those of the "sandwich" generation; *A Place to Call Home: Community Facilities for Older Adults* delivers an overview of senior care facilities, outlines how to select the most suitable one for the individual needs of older adults and examines the modern concept of ageing-in-place; and *Empower to Protect: The Safety of Older Adults* recommends strategies to empower older persons in living a safe, secure, abuse-free and dignified life.

Section 3 on *Economic Issues* comprises five chapters: *The Next Chapter: Preparing for Retirement* describes the different considerations to keep in mind for older adults in both the formal and informal sectors; *All About Money: Managing Your Finances* explains the central aspects of financial planning in the later years, including how to protect oneself from financial risk; *Covering Your Bases: The Importance of Insurance* deals with insurance in general and health insurance for older adults in particular; *The Rights of Older Adults: An Account of Law, Policy and Practice in India* captures the policy and legal initiatives to ensure older citizens' welfare in India; and *Leaving a Legacy: End-of-Life Estate Planning* summarises the important documents required in order to convey instructions in case of death or incapacitation.

The last section, Section 4, on *Technology and Research* contains four chapters: *Digital Health Solutions: The Future of Healthcare for Older Adults* considers how health technology can be used in different settings for the care of older adults; *Becoming a Silver Surfer: Technology and Digital Literacy for Seniors* delves into the importance of digital literacy and the potential of technology to maintain the autonomy of older people; *Ageing at the Cellular Level: Advances in Research* looks at ongoing scientific research on the ageing process; and *The Socio-Economic and*

Health Status of Older Adults in India: Evidence from LASI provides a summary of insights from the Longitudinal Ageing Study in India (LASI), a national survey of the determinants and consequences of population ageing.

The annexure to the book contains a selection of related resources under the categories of national government schemes, books, videos, services and helplines for older adults in India. The website on Vayah Vikas (www.vayah-vikas.org/directory) contains a complete State-wise and up-to-date version of this list.

It is our hope that this book drives forward the movement for a society that promotes a safe, autonomous and dignified life with meaning for every older adult.

Dr. Alexander Thomas
Chief Editor

ACKNOWLEDGEMENTS

On behalf of my co-editors, I would like to place on record our deep appreciation and grateful thanks to the numerous people who unstintingly gave of their time and efforts *pro bono* to support the development of this book.

I am indebted to **Shri**. **M. N. Venkatachaliah**, former Chief Justice of India, for his eloquent and inspiring foreword to this book.

I am grateful to the eminent members of the editorial advisory board – **Dr. Glory Alexander, Ms. Karuna Sivasailam** and **Dr. V. C. Shanmuganandan** – for their insightful feedback after reviewing the manuscript.

I would like to express my deepest appreciation to every one of the distinguished **contributors**, each of whom gave generously of their time and knowledge to create this guide; a complete list of contributors is presented in the following pages, with their brief profiles available at the end of the book.

I am also grateful to the distinguished **domain experts** who reviewed the chapters in their area of expertise; a complete list of reviewers is presented in the following pages, with their brief profiles available at the end of the book.

Vayah Vikas has sponsored the production of this book, through which we are able to make it available on an open access platform. Credit is due to **Mr. Uday Daniel** for designing the cover, and to **Mrs. Usha Barnabas** and **Mr. David Barnabas,** the couple in the cover photograph. I am grateful to **Ms. Pavithra Reddy** for compiling the annexure.

Finally, I would like to thank my co-editors **Mr. Kris Gopalakrishnan**, **Ms. Divya Alexander** and **Ms. Sugandhi Baliga** for the role they played in the foundation and development of the manuscript, as well as for contributing chapters in their area of expertise. I am thankful to my colleagues in the AHPI Bangalore Secretariat, especially **Mr. Jerald James**, for their tireless efforts in managing this project.

As ever, it was a pleasure to work with our capable colleagues at **Indus Publishers** and **ThinkMines Media**. We are grateful for their continuous partnership and high standards in making this book accessible to as many people as possible.

Dr. Alexander Thomas
Chief Editor

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INTRODUCTION

A. B. Dey, Kris Gopalakrishnan and Alexander Thomas

Humankind has always been intrigued by the idea of defying ageing and death. In fact, much of the focus of societal development and scientific advancement has been to escape premature death and prolong longevity. Life expectancy at birth has risen significantly in India during the last century as a result of stupendous scientific advancements, better healthcare infrastructure and lifestyle changes. We are living longer than ever before, but in our quest to survive longer, our additional years are plagued with multiple diseases and disabilities. These years that every human aspires to live also pose several challenges that encompass all aspects of life.

In 2020, an estimated one billion people were over 60 years of age, globally. In 2030, this number is expected to be 1.4 billion, accounting for one-sixth of the world population; and by 2050, the world's population of people aged 60 years and older is expected to double.[1] The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million.[1] In India, as per the 2011 census, 104 million people were over 60 years. It has been projected that in 2050, 19% of Indians will be over 60 years, numbering about 320 million.

People all over the world are enjoying a longer life. In India, life expectancy has increased tremendously from the early 40s to the late 60s over the last few decades. Initially, the shift towards an older society began in developed countries; however, low- and middle-income countries are presently experiencing a dramatic increase in older adults. The situation in India is similar to trends in other countries. Moreover, there has been a steady increase in the growth of the older adult population while the rate of growth of younger adults is on the decline.

The human life span has been estimated to be 120–125 years. It is an accepted fact that our life span is scripted in our genes;[2] however, only a few

1. World Health Organisation. Ageing and Health. Updated on October 1, 2022. https://www.who.int/news-room/fact-sheets/detail/ageing-and-health
2. Brooks-Wilson AR. Genetics of healthy ageing and longevity. *Hum Genet.* 2013;132(12):1323-1338. doi: 10.1007/s00439-013-1342-z

come close to this maximum life span. Persons who live beyond 100 years, or centenarians as we call them, provide us with the opportunity to understand the secrets of living a very long life. In July 2022, the top ten populations with centenarians were: the Caribbean islands of Guadeloupe, Barbados and Martinique; Japan, Uruguay, Puerto Rico, Hong Kong, the Channel Islands, France and Latvia. What makes people live beyond 100 years has been dealt with in the subsequent sections of this book. Even those endowed with long-life genes do not reach the maximum life span as the surrounding environment may not be supportive enough. Environment in this context goes beyond ambient weather and pollution, but encompasses a whole range of issues which are part of us (internal environment) and surround us (external environment), giving rise to the concept of age-friendly environments.

An age-friendly environment is a concept popularised by the International Federation of Ageing as that which "fosters health and well-being and the participation of people as they age; which is accessible, equitable, inclusive, safe and secure, supportive, promotes health and prevents or delays the onset of disease and functional decline."[3]

The World Health Organization (WHO) has recognised the importance of an age-friendly environment as being a "determinant of long life and healthy old age by playing an important role in determining our physical and mental capacity across a person's life course and into older age and also how well we adjust to loss of function and other forms of adversity that we may experience at different stages of life, and in particular in later years."[4] Both older people and the environments in which they live are diverse, dynamic and changing. In interfaces between the two, they hold incredible potential for either enabling or constraining healthy ageing. An age-friendly environment includes several aspects, such as the physical environment around us, the social environment in which we live and the support system provided by our family, community and State.[4] The various aspects of this concept will be discussed in greater detail in this volume.

Since the beginning of this millennium, old age and older people have received attention in developmental agendas, starting with the United Nations General Assembly on Ageing in 2002 in Madrid. It is not for nothing that the world took notice of the phenomenon of population ageing, as more than half

3. International Federation on Ageing. Age-friendly environment. Accessed on December 12, 2022. https://ifa.ngo/positions/age-friendly-environments/
4. World Health Organisation. Age friendly environment. Accessed December 12, 2022. https://www.who.int/teams/social-determinants-of-health/demographic-change-and-healthy-ageing/age-friendly-environments

of all people who ever lived beyond 60 years are alive today. The structure of society across the globe is changing drastically. Families and communities now comprise many generations, making society truly multigenerational. There is global concern regarding harmonious multigenerational existence. The other concern regarding this phase of life is being in a state of unpreparedness. Older people in India usually don't plan for the twilight years. In the organised sector, individuals with access to pensions and subsidised healthcare neither consider plans for catastrophic health expenditure as essential nor do they anticipate expenses for long-term care as unaffordable. The majority of older people are from the unorganised sector; such planning is beyond their financial capability.

Healthy ageing is an aspiration for each human being. Planning for healthy ageing is, however, extremely challenging as harmful exposure to health risks, both known and unknown, becomes prolonged with increased longevity. Added to these risks are the unavoidable consequences of the biological decline of the body, which creates a situation that cannot be anticipated in advance or planned for. Older people are prone to suffer from chronic diseases of metabolic–vascular origin, in addition to degenerative diseases of the brain, musculoskeletal and sensory systems, as well as to exposure-related diseases such as cancer. Thus, the new paradigm of healthy ageing is not to be disease- and disability-free but to be cared for and supported.

The definition of healthy ageing is now conceptualised as "the process of developing and maintaining the functional ability that enables wellbeing in older age,"[5] where functional ability means "having the capabilities that enable people to be and do what they have reason to value."[5] Functional ability includes a person's ability to meet their basic needs; learn, grow and make decisions; be mobile; build and maintain relationships; and contribute to society.[5] On a different paradigm, functional ability is a product of the interaction of intrinsic capacity comprising of physical and mental capabilities and the social and physical environments.[5]

This shift in approach places greater emphasis on retaining the physical and mental attributes as much as possible in later life despite being adversely affected by age-associated diseases and biological changes. Environment in this concept comprises the home, community, society, physical structures, family, relationships, social and State policies for health and welfare services, and the value systems that support them. Everybody aspires to live in a supportive

5. World Health Organisation. Healthy ageing and functional ability. Updated October 26, 2020. https://www.who.int/news-room/questions-and-answers/item/healthy-ageing-and-functional-ability

environment that is essential for healthy ageing. For a heterogeneous older population, policies and services need to be all-encompassing irrespective of physical and socioeconomic diversity and inequity. Healthy ageing, like active ageing, enables older people to be a resource and not a concern to their families, communities and economies.[5]

The greatest challenge for healthy ageing is lack of access to quality healthcare close to home, at an affordable cost. In preceding decades, there have been tremendous advances in healthcare for many hitherto untreatable diseases. However, these technological advances have come with substantial increases in cost of care, often beyond the reach of the majority of the older population. Until recently, in the absence of health security, catastrophic out-of-pocket expenditure for healthcare used to be an important cause of poverty. The advent of schemes for the hospital care of a defined segment of the society has provided great relief to a section of the older population. However, a large chunk of the ageing population remains outside subsidised healthcare and health insurance cover; more work needs to be done to address these challenges. In the usual discourse of old age and ageing, health occupies a prominent place; ill-health possibly a starting point of sharing experiences and socialising. In general, older people feel better in health when compared with others rather than in absolute terms. Measuring health is always a challenge in late life in view of the heterogeneity and absence of common denominators. Health being a product of several determinants, including socioeconomic status and cultural practices, measurement of healthy ageing is a challenge.

Older people carry a huge burden of non-communicable diseases (NCDs). Organ-specific infections, however, can often be life-threatening and can be the terminal event in the presence of degenerative neurological conditions and chronic organ failure settings. Influenza is a common seasonal infection in old age which may lead to severe consequences. Influenza vaccines have always attracted substantial scientific interest in view of the constantly changing antigenic structure and geographic variations. The coronavirus infection or Covid-19, an influenza of a different kind, in its pandemic proportion has decimated the health and welfare infrastructure of most countries in the world.

Older people were the worst affected group in terms of rate of infection, serious complications, need for intensive care and case fatality.[6] Waves of

6. Singhal S, Kumar P, Singh S, Saha S, Dey AB**.** Clinical features and outcomes of COVID-19 in older adults: a systematic review and meta-analysis. *BMC Geriatr.* 2021; 21(1):321. doi:10.1186/s12877-021-02261-3

infection with rapidly changing antigenic structure and virulence disrupted the usual old age health and welfare services, and caused immense misery to the ageing population. Several coronavirus vaccines were designed, produced and made available. In many countries including India, older people were provided the vaccine on priority. Several questions regarding the virus, its treatment, vaccine efficacy, public health response and overall management strategy for this "once in a century pandemic" remain unanswered. The social and behavioural challenges of public health restrictions during the pandemic, and their impact on vulnerable groups have not been well-researched or reported. Assessment of these challenges is necessary in order to prepare for future disasters of such magnitude. Covid vaccination strategies have been largely successful, both in breadth and depth of outreach in India; this needs to be evaluated for the application of similar public health actions in terms of adult vaccination as well as NCD control.

Another silver lining of the pandemic management was the application of technology in various aspects of healthcare. Tele-health is one innovation which was useful for the functioning of health systems across the world. The World Health Organization has been advocating the use of mobile telephony in several segments of public health interventions,[7] such as smoking cessation, antenatal management, NCD care, etc. However, these initiatives were in the proof-of-concept stages, at best requiring greater research and development. Covid-19 has opened a new avenue for the application of telehealth in both clinical care as well as public health practices. This is likely to benefit the older population, who often find accessing healthcare difficult. Innovation in healthcare requires good quality data collected scientifically from large and diverse sources. The applications of machine learning through big data and artificial intelligence open new vistas in healthcare including old age care.

The National Policy on Older Persons was adopted by the Government of India in 1999. In the last quarter of a century, several legislations, programmes and schemes have been derived from this policy by various departments and ministries to make life better for older Indians. Similar affirmative actions have been adopted by most countries and, finally, by the United Nations in December 2020, as the UN Decade for Healthy Ageing 2021–2030.[8] The UN Decade is an evolving programme with a 10-year global plan of action

7. World Health Organisation. Be healthy, be mobile. Updated October 27, 2022. https://www.who.int/initiatives/behealthy
8. Thiyagarajan JA, Mikton C, Harwood RH *et al.* The UN Decade of healthy ageing: strengthening measurement for monitoring health and wellbeing of older people. *Age Ageing.* 2022;51:1-5. doi:10.1093/ageing/afac147

to ensure all older people can live long and healthy lives.[8] The UN Decade programme focuses on the elimination of ageism in society, and the provision of an age-friendly environment, inclusiveness, innovation, leadership development, personalised care and long-term care for those who need it. For civil society organisations in the field of social development, and for health professionals involved in old age care, the UN Decade provides an opportunity to innovate and collaborate and make this world a better place for the current and future generations of older population.

This volume is a comprehensive guide that deliberates on various aspects of life and living in the sunset years, and spells out the challenges and opportunities for a long, active and enjoyable old age.

SECTION I
HEALTH

Chapter 1

AN APPLE A DAY: LIVING WELL AND AGEING GRACEFULLY

Gopinath Kango Gopal

Mr. Ramanathan (62) is a retired manager of a public sector bank. His daily routine includes gardening, visiting the club to meet his friends, going to the temple in the nearby suburb, and other house-related chores such as paying bills, etc. Mrs. Ramanathan (56) is a teacher who works in the government school about five km away. Their two adult children have migrated abroad – one lives in the USA while the other lives in Germany.

Mr. Ramanathan has no medical illnesses and does not take any regular medications. His older brother, Mr. Shankar, has been mostly bedridden for the last three years due to multiple medical diseases. Mr. Ramanathan wants to remain as healthy as possible for the rest of his life and hopes to not suffer like his brother.

Introduction

People all over the world are enjoying longer lives. Every country in the world is experiencing growth in both number and proportion of older persons.[1] The situation is no different in India.

Unfortunately, the longer lifespan does not translate into the benefits we imagine if those additional years of longevity are spent in poor health. Many factors that have an impact on healthy ageing are in the control of older adults. In this chapter, the author discusses these factors and how older adults can live healthily, age gracefully and thereby enjoy a good quality of life. This chapter will:

1. WHO. Ageing and health. Updated October 1, 2022. https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

1. Examine the factors that have an impact on healthy ageing that are within the control of older adults.
2. Explain the meaning of functional capacity and how to maintain it for healthy ageing.
3. Delve into the importance of physical exercise, eating well, good quality sleep, hobbies, social community, and avoiding stress and addictions for a good quality of life.
4. Provide an action plan to follow for each factor.

Factors that impact healthy ageing

A longer lifespan accords multiple benefits to older people, their families and society at large. Increased life means more scope to learn new skills, enjoy unfulfilled hobbies and savour incomplete passions. Older adults can also greatly contribute to the upliftment of the society if they possess good health.

Unfortunately, literature points out that the additional years of older adults are spent in ill health and the years of good health that older people enjoy have remained relatively constant over time. If older people can enjoy good health and a supportive environment, their ability to do the things they value will be like that of younger adults. If these years are dominated by decline in physical and mental health, this will turn out to be detrimental to both older people and the society at large.

While healthy ageing is dependent to a small extent on genetics, other larger factors are physical and social environments, including their homes and communities, as well as their gender, ethnicity and socioeconomic status. The environments that people live in as children, combined with their personal characteristics, appear to have long-term effects on their ageing process.

Physical and social environments can affect health, directly or indirectly, through barriers or incentives that affect opportunities, decisions and health-related behaviour. Developing a healthy routine throughout life, such as maintaining a balanced diet, engaging in regular physical activity and refraining from tobacco and excessive alcohol use, contributes to reducing the risk of many diseases, improving physical and mental capacity and delaying functional decline.

Supportive environments also enable older people to do what is important to them, despite losses in functional capacity. A supportive family, adequate public amenities such as older adult-friendly transport and offices will assist older adults to experience healthy ageing.

Functional capacity

Functional capacity is an important term in geriatric parlance. It refers to the possession of capabilities that enable all people to be and do what they value. Functional capacity looks at a person's ability to meet basic needs, make decisions, be freely mobile, maintain family and social relationships and help in fostering a better society with their knowledge and skills. The next section explains how functional capacity can be maintained for healthy ageing.

Exercising and physical activity

Physical activity is a major determinant of healthy ageing. Evidence suggests that people who exercise regularly are more likely to have a longer life and without much pain or functional disability. A 2020 study published in *JAMA* found that adults over 40 years of age taking more than 8,000 steps per day were associated with a 51% lower risk of death from any cause as compared to those who took only 4,000 steps a day.[2] Some simple activities that can help increase the number of steps include lower usage of vehicles whenever possible, such as when buying vegetables, provisions, etc., gardening, walking the dog and taking the stairs instead of a lift or escalator. Lower use of vehicles also implies better air quality and savings on fuel consumption.

Studies have shown that exercise is an essential tool for maintaining an optimum body weight. Adults with obesity have an increased risk of death, disability, and many diseases such as type 2 diabetes, metabolic syndrome, obstructive sleep apnoea, high blood pressure. However, being very thin is also not healthy. Being or becoming too thin can weaken your immune system, increase the risk of fractures and, in some cases, it may be a symptom of some underlying major disease such as infection or cancer. Sarcopenia, a term used to describe loss of muscle mass with ageing, can ensue with weight loss and lead to complications such as fatigue, poor health, infections, frequent falls, loss of independence and death.

Exercise can help older adults maintain muscle mass as they age. A 2019 study from the USA reported that moderate to vigorous physical activity was

2. Saint-Maurice PF, Troiano RP, Bassett DR Jr *et al.* Association of daily step count and step intensity with mortality among US adults. *JAMA.* 2020;323(12):1151-1160. doi: 10.1001/jama.2020.1382

strongly associated with muscle function, regardless of age, which means that exercise may be able to prevent age-related decline in muscle function.[3]

Besides helping older adults live better, muscle mass maintenance can help them live longer. Another study found that in adults over 55 years, muscle mass was a better predictor of longevity than was body weight or body mass index.[4]

ACTION PLAN: It is difficult for adults to adopt a complex exercise regimen when they become older. Hence, starting regular exercise when young should be the mantra to maintain good physical function and develop the habit over time. However, it is probably never too late to start exercising. Therefore, engaging in simple regular exercises such as walking and yoga can be helpful. With time, these exercises can be toned up if older individuals are motivated.

Eating healthy

In the recent past, there has been an explosion in the number of available diets. The right food can prevent many adverse health conditions such as cardiovascular disease, memory decline and obesity. In animal studies, rats given 40% less food and fruit flies that were intermittently starved lived longer than well-fed animals.[5] Generally, a diet including lots of fruits and vegetables, whole grains, lean proteins and low in saturated fats has proven to be good for older adults.

Two major diet patterns have gained popularity in recent years:

1) The Mediterranean diet, which includes fresh produce, whole grains, healthy fats and fish, with fewer dairy products, has been shown to reduce sudden cardiac death.[6]
2) The DASH (Dietary Approaches to Stop Hypertension) diet includes vegetables, fruits, whole grains, fat-free or low-fat dairy products, fish,

3. Adelnia F, Urbanek J, Osawa Y *et al.* Moderate-to-vigorous physical activity is associated with higher muscle oxidative capacity in older adults. *J Am Geriatr Soc.* 2019;67(8):1695-1699. doi: 10.1111/jgs.15991
4. Srikanthan P, Karlamangla AS. Muscle mass index as a predictor of longevity in older adults. *Am J Med.* 2014 Jun;127(6):547-553. doi: 10.1016/j.amjmed.2014.02.007
5. Lombard DB, Miller RA, Pletcher SD. Biology of Aging and Longevity. In: Halter JB, Ouslander JG, Studenski S, High KP, Asthana S, Supiano MA, Ritchie C. eds. *Hazzard's Geriatric Medicine and Gerontology*, 7e. McGraw Hill; 2017. Accessed April 04, 2023. https://accessmedicine-mhmedical-com-443.webvpn.sysu.edu.cn/content.aspx?bookid=1923&sectionid=144516694
6. Shikany JM, Safford MM, Soroka O *et al.* Mediterranean diet score, dietary patterns, and risk of sudden cardiac death in the REGARDS study. *J Am Heart Assoc.* 2021;10(13):e019158. doi: 10.1161/JAHA.120.019158

poultry, beans, nuts, vegetable oils and avoids foods that are high in saturated fat (such as fatty meats, full-fat dairy products and tropical oils such as coconut, palm kernel, and palm oils), while limiting sugar-sweetened beverages and sweets. This diet has led to the reduced risk of hypertension, obesity and diabetes mellitus.

ACTION PLAN: For those who follow a vegetarian diet, it may not be feasible to incorporate the entire diet pattern described above. Nevertheless, adopting a few strategies such as increasing the intake of green leafy vegetables and reducing the intake of saturated fat is an important modification. ***However, adopting these diet plans should be under the guidance of your personal physician****.*

Minimising memory loss

Memory is a crucial determinant of healthy ageing. Cognition, or the ability to think, learn, make decisions and plan activities, declines mildly with age. The rate of decline depends on various factors such as genetics, education, medical conditions, substance abuse, prior major head trauma, etc. Dementia is a medical condition in which the individual loses cognitive function and thereby the capacity to carry out day-to-day activities, becoming dependent on others to live. On the other hand, many older adults experience cognitive decline that does not impede daily functioning.

Having uncontrolled medical conditions such as diabetes mellitus, hypertension and high cholesterol can worsen memory loss. Studies have shown that simple daily activities can help maintain or even improve an individual's cognitive capacity. These activities include regular exercises, not smoking, avoiding heavy alcohol use, a balanced healthy diet, indulging in mentally stimulating activities such as solving puzzles, crosswords, Sudoku, reading, writing and so on.

ACTION PLAN: Frequent physical exercises, mentally stimulating activities and regular doctor visits to manage medical conditions are all helpful in maintaining good cognitive capacity. Learning new skills can improve memory in older adults.

Maintaining strong bones

Healthy bones are very important for the body. A major cause of misery in older adults is that due to weak bones of the hips and the backbone, fractures occur even with trivial trauma such as a fall due to slipping or tripping in the bathroom. This leads to significant pain and even being bedridden, which is associated with hospitalisation and fatal complications. Healthy bones can prevent fractures even in the event of a fall. Peak bone mass (PBM) is attained

by most individuals by 30 years of age, after which the bones begin to weaken. Various factors such as smoking, heavy alcohol use, steroid use, and being female, all have a negative impact on PBM. In women, hormonal changes due to menopause cause a rapid decline in bone mass, and hence it is critical to attain a higher PBM in one's youth to avoid fractures in the later stages of life.

ACTION PLAN: Caring for the bones is an important aspect of healthy ageing, and ideally this should be commenced at a young age and continued throughout one's lifetime. Strategies to follow are regular weight-bearing exercises; adequate intake of calcium (milk, yoghurt, legumes and seeds), protein and green leafy vegetables; and regular exposure to sunlight.

Avoiding addictions

Smoking has been associated with numerous ailments such as cardiovascular disease, lung disease including lung cancer, urinary bladder cancer, dementia, narrowing of the blood vessels in the upper and lower limbs causing gangrene, etc. Smoking leads to psychological nicotine dependence that causes more craving for cigarettes/beedis that contain nicotine. Surveys in the USA have shown that generally people want to quit smoking, and a large number have made serious attempts without success. A study done among older adults of both genders showed that current smokers were three times more likely to be dead when compared to never smokers after six years of follow-up showing the deleterious effects of smoking. The study also showed that quitting smoking dramatically reduced death rates, and other studies have shown that smoking cessation is beneficial at all ages.[7] Studies have shown that second-hand smoking or passive smoking is not just unpleasant, but also causes adverse outcomes similar to that experienced by smokers.

Older people should limit **alcohol** consumption just as for younger adults. Ageing may be associated with social isolation, older person abuse and depression, which make older adults prone to alcohol misuse, but then, older adults are also more likely to suffer from the adverse consequences of alcohol misuse. Alcohol is known to affect almost every organ in the body, notably the brain, liver and heart, causing irreversible damage. However, stopping alcohol intake may improve the functioning of the affected organ systems. Studies have shown that alcohol expedites the ageing process.

ACTION PLAN: It is crucial for older smokers to quit smoking as soon as possible. It is never too late to stop smoking and enjoy the benefits of better breathing, more energy, more

7. Thun MJ, Carter BD, Feskanich D *et al.* 50-year trends in smoking-related mortality in the United States. *N Engl J Med.* 2013;368(4):351-364. doi: 10.1056/NEJMsa1211127

money saved and protecting loved ones from the ill-effects of passive smoking. It is important for older adults to be educated on the effects of alcohol on the body and be given help to quit or limit alcohol intake. Psychiatrists are well-trained to deal with patients who are addicted to smoking and alcohol and it would be wise to seek their opinion.

Sleeping well

All human beings need quality sleep and older adults are no different in this regard. In general, older adults need at least six hours of sleep, although this is highly variable. A good night's sleep is rejuvenating and gets the body ready for the day ahead. Poor quality sleep is associated with various effects such as depression, anxiety, headache, irritability, anger, increased fall risk, dementia and death. Poor sleepers also have wavering concentration and poor problem-solving abilities when compared to other older individuals. Moreover, older adults start using pills to improve sleep which is associated with many side effects such as day-time drowsiness, lung infections, falls and head injuries. Good quality sleep has been associated with lower obesity, reduced insulin resistance and lower risk of heart disease. An important issue, especially in older males, is benign enlargement of the prostate gland that can cause frequent urination at night, causing interrupted sleep.

ACTION PLAN: Maintaining a sleep routine, avoiding stimulating or emotional videos before bedtime, avoiding bright lights in the bedroom, light exercise before bedtime and drinking warm milk may be useful in promoting good sleep. If these measures do not help, consult a doctor to assess for causes of poor sleep.

Avoiding anxiety

Human beings face stressful situations in life every day. Stress comes in multiple forms and different people deal with stress differently. Both positive and negative situations can evoke stress. As an example, an older adult may become stressed when buying a new home due to many uncertainties. Likewise, becoming a grandparent, although a positive situation, may cause anxiety in the older adult.

Older adults are at higher risk for stress and stress-related problems. Studies have shown that chronic stress can have a telling impact on decision-making capacity and memory. A sub-analysis of a Baltimore study of ageing (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2505356/) revealed that emotionally stable adults survived three years longer on an average when compared to adults who remained in an anxious state.

ACTION PLAN: Mediation, yoga and behavioural therapy are all useful in reducing stress. Consulting a doctor for counselling may also be useful. Participation in activities that bring satisfaction and joy should be considered to minimise stress and anxiety.

Regular health check-ups

Regular health screening by a doctor is an important aspect of healthy ageing. Many diseases that kill human beings tend to be silent and slowly progressive, at least in the early stages of the process. Some common examples are diabetes mellitus, hypertension, high cholesterol and cancer. Advances in technology have helped us detect and monitor these diseases early for ensuing disease complications. Cancer screening has been especially useful in picking up and treating cancers in the colon and cervix.

Older adults with chronic medical illnesses are prone to complications of diseases, which can have a significant impact on the ageing process and make the older adults prone to functional decline and disability. Studies have shown that the risks due to chronic medical illnesses such as diabetes mellitus and hypertension can be mitigated greatly by controlling them with regular medications and other measures. Adult immunisation is recommended for influenza (one dose annually), Covid-19 (three doses) and pneumonia (two doses one year apart for lifetime immunity). Other vaccinations may be advised by the doctor for certain illnesses such as hepatitis B, herpes zoster, tetanus, etc., based on the medical conditions of the older adult.

ACTION PLAN: For older adults without any major medical illness, a thorough health screen with the relevant investigations is recommended annually. Immunisation is recommended for the flu, pneumonia and Covid-19, with other vaccinations dependent on the person's medical condition. For older adults with medical conditions, more frequent visits to the doctor are advised.

Developing hobbies

As children, all of us would have had at least a few hobbies/interests such as philately, carpentry, singing, playing musical instruments, etc. However, with the passage of time, other demands such as work, family and social responsibilities take precedence, forcing hobbies to take a back seat. However, older adults who have retired from work and have adult/independent children may in fact have ample time to pursue their hobbies. A 2010 study showed that the risk of dementia was lower in individuals who spent time on hobbies.[8]

ACTION PLAN: Explore different hobbies to find one that is fulfilling and brings joy. Some older adults enjoy spending time on hobbies every day, and others a few times a week.

8. Hughes TF, Chang CC, Vander Bilt J, Ganguli M. Engagement in reading and hobbies and risk of incident dementia: the MoVIES project. *Am J Alzheimers Dis Other Demen.* 2010;25(5):432-438. doi: 10.1177/1533317510368399

Avoiding social isolation

With rapid urbanisation, more older adults are forced to live away from their children. We have moved from a joint family system to a nuclear family system that has torn the family fabric of many older people. This also means that older people often feel neglected and/or are subjected to abuse by their loved ones. In addition, older adults also feel isolated socially. Loneliness is a term used to describe perceived social isolation.

Social integration is the amount of involvement that an individual has with the larger social structure and community. Maintaining social relations is crucial to healthy ageing; social isolation has been linked to cardiovascular disease, functional decline and death. Positive relationships can reinforce the purpose of life and increase the sense of happiness and joy. Social isolation has also been associated with a variety of personality disorders, suicidal tendencies and poor memory.

ACTION PLAN: Maintain contact with family members who live away from you. Make it a point to visit them often if circumstances permit, and spend time with grandchildren. Explore means of getting in touch with old mates from school/college, other old friends and keep meeting them regularly if possible.

Vulnerable groups

A major determinant of health status and ageing is access to healthcare. In India, both public and private health systems coexist. While public health systems are generally provided free of cost or at low cost, private healthcare can be expensive, especially for complicated medical issues. There is a wide variation between different States, and between rural and urban areas, in the quality and access to healthcare. Rural areas depend primarily on public healthcare systems as private facilities are usually concentrated in the bigger towns and cities. A major portion of older adults live in rural India and rely on public healthcare services for their healthcare needs. If these older adults want access to private healthcare, they have to travel long distances and spend more money. Older adults in rural areas have lower incomes, which may also be a barrier in accessing these services.

Conclusion with key takeaways

Ageing is an inevitable process that all human beings will experience. Some factors to ensure healthy ageing lie in the hands of the older persons themselves. A regular exercise programme, healthy eating practices, avoiding stress and bitterness, sleeping adequately, regular doctor visits, avoiding dangerous

substance use and preventing loneliness are robust mechanisms to promote healthy ageing. The family and society play an important role in ensuring that older adults have adequate opportunities to achieve healthy ageing.

- Life expectancy is increasing all over the world and India is not an exception – the population of older adults is increasing rapidly.
- Longer life among older adults may imply multiple benefits to older adults, the community and the country, but this depends on various factors.
- Maintaining good functional capacity leads to healthy ageing.
- Healthy ageing to a large extent lies in the hands of older adults and the society they live in.
- The various factors that play an important role in healthy ageing have been explored and action plans provided for each one.

Chapter 2

HOW WE GROW OLD: THE SCIENCE BEHIND HEALTHY AGEING

Dominic Benjamin

Mrs. Nagpal is 66 years old; she is well except for some joint aches and pains. She was widowed during the Covid-19 pandemic. Her deceased spouse had smoked for many years, and was hypertensive and diabetic. She lives alone; her two sons are living away in different cities. She is independent and self-caring. She is financially sound because of pensions and savings. As her husband was unwell in his last few years and she used to accompany him during his frequent hospital visits, she understands the cost of healthcare and its devastating effect on family peace and harmony.

Mrs. Nagpal is very apprehensive about possible future health impairments. She gets regular health checks, annual mammograms, and DEXA scans, all of which have been negative. She has been feeling lonely and depressed after her spouse's death; she had to handle it alone since her children couldn't be with her. She is anxious about her health and worried that she may become disabled and dependent. She reaches out and makes new friends, attends the local community center and exercises regularly. She is interested in learning about ways to improve her health and prevent problems.

She is concerned about the future: "Is it inevitable that I will lose my independence even if I take good care of my health? What are the challenges to ageing well? What are the red flags that I need to look out for?"

Introduction

Ageing can produce significant changes in one's mobility, function and health. Individuals aged over 60 are more likely to have at least one non-communicable disease, and this number may increase as they advance in age. The fastest growing segment is people aged 80 years and above; this reality has implications for how we provide and deliver both healthcare and social support. It is vital for older adults to look after their physical, mental and social health. As our healthcare is private sector-driven, the cost of healthcare is very expensive; hence, it is

prudent to promote self-care and make people aware of the differences between the normal physiological processes of ageing and age-related diseases.

Our culture promotes a "reactive approach" rather than a "proactive approach" to health. The proactive approach to ageing well should be encouraged by promoting health screening, adult vaccination and education. Self-care, community participation and health promotion are emerging in the developing world but are more prevalent in developed countries. In a country like India where the GDP spent on health is less than 1%, a bottom-up approach by promoting and encouraging self-care and community care can be crucial for older adults. This chapter will:

1. Examine the concepts of self-care and self-management.
2. Describe the normal changes and common issues associated with ageing.
3. Highlight the red flags to watch out for and when to seek medical help.

Self-care and self-management

The World Health Organization defines self-care[1] as "the ability of individuals, families and communities to promote health, prevent disease, maintain health, and to cope with illness and disability with or without the support of a healthcare provider." The scope of self-care as described in this definition includes health promotion, disease prevention and control, self-medication, providing care to dependent persons, seeking hospital/specialist care, if necessary, and rehabilitation, including palliative care. Inherent in the concept is the recognition that whatever factors and processes may determine behaviour, whether or not self-care is effective and interfaces appropriately with professional care, it is the individual person who acts (or does not act) to preserve health or respond to symptoms.

Self-care is a broad concept which also encompasses hygiene (general and personal), nutrition (type and quality of food eaten), lifestyle (sporting activities, leisure, etc.), environmental factors (living conditions, social habits, etc.), socioeconomic factors (income level, cultural beliefs, etc.) and self-medication. Fundamental principles for self-care include aspects of the individual (e.g., self-reliance, empowerment, autonomy, personal responsibility and self-efficacy) as well as the greater community (e.g., community participation, community involvement, community empowerment). Never has the concept of self-care been more relevant than in the context of the exponential rise in chronic and communicable diseases, with a massive impact on healthcare systems worldwide.

1. WHO. Self-care interventions for health. Updated on June 30, 2022. https://www.who.int/news-room/fact-sheets/detail/self-care-health-interventions

Self-management can be defined as patients having the knowledge and skills to accomplish needed tasks to manage their chronic diseases on an ongoing day-to-day basis over the course of their illness. Self-management of chronic diseases is generally distinguished from related concepts that are quite relevant to older adults, such as wellness and self-care.

Normal changes associated with ageing

Changes in skin	The most prominent changes in the skin and hair are wrinkling, sagging, hair loss, greying and pigmentation of skin (especially in the face) and skin dryness. As we advance in age, we are prone to a variety of benign and malignant skin conditions. Pathological changes in skin include epidermal thinning, degeneration of the elastic fibres providing dermal support, loss of the fat layer under the skin and thickening of collagen fibres in the dermis. The reduction in the number of sweat and sebaceous glands leads to dryness of skin, and reduction in blood supply causes impairment in acclimatising to weather changes. This means that older adults bruise easily and feel colder due to poor blood supply and impaired ability to regulate temperature. This is one of the reasons why older people feel the chill, and shiver more often.
Changes in the heart	The heart's capacity to pump remains stable as we age. The resting heart rate is unchanged or only minimally reduced with ageing; cardiac output is also preserved. When we exercise, the stress hormone is secreted and the heart rate increases to adapt to the increased demand; in older adults, this response is blunted. There are many systemic disorders that cause impairment to the ageing heart, that is, diabetes, thyroid dysfunction and hypertension. This is further complicated because of the heterogeneous nature of the above-mentioned changes in each individual. An older heart with no cardiac disease can stay active and take part in all activities, including endurance activities, with regular training and fitness.
Changes in the lungs	As we age, a variety of physiologic changes in the lungs can lead to a decline in their respiratory indices and increase in residual volume (ability to fill up your lung to maximum capacity and forcefully blow out the air). These changes come about as a result of reduced elasticity, chest wall stiffness, decreased lung mass and reduced respiratory muscle strength. Normal breathing does not change with ageing, although the breathing rate may increase as we age. Age-related muscle atrophy in the diaphragm predisposes older adults to muscle fatigue and is prone to respiratory failure. Decreased airway ciliary movements and poor cough reflexes make older adults more prone to chest infections; in older adults, flu and secondary infections can be especially devastating. Vaccination against pneumonia and influenza is effective.

Changes in the gastrointestinal system

Coordination between the pharynx and oesophagus becomes impaired with age, hence an older adult is at higher risk of aspiration (choking) while swallowing. Stomach acid secretion is also reduced, due to which it takes longer for the stomach contents to empty; this, coupled with a weak lower oesophageal sphincter, predisposes older adults to bloating and heartburn, especially when they eat spicy food. The size of the liver and its blood supply decrease with ageing. The liver is a like a warehouse where all the medications and absorbed nutrients are processed; in older people, the enzymes responsible for this are significantly reduced, thereby making them prone to drug toxicity.

The pancreas and small intestine undergo changes with ageing. The pancreatic secretion is reduced, and this alters the body's ability to digest food, especially fatty food. Hence, older people feel bloated after a fatty meal. The small intestine also loses its ability to absorb nutrients, vitamins, minerals and fatty acids. Impaired hormone sensitivity predisposes a person to increased satiety.

The large intestine, which is important for bowel activities and absorption of nutrients, becomes slow in propelling the contents, which contributes to constipation. The symptoms predominantly underlying self-reported constipation in older people tend not to be infrequent bowel movements but straining and passing hard stools. Impaired relaxation of the large intestine coupled with constipation predisposes one to diverticulosis and abnormal epithelial growth, which increases the incidence of pre-cancer and cancer.

In practical terms, at least 10g of fibre with additional fluids should be recommended to patients. Although coarse bran, rather than more refined fibre, is more effective in increasing stool fluid weight, it is far less palatable and is more likely to cause initial symptoms of increased bloating, flatulence and irregular bowel movements. Fibre should therefore be recommended in the form of food, such as wholemeal bread, porridge, fresh fruit (preferably unpeeled), seeded berries, kiwi, raw or cooked vegetables, beans and lentils.

Probiotic supplementation (particularly *Bifidobacterium lactis*) decreases intestinal time with the greatest clinical effects in constipated and older people, and increases the frequency of defecation in older people. Physical activity interventions in older adults are generally most effective if incorporated naturally into their daily routine.

Changes in the genito-urinary system

Urinary incontinence is the involuntary leakage of urine. Fewer than 50% of women living with incontinence consult healthcare professionals for care, resulting in significant physical and psychological limitations. Many women choose to turn to home remedies, commercially available absorbent materials and supportive aids. As the incontinence worsens, many women become depressed, limit their social interactions, refrain from sexual intimacy and become homebound.

Stress urinary incontinence is very common in women. They experience leaking of urine while coughing, sneezing or doing anything that increases abdominal pressure. It is more often seen in obese women and women with many children. Treatment: pelvic muscle exercises; medications (alpha-adrenergic agonist), periurethral injection and surgical neck repair.

Urge urinary incontinence (UUI) – Sudden urge to pass urine with difficulty in holding on or deferring leads to rushing and predisposes the older adult to falls and anxiety. Treatment: bladder training, bladder relaxant, topical oestrogen (women) and alpha agonist (men).

Overactive bladder (OAB) – The symptoms of this condition are a sense of urgency, and urinary incontinence with or without urgency, usually associated with urinary frequency and nocturia, excessive fluid intake and urinary tract infection.

Mixed urinary incontinence – a combination of urge and stress incontinence.

Overflow incontinence – In this condition, urine will leak because the bladder is full; this can happen in individuals who have lost bladder sensation or are in a state of decreased consciousness. Treatment: surgical removal, intermittent catheterisation.

Functional urinary incontinence – Involuntary leakage of urine due to impaired cognition, impaired higher mental function or mobility impairments. Treatment: behavioural intervention, environment manipulation and incontinence garments.

Changes in the musculo-skeletal system

The physical mobility of a person declines with age, leading to reduced performance and independence in terms of daily activities, poor quality of life, functional decline and increased risk of disability and mortality.

Progressive decline in muscle strength is a prominent feature of ageing; we had believed that it was the muscle mass decline that was primarily evident, but now we understand that it is the muscle strength decline that occurs first. This happens because of the shift in muscle fibre composition with ageing – there is a selective loss of fast twitch fibres (used in sprints) as compared to slow twitch fibres (used in marathons). This is called sarcopenia, which is a progressive muscle denervation secondary to a progressive failure of nerves, leading to dysfunction of the nerve–muscle junction.

Muscles become infiltrated with fat as we advance in age. This becomes worse if one is sedentary; lack of exercise further leads to accelerated loss of muscle fibres, and a decrease in muscle mass (sarcopenia). Bone structures undergo remodelling, and become weak and brittle. The bone mass decreases in both men and women. This can be mitigated by adequate supplementation of vitamin D3, calcium and exercise. After the fourth decade, there is wear and tear of bone cartilage, known as osteoarthritis, in the weight-bearing joints of the lower limbs that result in pain, a waddling gait and predisposition to falls.

An older person should exercise regularly to prevent the decline of muscle mass and strength. Unfortunately, the quadricep muscle becomes weak earlier than the other muscles, and this predisposes one to falls. A fall or a near-fall could be a harbinger of a declining musculoskeletal system.

Changes in the endocrine system

The endocrine system undergoes profound and complex changes with ageing, which are related to important changes in body composition and probably contribute to age-related diseases and adverse outcomes in older adults. There is a progressive decline in the circulating levels of anabolic hormones, including sex steroids and growth hormone (GH), with relative preservation of circulating levels of catabolic hormones.

The decline in the production of the sex hormone causes, respectively, "andropause" in men and "menopause" in women. There are marked changes in sugar regulation; post-meal sugars take longer to get back to normal. GH is secreted to maintain bone and muscle activity; normally it peaks at night and is very important for maintaining bone and muscle health. This nocturnal peak is lost as one ages.

With age, sex hormone secretion is decreased in both men and women. In women, ovarian steroid production decreases, followed by complete termination of sex hormone production at menopause. In men, sex hormones are secreted at a much lower levels, with significant individual variability. Various factors that influence testosterone levels in older men are genetics, environment and socioeconomic state (diet, hygiene, etc.). Older adults experience prolonged refractory periods for erections and reduced intensity of orgasms.

The hypothalamic–pituitary–adrenal (HPA) axis is the major neuroendocrine adaptive response to stress, and undergoes important functional changes with ageing. In particular, older persons have a hyperactive HPA axis in response to noxious stimuli. While the acute response to stress is mostly unaffected by ageing, the recovery and normalisation of the HPA axis after an acute event tend to be slower and less effective, and the overall cortisol response to stress is longer in older subjects compared to younger ones. This predisposes them to the ill effects of high cortisol such as high BP/high sugar and palpitation with a feeling of anxiety.

Insulin sensitivity declines with ageing and some of the explanations include changes in body composition, reduced physical activity, hormonal changes (insulin-like growth factor 1, dehydroepiandrosterone sulphate), oxidative stress and inflammation.

Changes in the endocrine system are very variable, and they predispose an older adult to impaired sugar regulation, altered muscle and bone homeostasis and changed HPA leading to high incidences of anxiety and stress.

Changes in the immune system

One of the most remarkable age-related physiological changes is a progressive decline in immune functioning, often referred to as "immunosenescence." The landmark of immunosenescence is the increased susceptibility to infectious diseases, typically associated with blunted response to vaccination, increased prevalence of cancer and higher rates of autoimmune and other chronic inflammatory diseases.

The ability to fight off microbes via cell-mediated immunity is blunted because the thymus gland atrophies with a loss of thymic hormones. These changes alter the response to vaccination and certain skin allergen tests**.** Antibody production to bacterial infection is also impaired, which makes the older adults prone to recurrent infection. It is very important that they get vaccinated after 50 years of age as per the adult immunisation schedule.

Changes in the nervous system

The brain and the other components of the nervous system show progressive changes in structure and function with age, which has tremendous implications for human physiology and contributes to changes in cognition, behaviour and physical functioning. Some of these changes are detrimental while others are likely adaptive responses of an organ system characterised by extreme plasticity.

In the brain, the progressive loss of neurons with ageing and their shrinkage translates to a reduction of brain volume. It is estimated that the brain volume shrinks approximately 0.2–0.5% per year. These changes are strongly correlated with functional consequences, such as delayed reaction times. Astrocytes and microglia, the cells that provide nutritional, structural and immunological support for neurons, also undergo changes with ageing and acquire a pro-inflammatory phenotype, which also likely plays a role in the development of age-related cognitive impairment.

In general, cognitive functions such as vocabulary use and the ability to elaborate new concepts (crystallised intelligence) are relatively stable, while other functions, such as memory, executive functions, processing speed, reasoning and multitasking (fluid intelligence), decline significantly with ageing.

Age-related changes occur also at the level of the peripheral nervous system, with a progressive degeneration of nerves, spanning from the spinal cord motor neuron to the neuromuscular junction. These changes likely also contribute to physical impairment, numbness, and feeling pins and needles in the feet, making them prone to falls. In the lower limbs, the perception of fine sensation (vibratory) is blunted. Part of the nervous system that controls sweating and body temperature also undergoes wear and tear, resulting in altered core temperature control for sweating.

Older adults can still be very active and cognitively robust. Fluid intelligences decline but crystallised intelligence remains good. It is advised that they keep the brain active by learning a new language or acquiring new skills.

Changes in the ENT system

Vision

There is a progressive decline in the ability of the lens to adjust and accommodate for near-vision. This leads to an inability to read fine print; this is the most common age-related eye problem called presbyopia. By the 40s, most adults require reading glasses. In the fifth decade, nearly all people have great difficulty focusing on close objects without glasses. Cataracts, which are caused due to the lens becoming more opaque, are very common in older adults.

Hearing

Hearing loss is very common as we advance in age. High-frequency hearing loss (presbycusis) is the most common. This type of hearing loss decreases the ability to understand and interpret speech, leading to difficulty in communication, thereby predisposing the person to isolation, depression and loneliness. Wax impaction and chronic middle ear infection are quite common and need to be looked into.

Smell and thirst

The sensation of smell and taste decreases with age, but this is quite variable. The sweet taste sensation is preserved but the salt taste is blunted. Older adults' response to dehydration is altered – they don't feel thirsty because of the blunted thirst reflex that predisposes them to dehydration, hence it is advised to get into a habit of hydrating themselves during the day.

Changes in the reproductive system

Perimenopause and menopause

Perimenopause is the interval preceding menopause and is characterised by irregular menstrual cycles with associated endocrinologic changes and symptoms of hypoestrogenism. The average duration is four years.

Menopause is permanent cessation of menses due to loss of ovarian follicular activity. It occurs when menses has stopped for 12 months in a previously cycling patient.

The most common symptoms are vasomotor systems (including hot flashes and night sweats). Many women may experience sleeping disorders (e.g., insomnia, night-time waking, early waking); a small proportion of individuals may experience anxiety and depression. Bladder symptoms can be troublesome (e.g., dysuria, urinary frequency, urgency and stress incontinence). There is an increased risk of osteoporosis.

Andropause

Andropause is defined by a decrease in serum testosterone below the normal range accompanied by clinical symptoms such as lethargy, decreased libido, concentration issues, depression and decreased sleep, among others. The decrease in testosterone levels with age is now well documented. Indeed, 20% of healthy men over 60 years of age and 30–50% over 80 years of age have levels below the reference range. Low testosterone levels are not sufficient to diagnose age-related male hypogonadism or "andropause." An andropause diagnosis requires the presence of both low testosterone levels and clinical symptoms.

Mental health in older adults

Sleeplessness

Although older adults spend more time in bed than younger adults, they experience a pronounced deterioration in the quality of sleep, as measured by changes to sleep architecture. Sleep tends to become shallower and lighter with advancing age. There is a significant decrease in total sleep time and sleep efficiency (time spent asleep as a proportion of the time spent in bed), and sleep efficiency appears to continue to decrease. There is a 50% reduction in the rapid eye movement (REM) sleep (dream sleep) in older adults as compared to younger adults.

Insomnia is usually defined as inadequate or unrefreshing sleep and is characterised by self-reports of difficulty falling or staying asleep, typically accompanied by increases in sleepiness and functional impairment during the day. It is the most common sleep complaint in most age groups, including older adults. Women are more likely to complain of insomnia, especially during and after menopause, and this gender difference appears to increase after 65 years. Insomnia symptoms tend to persist over time, with early morning awakenings and disrupted sleep continuity during the night – this is associated more with the older age groups; younger adults tend to exhibit greater difficulty initiating sleep. These effects can be mitigated by developing good sleep habits and altering toilet behaviours at night.

Anxiety and depression

Anxiety may be more common in later life than depression, but anxiety disorders are much less common than anxiety symptoms. Furthermore, it may be less common for older people to receive a diagnosis of an anxiety disorder on its own, but it is more likely to be a comorbid diagnosis with depression. Generalised anxiety disorder (GAD) and specific phobias are the most common anxiety disorders.

Despite the commonly held negative stereotypes of ageing as mainly loss and decrepitude, and despite depression and anxiety being major causes of mental health problems in later life, rates of late life depression and anxiety are paradoxically lower than the rates reported for younger or middle-aged adults.

Rates of depression in community-dwelling older adults are surprisingly uncommon when considering the challenges that can be posed by age. Moreover, the prevalence of depression is lower in older adults compared to adults of working age. Therapy for depression remains the same – antidepressants and counselling therapy are effective in older adults. Doctors need to be very mindful while prescribing antidepressants because of the comorbidities and the high possibility of adverse consequences or interactions. Many older adults with depression are on antidepressants, especially selective serotonin reuptake inhibitors (SSRIs) as they are well tolerated.

Loneliness

Social functioning is a multidimensional term used broadly to describe the social contexts through which individuals live their lives. It includes concepts such as interpersonal relationships, social adjustment and spirituality.

Decline in physical functioning, chronic conditions and terminal diseases are some of the most recognised causes of social isolation. In addition, poor health outcomes are not just a cause of social isolation, but also a consequence. Social isolation can have devastating effects on an older adult's physical, emotional and cognitive well-being and has been linked to increased comorbidities, chronic illness, poor self-rated health, substance abuse, depression, suicidal ideation and suicide completion.

Chronic pain

Pain can be very disabling; many older adults believe that pain and suffering are part of ageing, which is untrue. The commonest cause of pain among older adults is musculoskeletal pain, namely, osteoarthritis (wear and tear of weight-bearing joints in the lower limb), low back pain secondary to altered bony structure or pain associated with osteoporosis.

Neuropathic pain is quite common, especially among diabetics and post-herpetic neuralgia, which can be disabling. Unfortunately, some doctors do not take pain seriously; chronic pain is associated with depression and loneliness. Older adults should insist on therapy to mitigate pain.

There are many pharmacological and non-pharmacological treatments for pain, and many older adults want to bear with pain and are very reluctant to take safe pain medications. Cancer and terminal illness can cause severe agonising pain; it is better to reach out to the palliative care team for pain management in these situations.

Stress

Stress is a common response to physical, cognitive and emotional challenges. A stressed individual will experience adverse physiological effects (increased heart rate, rise in blood pressure, palpitation and anxiety). It can improve decision-making, problem-solving, vigilance, social interference, and perceptual and motor skills. Prolonged stress can overwhelm physiological and psychological regulatory mechanisms and lead to a state of *distress*.

For older adults, rising prevalence of chronic disease and disability, increased awareness of cognitive or physical limitation, loss of valued social support and reduced social network can act as stressors, and if not managed well can lead to distress or chronic stress. Chronic stress can accelerate ageing.

Older adults demonstrate a remarkable ability to cope and adapt. One important exception is individuals exposed to unrelenting chronic stressors such as caring for a spouse with chronic neurological diseases, major life events such as illness and death of loved ones.

Individuals with good social support and greater personal resources do well. Considerable variability in response to major life events reflects resilience. Resilience is the ability to recover from or benefit from adversity.

Individuals who are able to overcome adversity are thought to have high resilience. It is a combination of personality traits such as hardiness, self-efficacy, optimism and strong external support.

Vulnerable groups

The feminisation of ageing: Women, especially older women, are disadvantaged due to various factors, and they are more likely to live longer with disability. A woman is expected to be the primary caregiver to an unwell spouse who can be many years older; in this process, she neglects her own health; any children too tend to focus more on the male counterpart's illness. Conditions such as dementia and chronic neurological illness can be very demanding and the family may be reluctant to get professional caregivers when the women at home are "able to do it." Many grandparents, especially grandmothers, babysit their grandchildren at the cost of their health. Caregiver concerns are overlooked; the caregiver burden is not a recognised concept and many women feel too guilty to talk about it. Society expects the woman to care for the family even if it is at the cost of her own health. This issue is dealt with in Chapter 5 titled *Devotion with Dignity: The Caregiver's Perspective*.

Red flags to watch out for (seek medical help):

1) Unintentional weight loss
2) Nocturnal diarrhoea
3) Loss of appetite
4) Vomiting black or ground coffee-like material
5) Painless rectal bleeding
6) Blood in the urine with or without urinary tract infection (UTI) symptoms
7) Palpitations
8) Chest discomfort while climbing or resting
9) Chronic cough for more than three weeks
10) Fall or near fall
11) Fracture due to a trivial fall
12) Change of voice
13) Sudden loss of taste
14) Vertigo with hearing loss (unilateral)
15) Transient loss of vision, motor weakness or numbness
16) New onset of incontinence
17) Inability to recognise close family or friends
18) Getting lost in familiar places
19) Sudden change in personality
20) Transient excruciating headache/ache in the temple region.

Conclusion with key takeaways

Ageing can be quite brutal and stressful because of the socioeconomic and medical complexities that come with it. As a major driver in the development of self-care knowledge, the growing costs of healthcare should prioritise awareness and promotion of self-care and self-management. The pendulum then sways from expensive specialised care towards high-value self-care. This chapter gives you a glimpse of the physiological changes that come with ageing and the challenges faced by different individuals.

- As chronic diseases proliferate, the need for people to take more responsibility for being the principal provider of their own care will surge.
- Older adults and their families should promote self-care and self-management of their health.
- The normal changes and issues associated with ageing are described.
- The red flag symptoms that should not be ignored are laid out.

Chapter 3

ADDING LIFE TO YEARS: MENTAL HEALTH IN OLDER PERSONS

Soumya Hegde

Shyamala was newly married and doing her best to be a dutiful daughter-in-law. She was happy to be married and continued to live in the same village. She helped her mother-in-law in the kitchen and with household chores. But she couldn't help but notice that something was not right. Amma would forget that she had left something on the gas, often burning pans, hiding food in the wardrobe, and sometimes even forget who Shyamala was. She tried to speak to her husband about this but he wouldn't hear of it. Her concerns were dismissed as those of a new daughter-in-law complaining about her mother-in-law. She couldn't understand what was going on. With no one to talk to or support her, she gradually reconciled herself to taking on more and more household responsibilities, and eventually taking care of her mother-in-law too.

Introduction

Mental health includes one's emotional, psychological and social well-being. Taking care of one's mental health is important at any stage of life and getting older does not preclude one from this. On the contrary, the risks of mental illness are higher for older adults. According to the World Health Organization, over 20% of adults above 60 years of age suffer from a mental or neurological disorder, the commonest being dementia and depression, accounting for 5% and 7% respectively.[1] With the proportion of Indians aged 60 and older projected to rise from 7.5% in 2010 to 11.1% in 2025, we need to ready ourselves for an increase in the prevalence of mental illnesses. The old adage, "prevention is better than cure," holds true for mental illness too. If we can prepare ourselves better, we can manage this better in the coming years.

Currently, one of the biggest challenges facing mental health is the lack of awareness. This is especially true of rural India where the bulk of our seniors

1. WHO. Mental health of older adults. Updated on December 12, 2017. https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults

live. Lack of resources coupled with the stigma associated with seeking help make it particularly difficult to provide the right kind of care and support. This chapter will provide an overview of:

1. The prevalence of mental illnesses in older adults in India.
2. The urban and rural variation in presentation, and the challenges of each.
3. Common mental illnesses in older people, their symptoms and management.
4. Marginalised older adults and their distinct mental health needs.

Depression in older people

Depression in older people is undiagnosed and undertreated. This fact is stated widely and supported by research evidence. Yet, we are struggling to find ways to overcome this, perhaps because we are dealing with a generation that believes in managing their problems themselves – they have not seen the merits of treatment with antidepressants and the benefits of therapy. Talking about feelings and fears is a relatively new concept for our seniors. And unfortunately, that is our only way to diagnose and treat depression. The symptoms of depression in older people are also different and are often mistaken as a part of ageing. Apart from consistent low mood and anhedonia, they experience lack of confidence and guilt about being a burden on their families. Since it is harder to talk about feelings, they tend to talk about aches and pains, mostly unexplained. There is a gradual withdrawal from conversations, restlessness, an inability to focus on anything, a persistent brooding that life is not worth living anymore, and thoughts of self-harm. Older people die by suicide at a distressing rate, particularly those aged over 80.

Depression is often triggered by a bereavement or chronic physical illness; also due to loss of functioning, dwindling finances, fear of being dependent and an inability to accept the changes of ageing.

Another important consideration is the role of depressive symptoms in the progression of mild cognitive impairment (MCI) and the development of dementia. Depression commonly occurs in the early stages of dementia when the person is slowly becoming aware of their deficits but is unable to make sense of them. It may also become apparent following the diagnosis as they come to terms with what lies ahead. On the other hand, some older patients may display cognitive deficits, apathy and attention deficit, mimicking dementia, a condition called pseudodementia.

Medication needs to be carefully introduced keeping in mind the multiple comorbidities and other treatments. The first line of medication is the selective serotonin reuptake inhibitors. These include medications such as

escitalopram, fluoxetine and sertraline. These are to be prescribed after clear consideration of co-morbid health conditions. Once started, the dose may be increased depending on the person's response, or changed if the response is inadequate. They will need to be continued for a few months even after remission, and all changes should be made under medical supervision. Depression in older people is also more resistant to treatment.

Psychotherapy plays a major role in maintaining a positive outlook after the treatment is completed. One of the challenges that seniors experience is having to commute to receive treatment. With the popularisation of online therapy, accessibility has improved. They can now avail of this in the comfort of their homes while ensuring confidentiality too.

Anxiety disorders

Like depression, anxiety disorders are often silent and difficult to diagnose. Surprisingly, the prevalence of anxiety in older community-dwelling adults surpasses both depression and dementia. Most times, there is an exacerbation of earlier anxiety and it presents as the individual perceiving a complete inability to manage the challenges of life, feeling under threat and vulnerable.[2] Anxiety is more than a feeling; it affects thoughts and behaviours. It is our mind and body's way of coping with anything unfamiliar, stressful or perceived as dangerous. It can manifest as a constant worry or sometimes as intense panic. It is often accompanied by negative and dysfunctional thoughts amounting to irrational fears. It is classified as a disorder when it affects day-to-day functioning.

Generalised anxiety disorder (GAD) is more common than specific phobias and obsessive–compulsive symptoms in seniors, though they may often co-exist. It is characterised by over six months of excessive worry in multiple life areas ranging from health, relationship, finances and medication. This disrupts the daily life of the individual causing sleep disturbances, fatigue and irritability. If GAD occurs in combination with depression, the prognosis is worse and the person takes a lot longer to respond to treatment.

Fear of falls occurs more commonly in older adults than in younger people after a fall and leads to difficulty in rehabilitation, a significant decline in the quality of life and an increase in caregiver burden.[3] The behaviour changes

2. Beck AT, Emery G, Greenberg RL *et al. Anxiety Disorders and Phobias: A Cognitive Perspective.* New York: Basic Books, 1985.
3. Kressig R, Wolf SL, Sattin RW *et al.* Associations of demographic, functional, and behavioral characteristics with activity related fear of falling among older adults transitioning to frailty. *J Am Geriatr Soc* 2001;49(11):1456-1462. doi: 10.1046/j.1532-5415.2001.4911237.x

associated with this could range from screaming and shouting at every attempt to be moved, to aggression.

Health anxiety or hypochondria is also quite common among older people. Fear of death and disability results in multiple doctor consultations, polypharmacy and sometimes surgery. Googling symptoms on the internet and self-diagnosis is as much a problem with seniors as it is with younger people, trapping them in a loop of anxiety.

Management with medication would be required in most cases, following the general principles of starting low and going slow. It is important to eliminate medications which cause anxiety and to avoid benzodiazepines due to the risk of adverse effects and falls. Cognitive behaviour therapy (CBT), which is the gold standard for the management of anxiety disorders, has also shown promise in managing seniors with anxiety.[4] CBT helps identify dysfunctional thought patterns and behaviour causing anxiety. It helps the person to identify their dysfunctional thoughts and challenges them, eventually helping them to deal with the triggers in a more rational manner. It is an extremely effective form of treatment for all types of anxiety disorders.

Dementia

It has been a decade since the World Health Organization declared dementia a public health priority. However, the pace of creating awareness, improving access to diagnosis and providing support post-diagnosis are still a distant dream.

Alzheimer's Disease International (ADI) estimates that 75% of people with dementia are not diagnosed globally, and it might be as much as 90% in low- and middle-income countries.[5] The number of people living with dementia in India will increase from 3.8 million in 2019 to 11.4 million in 2050, a 197% increase (Figure 3.1).[6] We are on the verge of an epidemic, and in spite of the ample warning, barely prepared.

When Kamini retired at the age of 60, after working for a bank for many years, she looked forward to a relaxed life. Her children were grown up and married, and her husband, who

4. Barrowclough C, King P, Colville J *et al.* A randomized trial of the effectiveness of cognitive-behavioral therapy and supportive counselling for anxiety symptoms in older adults. *J Consult Psychol.* 2001;69:756-762.
5. Gauthier S, Webster C, Servaes S, Morais JA, Rosa-Neto P. *World Alzheimer Report 2022: Life after diagnosis: Navigating treatment, care and support.* London, England: Alzheimer's Disease International, 2022.
6. *Hindustan Times.* People living with dementia in India will triple to 11 million by 2050, says report. Updated on January 08, 2022. https://www.hindustantimes.com/lifestyle/health/people-living-with-dementia-in-india-will-triple-to-11-million-by-2050-says-report-101641617451768.html

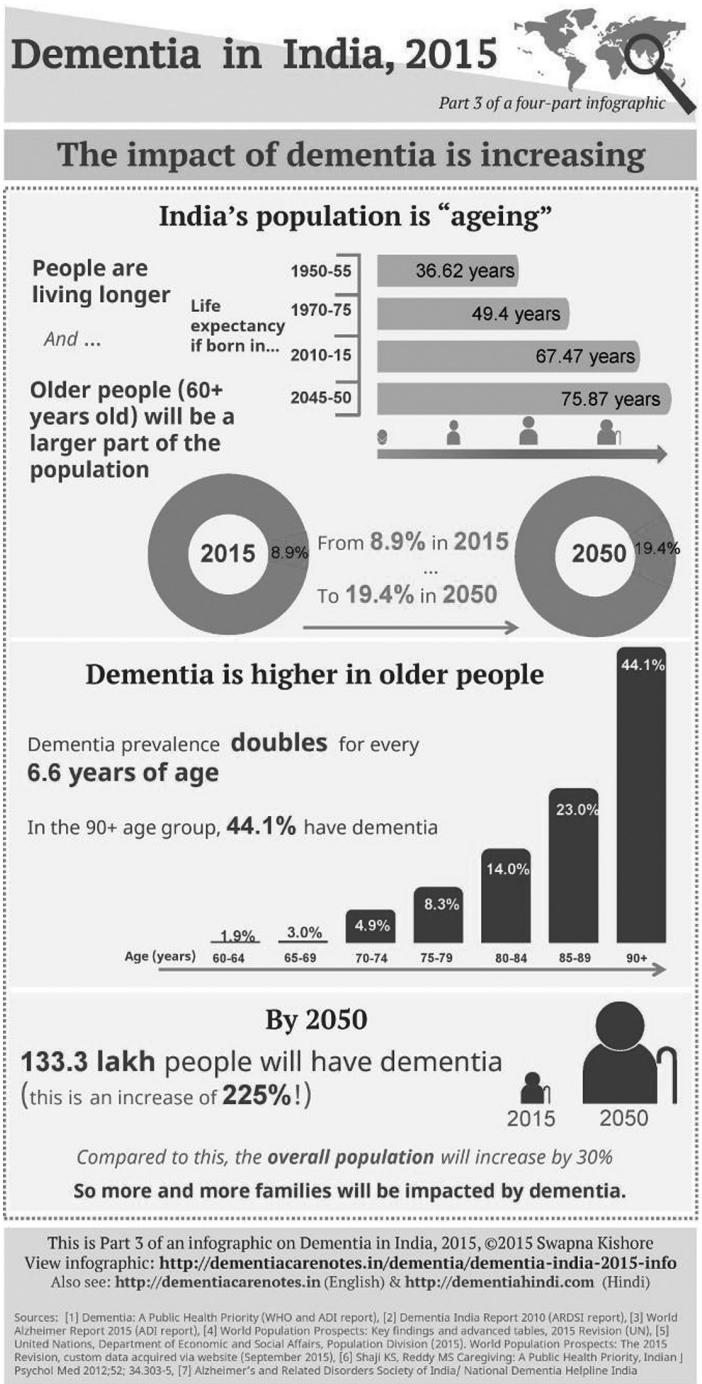

Figure 3.1 An infographic on the prevalence of dementia in India, 2015 [reprinted with written permission]

had retired a few years earlier, was keeping himself busy at home. She had cleared all her loans and would receive a pension which would ensure she was comfortable.

It was only when she spent the whole day with her husband that she realised there was something wrong. It started with him repeatedly asking why she wasn't at work, complaining that the children had not called even when they had spoken the previous day, and not moving from the sofa all day when there was so much to do. She initially brushed her fears aside, but a check-up confirmed her fears with a diagnosis of early Alzheimer's. Overnight Kamini had to put aside her retirement plans and accept her new role – that of a caregiver.

Dementia is a complex and progressive degenerative brain disease that affects thinking, planning, understanding, communication, mood and personality. Impairment in short-term memory is one of its symptoms but it can manifest in many different ways and may set in so slowly that often it goes unnoticed. Symptoms need to be persistent for six months and all other reversible causes need to be ruled out for a diagnosis of dementia to be made.

Alzheimer's disease is the most common type of dementia, accounting for nearly two-thirds of the cases. The second most common cause is vascular dementia where changes in the brain are caused by vascular risk factors such as hypertension, diabetes and hypercholesterolaemia. Lewy Body dementia, frontotemporal dementia, Parkinson's dementia and Huntington's dementia are the other types of dementia.

Age is the biggest risk factor for dementia. By the age of 65, the risk is one in 20, increasing to one in five by the age of 85. However, in a small percentage of people, it can occur as early as 30s or 40s – the condition is then called early onset or young-onset Alzheimer's.

One of the challenges with the diagnosis of dementia is that the symptoms are often attributed to age and ignored. However, there are distinct differences between age-associated memory loss and that due to dementia. In age-related memory loss, the person can often recall with a prompt or use memory aids or be able to retrace their steps to recall. A person with dementia will be unable to do so. As the illness progresses, persons with dementia are incapable of taking care of themselves, are disoriented in their surroundings and are unable to recognise their near and dear ones. This physical, mental and emotional disintegration of the person and their personality is perhaps the most painful and distressing aspect of this illness.

Often, memory loss is accompanied by behaviours that can be very challenging, such as wandering, restlessness, agitation, hallucinations and aggression. These behaviours can be dangerous to the person themselves or to those around them. Traditionally these behaviours would be managed with restraint and medication, but in recent decades, the focus has shifted to understanding

the triggers for this distress and managing them appropriately, rather than only dealing with the behaviour. Minimising environmental risks and keeping the person cognitively engaged have shown to be more beneficial than treatment with antipsychotics, which should be the last resort.

Another effective way of managing the behavioural psychological symptoms of dementia is the implementation of person-centred care practices. This involves tailoring a person's care to their interests, abilities, history and personality. It ensures that the person with dementia is treated with dignity and respect, and that their wishes and choices are always considered.

In India, care for a person with dementia is mainly the responsibility of the immediate family. With limited recourse to information and the doctors themselves feeling quite helpless in offering medication and advice, the journey of caregiving is often long and lonely. Caregivers often report high levels of stress, both physical and psychological. Women, spouses and those in the lower socio-economic group are more vulnerable. Higher rates of morbidity and depression are seen in those caregivers who see themselves as trapped in this role. Caregiver support groups provide an invaluable and effective means of experience exchange that helps in reducing the burden of caring.

Several studies from India have reported a higher prevalence of dementia among urban older adults as compared to rural ones.[7] This variation could be attributed to societal factors, lifestyle differences and prevalence of cardiovascular disease risk factors. The life expectancy of women being more than men may be a reason for the increased prevalence of dementia in women.

One of the preventive strategies often talked about is building one's cognitive reserve to offset or delay the symptom manifestation of diseases such as Alzheimer's or hasten recovery after trauma to the brain, such as after a stroke. Cognitive reserve is our unique individual way of dealing with situations/tasks that allows our brains to become more resilient to pathology. It is an indicator of our brain's flexibility and ability to utilise available resources. Higher levels of education and occupational attainment are major contributors to cognitive reserve but so are interests in music, arts, physical activity, spiritual interests and engaging in voluntary work in later life.

Cognitive training or engaging in regular activities in the physical, cognitive and social domain is a way of building cognitive reserve and also a means of slowing down cognitive decline in those with dementia.

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7. Sunil KR, Sujeet R, Vishav C, Ashoo G, Sukhjit S and Ashok B. Is dementia differentially distributed? A study on the prevalence of dementia in migrant, urban, rural, and tribal elderly population of Himalayan region in Northern India. *N Am J Med Sci.* 2014;6(4):172-177. doi: 10.4103/1947-2714.131243

Disability and mental illness

People with disabilities form a very diverse group, as the same disability in different people may present with different challenges. According to a UN report, more than 46% of older persons have disabilities.[8] A community-based study in India found the prevalence of all types of disability to be 6.3%, out of which mental disability was found to be the most common type of disability (36.7%).[9] For people with disability, stigma and discrimination is an everyday reality. As this population grows older, the challenges increase exponentially, marginalising them further.

It is hard to get an accurate estimate of the prevalence of disability in a community as it goes unrecognised and unseen if not clearly visible. Hearing impairment is one such disability. The immense stigma associated with wearing a hearing aid forces many older adults to never reveal their struggles and often leads to a life of isolation. Correction of hearing impairment can reduce the risk of developing dementia by 7%, making it one of the biggest reversible contributory causes.

People with disability are often perceived as unwanted and a burden to society. In recent years, with better awareness and government initiatives to support people with disabilities, there is increased recognition of their strengths rather than their limitations. However, little is being done to address the impact of discrimination on the mental health of the individual. There is evidence of increased depression, anxiety and suicide in these individuals and a higher risk of alcohol and substance dependence as coping strategies.

As a community, we have a collective social responsibility to provide accommodations to include and integrate people with disability into a single society. This can be done by increasing awareness and acceptance, such as infrastructure and environmental modifications, availability of large-font books in public libraries, audiobooks, celebrities endorsing disability aids to reduce stigma, opportunities to be a part of gatherings and the recognition of their mental health needs. Discrimination cannot be defined as the basis of physical, mental or intellectual disability but solely the disability of our minds to look past these differences.

Loneliness

This is not a term that features in diagnostic manuals, and yet it is a condition with high prevalence in the community. It is important to distinguish

8. OCHA Global Humanitarian Overview. Older persons. Updated on December 1, 2020. https://2021.gho.unocha.org/global-trends/older-persons/
9. Ganesh KS, Das A, Shashi JS. Epidemiology of disability in a rural community of Karnataka. *Indian J Public Health*. 2008;52:125-129.

loneliness from being alone. Seniors often complain of feeling lonely when surrounded by people, even immediate family. Feeling lonely is a deep sense of disconnection from everything around us, a feeling of just existing without a purpose and a restlessness of mind, making it hard to sustain attention or derive pleasure from anything and everything.

Loneliness often follows bereavement or geographical relocation. In both these situations, it may be attributed to the person perceiving a loss of their identity or role, a feeling which if not addressed early becomes chronic affecting one's cognition, behaviour and health. Loneliness contributes to an increase in cardiovascular disease, unexplained pain, raised blood pressure and substance use. It also affects executive functioning, leading to impaired cognition and dementia.

Social isolation results in the person not being able to make meaningful new relationships, which further perpetuates their belief that they are all alone. It also deepens their lack of self-esteem. Understanding the cognitive process underlying their thinking will help challenge the dysfunctional cognitions and help them make the transition from perceived isolation to a sense of belonging.

Interventions will need to focus on increasing opportunities for social interaction and improving the individual's social skills. It also helps when individuals "wear multiple hats" and are a part of multiple social groups, which allows them to take on different roles as the circumstances in their life change. The ability to adapt to and accept life's changing circumstances and mental preparedness for change with ageing would help to ensure that one is not lonely.

Women and mental health

Women are living longer. During their lifespan, they have lived through multiple challenges and fulfilled multiple roles. Their mental health, however, is often masked by physical pain, chronic illness, grief and domestic strife. Being a woman is also an independent risk factor along with age and disability, making them more vulnerable to mental illness. Hormonal changes as women age can trigger or worsen depressive symptoms.

Women are also often much younger than their partners, making them caregivers for several years. They need to fit into the societal mould of a caregiver, taking on new responsibilities and putting aside their marital differences while assuming their new role. The passing away of their partner brings with it the task of dealing with their own grief and becoming a widow. Lack of social support and the absence of means to support themselves make them prone to two common mental illnesses – depression and anxiety.

Women are also more resilient, being inherently bestowed with the strength to nurture and support. It is this resilience that they need to be reminded of

and taught to appreciate. They also need to accept the changes that come with age gracefully, be it the change in physical appearance, or change in their role within the family and in society. These changes bring anxiety and can be hard to manage and treat as they never manifest openly or consciously.

This divide is more apparent in the rural context where lack of education and awareness of women's issues is a bigger problem. As the woman loses her physical ability to contribute to the family, she is made to feel useless and her years of rigour are forgotten. Ageing and all that which comes along with it seem to occur prematurely in the rural woman. Most are married as teenagers and become grandmothers while just in their 30s, making them "aged women" while in reality, they are still young adults with years ahead of them.

Studies have shown the underutilisation of mental health services by women, possibly due to the greater stigma associated with women's mental health affecting help-seeking behaviour. Promoting women's mental health and giving it the attention it deserves involves social change on a larger scale. Education is perhaps the most effective intervention as it provides awareness of rights and resources and a better chance of economic independence.

Conclusion with key takeaways

As exemplified in the two case scenarios in this chapter, the diagnosis may be the same, but sadly the care trajectory will be completely different. Kamini, residing in a metro, will have access to psychiatrists, therapists and treatments on par with the rest of the world; she will be supported by her family members and neighbours who understand the illness and what it takes to be a care-giver. Shyamala, on the other hand, living in a remote village will be fighting a lonely battle. She may even be convincing herself that she is the one with the problem and has to accept this as her fate!

Early recognition, diagnosis and management of mental illnesses in older people will have a significant impact on the healthcare systems and wider society. Older people can continue to contribute to society and we need to battle against the ageing stereotypes which are restrictive and archaic. While increasing public awareness of these conditions is imperative, it is also important to include a better understanding of mental health problems in the older population in the medical curriculum. Better screening at the primary care level is our best opportunity to identify mental illness early and give our seniors the chance of a better quality of life as they age.

- Mental illnesses in older adults may present differently to young adults but are just as treatable.

- Although the symptoms of the illness would be the same in urban and rural contexts, management, particularly of the psychosocial aspects, will differ and need to be accounted for.
- Depression and dementia are not a part of normal ageing. These conditions need to be recognised and treated appropriately.
- Behavioural and psychological symptoms in dementia result in significant caregiver burden and burnout. Educating the family about the illness and non-pharmacological treatments along with medication can improve the quality of life for the patient and the caregiver.
- Policies for service development for older people need to incorporate accommodations for those with disability and should recognise the contribution of women and their varying needs as they age.

Chapter 4

AGEING IN THE AYUSH CONTEXT: A HOLISTIC VIEW

Darshan Shankar

Introduction

This chapter draws concepts about the ageing process derived largely from various AYUSH systems and also from modern biology. The reason for consulting both these knowledge systems is that knowledge synthesised from different health sciences will help the readers to gain a holistic understanding of ageing.

Both modern biology and AYUSH knowledge systems accept that an aged person with the efficient functioning of key physiological functions can be healthy, and that the most important biological process that contributes to ageing is metabolism. While every individual may have unique health issues, older populations of men and women in rural and urban areas perhaps share a set of common age-related health problems, such as poor sleep, memory loss, loss of immunity, muscle tone, indigestion, loss of appetite, constipation and so on. For such problems, it would appear that, unlike other systems of healthcare, the AYUSH systems can offer effective self-help solutions such as home remedies, simple yoga breathing exercises and easy-to-make herbal formulations. This chapter will:

1. Distinguish between the terms *age*, which is a chronological phenomenon, and *ageing*, which is a biological phenomenon.
2. Outline self-help solutions from the AYUSH systems using accessible herbs and simple daily practices for healthy ageing.
3. Explain the AYUSH system of drugs and detoxification therapies to remove the un-metabolised toxins; detoxification therapies (called panchakarmas) typically take only 7–21 days and result in significant health benefits related to improved metabolism and immunity.

The contents of this chapter are equally valid for vulnerable groups such as older women or persons with disabilities.

Knowledge resources in Ayurveda, Siddha, Sowa-Rigpa, Yoga, Unani and Homeopathy systems of knowledge

AYUSH systems such as Ayurveda, Siddha, Sowa-Rigpa and Yoga share a great deal of common ground. The concept of body and mind is similar in these systems. This is because their foundational worldviews are based on the Panchamahabhuta Siddhanta. In this worldview of nature, all physical and biological objects are seen as permutations and combinations of five states of matter called the Panchamahabhutas. These five states are symbolised as Space – Aakash, Wind – Vayu, Fire – Agni, Water – Jal and Earth – Prithvi, which are naturally cognised by the five senses. The ear cognises aakash manifested as sound (shabd), the skin feels vayu as movement (sparsh), the eyes recognise agni as form (rupa), the tongue tastes jal (rasa) and the nose can cognise solid matter or prithvi as smell (gandha).

The physiological principles of Ayurveda, Siddha and Sowa-Rigpa are the same. The term Sowa-Rigpa is in fact a Pali translation of the Sanskrit term "Ayurveda," and the primary medical texts of Sowa-Rigpa are Pali translations of foundational Ayurveda texts. Similarly, the Siddha system of medicine documented thousands of years ago, in hundreds of medical texts, written in old Tamil, operates on the very same concepts, principles, practices and use of medicinal plants, animals, metals and minerals found in classical Ayurveda texts. Ayurveda and Yoga also share the same method of observation of nature (Purush-Prakriti) based on the philosophical system of Sankhya. While Ayurveda deals centrally with physiological functions of the human being, Yoga deals primarily with mental functions. Even the Unani knowledge system has a great deal in common with Ayurveda, Siddha and Sowa-Rigpa, in terms of basic concepts such as humours and methods of diagnosis. In India, the Unani system uses the same native medicinal plants as used by other AYUSH systems. Homeopathy also uses as drugs the very same native medicinal plants (in specialised diluted and potentiated formulations) as other AYUSH systems (please see Table 4.1). They are thus interrelated knowledge systems.

Table 4.1 has data from reliable referenced sources. It shows the medicinal plants used by different AYUSH systems and their overlaps across systems. The grey colour indicates the total number of species used by a particular system. Each column shows the overlap of species with other systems.

For the practical use of readers, Table 4.2 gives details on specific plants and their benefits that can be used alongside simple health practices for older persons. ***These remedies should be used only under the supervision of your treating Ayurveda physician.***

Table 4.1 Plant numbers from published pharmacopoeia of different systems: An analytical presentation from the TDU (University of Trans-Disciplinary Health Sciences and Technology) database on the medicinal plants of India

System of Medicine and Overlap with Other System	Ayurveda	Folk	Homeopathy	Siddha	Tibetan	Unani
Ayurveda	1537	773	176	756	246	427
Folk	773	5215	161	771	186	330
Homeopathy	176	161	489	145	69	136
Siddha	756	771	145	1147	209	334
Tibetan	246	186	69	209	250	177
Unani	427	330	136	334	177	493

Table 4.2 Self-help interventions with the associated benefit

Outline of Self-Help Interventions	Beneficial Action
1. In case of chronic constipation, make a habit of eating one teaspoon of ghee with two to three pinches of salt with the first bolus of hot food. 2. Have a teaspoon of castor oil with half a glass of hot milk or hot water 5–10 minutes before dinner. 3. Have the paste of 20–25 raisins and one teaspoon of jaggery after dinner.	For constipation
1. Have a cup of hot soup/decoction prepared by boiling in a glass of water, half a teaspoon of cumin seeds and one teaspoon of coriander seeds after food or sip it while having food. 2. Chew a mixture of a quarter teaspoon of cumin seeds and a small "pinch" of fresh ginger after having food.	For indigestion
1. Drink a warm cup of the decoction of one teaspoon of *Glycyrrhiza glabra* (yashtimadhu) boiled in water for a few minutes early in the morning on an empty stomach. 2. Add two teaspoons of coriander seeds to a cup of hot water, soak them overnight, filter the seeds out and have the water early in the morning on an empty stomach. 3. Chew a small pinch of fresh ginger with two pinches of jaggery early in the morning on an empty stomach. 4. Drink half a cup of decoction prepared out of 20–25 raisins and two teaspoons of coriander seeds, after having food.	For hyperacidity
1. Lick and eat one to two teaspoons of unsalted butter slowly before food and then have freshly prepared soft rice with fresh buttermilk. 2. Soak one to two teaspoons of fenugreek seeds in hot water for around two hours and blend it with two cups of fresh buttermilk, add sufficient quantity of salt and drink or consume with rice.	For simple diarrhoea

Outline of Self-Help Interventions	Beneficial Action
1. Apply before sleeping one teaspoon ghee on fontanelle region of head and one teaspoon of sesame oil on the sole of feet (be aware of the risk of slipping and falling). 2. Drink half cup of warm milk with one teaspoon of ashwagandha lehyam (made by a reliable Kerala pharmacy). 3. Do 10–12 times Chandra pranayama just before sleeping (breathe in very slowly from the left nostril and breathe out very slowly from the right).	For sleep
Drink 15–20 ml of saraswat arishta (made by a reliable pharmacy) once a day, in the morning or night.	For memory enhancement
Light massage of warm bala-ashwagandha oil or Narayan oil (both available in Kerala Ayurveda shops) on the whole body and especially legs and hands before bath (be aware of slipping).	For improving muscle tone
1. Skip a meal by just having one or two cups of decoction of cumin seeds (quarter teaspoon and a pinch of ginger). 2. Mix half teaspoon of hingashtak chooran with one teaspoon of ghee and eat as chutney at the start of breakfast, lunch and dinner.	For loss of appetite
1. Make a habit of having fresh amla in raw form early in the morning on an empty stomach. 2. With the guidance of an Ayurveda vaidya, make a habit of having one to two teaspoons of Chyawanprash or Brahmarasayana early in the morning on an empty stomach. 3. Make a habit of having a bath after massaging the whole body with warm sesame oil.	For improving immunity
1. Have a cup of rice-washed water before food three times a day (wash the rice once and discard the water, then soak the rice for 5–10 minutes and filter the water and consume it) 2. Add two to three pinches of Chandana (sandalwood) powder to a cup of hot water, allow it to cool, and have it before food. 3. Add a pinch of organic camphor to a cup of hot water, cover it with a lid, allow it to cool, and have it before food.	For urinary tract infections
1. Soak one teaspoon of fenugreek seeds in a cup of hot water, keep it overnight and have the soaked water early in the morning on an empty stomach. 2. Soak a teaspoon of triphala powder in a cup of hot water overnight and have the soaked water early in the morning on an empty stomach.	For borderline diabetes
Have amla in some form like jam or non-spicy pickle along with meals.	For enhancing iron absorption from normal food

Misconceptions about ageing

The readers may find it illuminating to obtain clarity regarding certain misconceptions about ageing, by understanding the biology of ageing. To begin with, it is necessary for the reader to distinguish between the terms *age*, which is a chronological phenomenon, and *ageing*, which is a biological phenomenon. While ageing is normally associated with advanced age starting around 60 years, from a knowledge system's perspective, chronological age is not the root cause of ageing. Lay persons may be surprised by this statement because most of us associate growing old with advanced age. In fact, it is commonly observed that most old people do manifest impaired physiological functions such as memory loss, cardiac disorders, movement disabilities, poor digestion, disturbed sleep and so on. However, from a biological perspective, the root cause of becoming old is not *age* per se. Biologists observe that ageing is normally accompanied by changes in the expression, or activity, of a large number of genes; but today it is unclear which of these changes are actually due to the ageing process.

AYUSH knowledge systems attribute ageing to blockages in the *shrotas* – a term which refers to the thousands of microchannels in the body. These blockages reduce the efficiency of various biological processes and accelerate ageing. A person whose *shrotas* can be cleared of blockages (Ayurveda has methods to show how to do this) can delay ageing. The blocking of shrotas need not have any relationship to the chronological age of a person. Thus, both modern biology and AYUSH knowledge systems accept that an aged person, whose body is able to efficiently conduct key physiological functions, can look young, and a young person with malfunctioning physiological functions can look old.

According to both AYUSH systems and modern biology, the most important biological process that contributes to ageing is metabolism. Biologists observe that ageing results in the sluggish activity of metabolic genes, and furthermore, it is accompanied by patterns of gene expression that are indicative of inflammatory and oxidative stress. Today at the frontiers of biology, scientists are aware of the gut–brain relationship. In fact, they are beginning to realise that there is a connection not only between the gut and the brain but also between the gut and all physiological functions.

There is a striking similarity of views regarding the role of metabolism in the AYUSH systems too. Ayurveda texts since 1500 BCE have observed that poor digestion or impaired metabolism results in the accumulation and deposition of an un-metabolised sub-strata of partially metabolised food in the form of cellular toxins called *ama* in Ayurveda. Ama formation and classification is a very complex clinical subject, which is described in detail in

Ayurvedic medical literature. The toxins (ama), which are by-products of poor metabolism, deposit in different parts of the body such as the brain, heart, joints, gastrointestinal and respiratory tracts. When toxins block the arteries in the heart it gives rise to cardiac ailments. Deposits in the joints result in arthritis. In all these and several other health conditions caused by *ama*, the root cause lies in faulty metabolism. The location of the deposit is based on complex biological processes. If such unassimilated deposits which are toxic are not annually or seasonally removed, they can cause chronic inflammation and result in the malfunctioning of critical physiological functions which may contribute to ageing. The term and theory of *ama* is used in Ayurveda but there are synonymous terms in other AYUSH systems. Thus, both AYUSH systems and modern biology recognise that ageing occurs as one accumulates toxins arising from inefficient metabolic processes that damage various cells and tissues in the body.

AYUSH systems, therefore, advise that it is extremely important to eat and digest the right quality and quantity of food suited for one's unique body type, do regular physical exercises and, very importantly, periodically detoxify the body in order to eliminate cellular deposits so as to delay ageing. The understanding of the fact that every human can be classified into a unique body type is knowledge evident in both modern genetics and the Ayurveda, Unani, Siddha and Sowa-Rigpa systems. In Ayurveda, body types are referred to as the Prakriti of a person. Similar technical terms corresponding to the concept of Prakriti are also found in other systems such as Unani, Siddha and Sowa-Rigpa.

However, readers need to be aware that the relationship of detoxification and ageing is well understood by AYUSH (Ayurveda, Siddha, Sowa-Rigpa and Unani) medical professionals. In Unani, geriatric care is called Tadaabeer-e-mashaaikh. There is a dedicated website[1] focused on the care of older persons using medicinal plants and regimental therapies. While modern medicine thus far has not developed methods to remove the toxins, AYUSH systems have both drugs and detoxification therapies to remove the un-metabolised toxins. Detoxification therapies (called panchakarmas) typically take only 7–21 days and result in significant health benefits related to improved metabolism and immunity. The detoxification therapy is individualised according to the health status of a person and therefore must be planned in consultation with an experienced Ayurveda physician and undertaken in a reputed health centre.

Homeopathy also recognises that with age, metabolism slows down and results in ill health. It employs individualised remedies to cure old-age illnesses,

1. National Health Portal. Tadaabeer-e-Mashaaikh (Geriatric Care). Updated on May 23, 2016. https://www.nhp.gov.in/tadaabeer-e-mashaaikh-geriatric-care_mtl

which work precisely, swiftly and efficiently. Seniors benefit from Homeopathy because the interventions are precise and gentle.[2]

It is beyond the scope of this chapter to give detailed case studies of benefits to older people, both men and women, from Ayurveda therapies. However, the author points the reader to the Institute of Ayurveda and Integrative Medicine, Bangalore, which has specialist physicians who particularly deal with geriatric care and have hundreds of case records of treatments for the older adult in conditions related to impaired metabolism, sleep, muscular debility, mild cognitive impairment, cardiac health, stress, UTI and so on.[3]

Health and ageing

It is clear from the above that ageing is a function of the *state* of one's health. An accomplished Yogi, for example, may appear ever-young. However, even children with diseases such as *progeria* can age prematurely. Everyone can delay ageing by investing in healthy living. Let us go deeper into understanding what it means to be healthy.

From the AYUSH perspective, the term for health in Ayurveda, Siddha and Sowa-Rigpa is "Swasthya." This term is perhaps the most comprehensive term in global medical literature for understanding health. Swa-Sthya means to be in equilibrium (sthya) with oneself (swa). The verse in Ayurvedic texts explaining the meaning of Swa-Sthya elaborates on the five pillars that uphold health, *viz*., (i) physiological equilibrium (sama dosha); (ii) tissue equilibrium (samdhatu); (iii) metabolic equilibrium (samagni); (iv) equilibrium of excretory functions (sama mala kriya); (v) mental and spiritual equilibrium (prasanna indriya, prasanna manas and prasanna atman).

It is possible for anyone seeking an evaluation of their health (swasthya) status to do so by consulting an expert physician of Ayurveda, Siddha and Sowa-Rigpa. A swasthya assessment can be completed in about an hour. A wellness score can be generated to point out the extent of disequilibrium in terms of all the five parameters mentioned above. Based on an individual's unique wellness score, a roadmap can be proposed for the correction of the imbalanced functions. The corrections may involve change in diet, lifestyle, yoga interventions and detoxification therapy. Ideally such health (swasthya) check-ups should be done at least once in a year followed by the corresponding corrective actions.

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2. Emoha. Homeopathy and geriatrics: The science of senior healthcare. Updated on March 8, 2022. https://emoha.com/blogs/health/homeopathy-for-seniors
3. Institute of Ayurveda & Integrative Medicine (I-AIM). www.iaimhealthcare.org

Rejuvenation: Old wine in a new bottle?

Is rejuvenation possible? Both modern stem cell biology and the AYUSH systems believe in rejuvenation. In modern biology, stem cell research is at its infancy. However, the field is attracting substantial research investments all over the world. AYUSH systems have been practising techniques for rejuvenation for centuries. It would be interesting for readers to know that in Ayurveda there is in fact a branch of specialised knowledge on rejuvenation called "Rasayana tantra." This specialised branch, termed "jara chikitsa," is focused on ageing. There are several herbs, minerals and compound formulations called "rasayanas" that are actively used in clinical applications to prevent premature ageing and regenerate biological functions. Properly administered rasayana can bestow the human being with several benefits such as longevity (dheerghayu), memory (smriti), intelligence (medha), freedom from diseases (arogyam), youthfulness (tarunam vaya), lustre (prabha-audarya), clear complexion (varna-audarya), voice (swara-audarya) and optimum strength of physique and sense organs (param deha-indriya-balam).

In the Ayurveda literature there are different classifications of rasayanas for the different body parts: for instance, for the brain (Medhya-rasayanas – for cognitive functions), for the heart (Hridya rasayanas), for the reproductive system (Vajeekara rasayanas), for longevity (Aayushya rasayanas), for eyes (Netrya rasayanas), for skin (Twachya rasayanas), for hair (Keshya rasayanas) and so on. There are also rasayanas for improving metabolism and immunity.

Some of the simple rasayanas that can be used by the older adult are described below, along with a mention of their benefits:

a) Daily consumption of cow's "ghee" during breakfast and lunch is good for memory and cognitive functions.
b) Daily consumption of pomegranate (*Punica granatum*) is useful to enhance metabolism and longevity.
c) Nasya involving instillation of two drops of lukewarm gingelly oil to each nostril on an empty stomach once in the early morning and once at bedtime helps in maintaining functions of the sensory organs.
d) Occasional *matra basti*, a medicated enema therapy, which uses oils or ghee infused with rasayana herbs, is useful for improving the metabolism.

Rasayanas need not be herbs or external therapies. There is also a concept of *Achara Rasayana*, which is behavioural. In Achara Rasayana, one only has to follow rules and regulations of good conduct. Some of the significant behavioural modifications advised by Charaka are: being truthful (Satyavadinam), controlling anger (Akrodham), freeing oneself from ego (Anahankritam),

keeping the mind calm, being gentle in speech (Priyavadinam), meditation (Japashauchaparam), helping the needy (dananityam) and humility (Karunavedinam).

In all AYUSH systems such as Siddha, Unani and Sowa-Rigpa there is similar knowledge of rejuvenation. It would be repetitive to elaborate on this in the technical nomenclature of other systems.

As mentioned above, modern medicine in recent years has started the exciting journey towards regeneration via stem cells in the new field called regenerative biology. Emerging research findings suggest that it may be possible to harness the multi-potent nature of adult stem cells to maintain tissue structure and function. The broad goal of regenerative biology is the same as that of rasayana tantra. Its methods are different because unlike the approach of AYUSH systems that target systemic change, modern regenerative biology targets cellular and molecular processes that attempt to restore, repair and replace damaged cells and tissue structure and function.

Preliminary research work on integrative regeneration combining AYUSH knowledge and stem cell biology has begun. Recent preclinical studies have shown the effect of rasayana herbs on immunity, cognition, longevity and on the proliferation and differentiation of stem cells. In the near future, new integrative translational research combining stem cell biology and AYUSH systems can perhaps lead to better strategies for the healthcare of the older adult.

Conclusion with key takeaways

This chapter has provided an introduction to Ayurveda, Siddha, Sowa-Rigpa, Yoga, Unani and Homeopathy (AYUSH) systems of knowledge and described simple health practices that can be used by older adults under the supervision of their treating physician from the concerned system. It has explained how AYUSH systems and modern biology understand age, ageing and metabolism.

- The ageing process is a function of the quality of metabolism.
- The right food is a key factor for maintaining good health.
- Diet according to Ayurveda, Unani, Siddha and Sow-Rigpa can be individualised to suit one's unique constitution. A consultation with a good physician can inform you about your unique constitution within 30–45 minutes.
- Detoxification to remove un-metabolised toxins in the body can be undertaken once a year, in a reputed clinical establishment, under the advice and supervision of experienced physicians.
- Regular consumption of easily accessible herbs and fruits can enhance immunity and general health.

SECTION II
SOCIAL CONCERNS

Chapter 5

DEVOTION WITH DIGNITY: THE CAREGIVER'S PERSPECTIVE

Bhavana Issar

After Padma was diagnosed with Alzheimer's disease, her daughter Vani moved in to take care of her. Vani's father had passed away a few years ago, and her brother lived in another city. Vani is Padma's primary caregiver – she manages her medication regime, arranges doctor's appointments and accompanies her mother to them, as well as taking care of the household chores. When Padma forgot to turn off the gas at home a couple of times, Vani was worried about leaving her alone at home, and quit her job to take care of her mother full-time. Padma's condition is getting worse, and sometimes she does not even know who Vani is. Her brother calls a couple of times a week to check on them, but rarely visits, and Vani has no downtime whatsoever. With no family support and no respite from caregiving, Vani feels burnt out from looking after her mother. She suffers from insomnia, loss of appetite and depression.

Introduction

Medical science and urban living conditions have enabled longer lives. Geriatric age comes with significant changes and conditions that are only now being examined and understood. There is a 26% likelihood that someone aged 60+ years will have depression, dementia or Alzheimer's. Modern urban families have grown smaller and are more distributed than ever before.

We live in a society where caring for our families, especially older persons, is an expectation and a duty. Traditionally, given the patriarchal structure of our society and gendered roles, caregiving has been the responsibility of girls and women more than boys and men. Caregiving is invisible, unrecognised, under-appreciated and underserved; and caregivers are deprioritised – often by themselves too. Long-term home-based care for an older person can be stressful if the caregiving predominantly rests on one person. Caregiving to a loved one who is ageing is uniquely challenging and, given the unpredictability, can often feel lonely. This chapter aims to:

1. Build a perspective on the changing role of family caregivers in modern times.
2. Equip family caregivers and care recipients with a planned approach towards long-term care.
3. Sensitise the families and the caregivers about potential issues.
4. Provide a framework for caregiving.

Implications of long-term care

Caregiving to a dear one who is facing a terminal illness or a chronic condition is often uniquely challenging and potentially traumatic, lonely and unpredictable. The difference between caring for a child and caring for an older person is that the growing up of the child and thinking of the future offer hope. Caregiving in life-limiting conditions can feel like a losing battle unless we reframe our goals of living, ageing, caring and dying. There are multiple implications of mental health for the caregiver. When family members are long-distance caregivers, they can experience guilt, shame or helplessness of not being there, or not doing enough. On the other hand, those attending daily may experience fatigue, anger and frustration and be unable to express these. Caregivers often cope with the demands of caregiving in ways that lead them to numb their emotions. If they do not have adequate respite and replenishment, they run the risk of empathy fatigue. The presence of illnesses and an inability to process emotions could also create conditions for experiencing anticipatory grief, ambiguous loss and post-traumatic stress disorder.

A call to action

It is interesting to note that in our Indian languages and everyday conversation, there is no word equivalent for "caregiver." In fact, most people refer to the helper or the care worker as the caregiver. We do not identify as caregivers – it is inherent in our familial roles and our identities. If you were to look it up on Google, you will come up with words such as "dekhbhaal-karta" or "sewak" – which are neither used commonly nor fully represent the family caregiver. The closest idea is that someone who cares for you, family or friend is "apne" (loosely translated as "our own"). In our dynamic modern context, it is becoming important for us to recognise that being a caregiver is more than one's identity, it is an important role in addition to the other roles we play in homes and society. It is only when we can see this as a role and decouple it from our identities that we will be able to step in and out of it, acknowledge our self and recognise that not only do we need the support, but that we should receive the support.

As we plan our lives and plan for our own ageing, we need to provide for healthy long lives with minimal dependencies. As adults age, they experience

a loss of independence, agency and ability. These declining capacities can be very difficult to accept, and most who have been used to being independent and making decisions will resist the changing circumstances. They are likely to be sensitive to receiving instructions and feel offended if they experience the slightest loss of authority. Additionally, we may need to plan for providing care to our loved ones who are ageing – whether they are grandparents, parents, partners or other family members who may lean in on us for care. Caregiving for the ageing can be a joyful and gratifying experience, provided it is planned for.

Planning for ageing and related caregiving: Building the infrastructure

The foundation for the caregiving needs of older adults requires building a comprehensive infrastructure comprising of financial, physical, emotional and social support.

Financial infrastructure: To plan for our old age and for that of our loved ones, we need to recognise that most of us will live well into our 80s and perhaps even 90s! Therefore, we need the financial resources to provide for our daily living, exigencies and the support that we may need when we are not actively earning. This support must provide for hiring helpers, contingency medical expenses and long-term care at an institution if required. As caregivers, we may have family members who are dependent on us and do not have adequate financial resources. In such circumstances, the primary caregiver who is the provider may need to have some open, honest conversations on account of their financial capacity and how all the requirements can be best handled. This can also mean engaging with a professional financial planner to calibrate the available resources, restructure the income sources and make some important decisions because the lack of financial resources can be a cause for conflict and tension.

Physical infrastructure: Building physical fitness is a planned effort that takes years and must be a life-long endeavour to age healthily and not be dependent on family or helpers. Exercise, nutrition, medical check-ups and intellectual stimulation are essential for physical and mental fitness. While health and fitness awareness has increased in the recent past, it still needs to be mindfully incorporated in most homes, especially in our culture of expressing love through food! It is most helpful when the entire family has a health and fitness orientation, everyone goes out for walks, exercises, treks and is mindful of what is cooked and how it is eaten. The more there are regular conversations and daily practices about healthy eating, exercising and fitness, the easier it is for all family members to get into the rhythm of healthy living. This can be pivotal in preventing lifestyle and chronic conditions which make

ageing challenging and sometimes painful. Physical infrastructure includes the facilities and the space where the older persons are staying, the help that they have for daily living, emergencies and other needs.

Emotional and social infrastructure is our network of friends, family, relationships and social engagements, so that we have opportunities for recreation, social purpose and meaning for our lives – these are built over a period and become grounding factors for preventing loneliness and mental health challenges. A healthy support system and ongoing social activities at all ages also reduce the pressure on the family members to provide company and emotional support. Most older adults have the need to feel significant in the family and society. So, if there can be opportunities for social work, engaging with the youth, learning new skills and finding opportunities for sharing their stories and wisdom, the older adults can feel purposeful and intellectually engaged. Small projects such as video recording stories, putting together family albums and histories can be interesting projects for the family to attempt together.

A caregiver prepares

Rosalyn Carter famously said, "There are four kinds of people in the world – those who have been caregivers, those who are caregivers and those who will be caregivers and who will need caregivers." While this is fundamentally true, it is also a fact that neither our academic education, nor our professional experience equips us to learn how to be a caregiver. Until a couple of decades ago, a child who grew up in a joint family with a close-knit community would live in an intergenerational setting, would see caregiving and ageing in different forms and would also contribute to caregiving by taking care of the grandparents, run some chores and simply learn by being in the environment.

So, as we prepare for adulthood and being independent for ourselves, we also need to prepare to care for others – bring up children, care for older adults and support the vulnerable. Learning how to be a caregiver to older adults requires having information, access to resources, ongoing learning, a supportive community and a strong support system. Some of the critical aspects of preparing for being a caregiver are:

1. **Understanding the task:** An understanding of how the body and mind of a person change from one decade to the other is essential. For example, the 50s are usually very different from the 60s which are different from the 70s and 80s. Defining goals and expectations on

what this task of caregiving is can be a good way to start. What do you expect to do as a caregiver and how do you wish to be there for the other person? Consider different cases of older persons and how the task would vary depending on the personalities, their life stories, the other family members and their availability, the quality of relationships etc. The caregivers need to build their support systems by joining support groups so that they have easy access to information and emotional support, and do not feel alone in the journey.

2. **Knowing the person, the care recipient:** The family and close ones know the person best and it is usually a good place to start from who the person is, what are their likes, dislikes, preferences and worldview. These are likely to be well-embedded as we age, and the support system needs to be built around this knowledge. The caregiver and the care recipient continually learn about each other as they move through the years and evolve as people – we are the same, yet there are many ways in which we change over the years.
3. **Understanding the circumstances:** Each person has a unique personality, history, health record, relationships and social status. Depending on the stage in life, the person also has age-appropriate needs. Just like caring for children, we prepare ourselves with information regarding life stages, milestones, what to expect and how to help the child navigate the development stages; we have ageing markers and milestones and as caregivers need to help the older adults navigate these stages. Since most older adults have also lived a full life, there are life experiences and worldviews that have influenced them and made them the persons they are. The person who was once independent and perhaps the decision maker for you will increasingly experience loss of control, autonomy and agency as they progress over the years. This can be a difficult and challenging phenomenon at an emotional level and requires sensitivity on the part of the caregivers.
4. **Building a care team:** While there may be a primary caregiver, it is essential that we recognise and consciously build a care team of friends, family and professionals. There are some members on the team who may be the primary caregivers, the financial providers, the support system for daily living activities, the emotional support, the medical and nursing professionals, and others who may be long-distance caregivers. Having a system for staying updated and on the same page is helpful. It is best if the roles are well defined and responsibilities are articulated – it helps everyone manage their tasks and time without conflict. In families, many of these roles are assumed and it is difficult to set up these conversations as they run the risk of being emotional or being misunderstood. These

conversations can be facilitated by someone who is the authority, the older person themselves or a family counsellor.

5. **Hiring professional help and care assistance:** There are many considerations when hiring for care assistance, such as skills, qualifications, ability to follow protocols, empathy and the presence of mind to handle emergencies. Ideally, the person should be hired when the care recipient can connect and build a rapport, as introducing a new person to an older person, especially in the case of dementia or Alzheimer's, can be rather difficult.
6. **Managing ongoing tasks and routines:** While the person who is the primary caregiver (most likely living with the older person) would have a personal management style, it is important to keep track and engage the care team to prevent burnout and have a backup. Each care team led by the primary caregiver can design their method of routines, tasks and schedules. By doing so, the caregiver can delegate or share some of the tasks and create time for themselves for self-care, recreation, social engagements etc. Regular medical check-ups for the care recipient and the caregivers are important to be able to anticipate any health concerns and take preventive action.
7. **Maintaining the well-being of the care team:** The primary caregiver providing long-term care needs to be resilient, which calls for the emotional well-being of everyone involved and the system as a whole. Psychological safety is required for the team members to regularly share their emotional state, their fears, anxieties and hopes. These include regular celebrations, practices of gratitude, forgiveness and expressions of love. Many individuals and families may not know how to articulate their feelings and may not be comfortable being vulnerable and sharing their intimate thoughts with the family or the care team. These are skills that can be built over time through regular practice and some support from a counsellor or coach.
8. **Intellectual stimulation, creative expression and purpose:** Many issues and concerns emerge when older persons do not have enough intellectual stimulation, creative expression or a sense of purpose in their lives. They will need to define goals, projects and activities that give them a sense of significance and meaning. These could be activities for the family, society or hobbies that give them personal joy.
9. **Safety, security and ergonomics:** Ageing is a process of increasing vulnerability, and older adults require additional measures for safety, security and ergonomic comfort to compensate for their changing physical and mental capacities. The home needs to be secure, and the individuals need to be safe from potential harm due to unknown miscreants, mishaps and accidents. This requires half-yearly or quarterly audits for electrical and plumbing systems, especially if the older adults are living

by themselves. There can be parts of the home that have not been used, that need repairs or contain outdated equipment. As the biggest cause of health concern for older adults is a potential fall, it is important that the environment is tested for ergonomics and made older adult-friendly, especially areas such as kitchens, bathrooms, balconies and steps. The older person also needs to be mindful of their declining capacities, and realise that activities that they were easily able to do at one point may be hazardous for them. The acceptance of this fact can be difficult and emotional and therefore caregivers need to continually anticipate, and comfort and prepare the older adults for their upcoming stages. It helps if the older adults have a group of friends and family in similar stages so that they can share notes and seek comfort from knowing that they are not alone.

As we increasingly depend on digital systems and the internet for shopping, banking and other activities, older adults are prone to phishing, fraud and even bullying. At the same time, they need to feel confident and independent. It is important to teach them digital security and have physical/alternate back-ups, as over time their capacity to remember passwords and vigilance to look out for fraud may diminish. For example, there is a risk if they use the phone for banking and do not have a security lock. They may have chosen to not have a security lock for the fear of not remembering it.

10. **Handling emergencies:** Defining a system for emergencies is the starting point. Clarity about the person who is the point-of-contact, the process of how immediate physical support will be provided such as the ambulance/emergency and other required contacts being readily accessible and back-ups that are available are critical. More importantly, the emergency response system and protocol must be adequately known to everyone in the team.
11. **Preparing for end-of-life:** This is perhaps the hardest part, the least spoken about and most inevitable. It is a difficult and crucial conversation – for the care recipient and the caregiver. There are multiple aspects to the end of life, whenever it may happen. At the core of it are the wishes of the older person. There is a legacy that needs to be handed over – in terms of stories, values, family history. There are financial assets that may need to be distributed. There are assets which are valuable in terms of memories, which may need to be handed over. There could be messages for the young, the yet-to-come and people one may have lost over the years. A caregiver needs to be able to make time to listen to the older adults so that they can articulate their wishes and their will – a living will which defines how they wish for their bodies to be

treated when they cannot decide for themselves, a financial will for their assets and how they wish to distribute them and a legacy on how they wish to be remembered. This is something that we could start thinking of as we grow up, as we go through our adult lives – very often these ideas are relegated to a later time or left unarticulated.

12. **Support systems for caregivers:** Caregiving can lead to hyper-vigilance, anxiety and stress, leading to burnout if the caregivers are not mindful of respite, replenishment, recreation, taking care of themselves and sharing the responsibilities with others who could even be hired help. Joining a support group, learning from experienced caregivers and having a coach or a counsellor can be the necessary support systems.

Caregiver Saathi™[1] is an ecosystem that provides this comprehensive support to caregivers during their journey in a personalised and seamless manner through their digital and offline solutions. You can access the resources by downloading the app, which will help you organise and prepare yourself as a caregiver.

Conclusion with key takeaways

The idea of being a caregiver, and playing that role actively for a long period of time, is emerging as a reality for the coming generations. In order to move towards a world of gender equity, these responsibilities will need to be shouldered equally by men and women. Caring for the older, vulnerable folk used to be learnt through the process of socio-cultural conditioning, lived experiences of intergenerational homes and sharing responsibilities over larger families and communities.

- We need to design systems to equip young adults as family caregivers to have the mindset, the skillset and the toolkit for compassionate caregiving in modern times.
- Caregiving can be a beautiful and joyous, even spiritual journey, provided there is balance in terms of compassion for all; it does not feel alone and there is a sense of comfort in knowing that you did your best, aligned with the wishes of the older adult under care, in the given circumstances.
- Both the care recipient and caregivers need a planned approach and framework for long-term care, with potential issues being addressed as soon as possible.
- Caregivers need a support system in terms of information, education, community and services that they can lean into to sustainably provide long-term care.

1. https://caregiversaathi.co.in

Chapter 6

FROM BOOMERS TO ZOOMERS: MULTI-GENERATIONAL SOCIAL BONDING

S. Siva Raju

Lakshmi, aged 66, is a vegetable vendor from Tamil Nadu. She lives with her two children, her 85-year-old mother, and a chronically ill 72-year-old husband, all of whom are dependent on her earnings. Lakshmi makes an average of about ₹75 per day. Her eldest son is unemployed and the youngest is still in school. Lakshmi says that her mother is very old and that being her caregiver is particularly difficult and burdensome. Though she has a BPL card, she is yet to receive any pension due to the laborious process required to obtain it. She strongly feels that support from the government will greatly help to overcome the problems that she experiences, and enable her to lead a dignified and peaceful life in her old age.

Introduction

Population ageing is a social phenomenon that is beginning to draw increased attention across the world for the many transformations it brings, for which societies will need to prepare for in the future. It describes a process of social, economic and demographic transition in society. It refers specifically to a population that is experiencing changes in its age structure, such that the share of adults and older persons is increasing, in contrast to the decreasing share of children and adolescents in the population.[1] Population ageing is closely intertwined with what is referred to as the demographic transition. Demographic transition outlines the decline in mortality as tending to derive from multiple factors including medical advances, improvements in diet and nutrition, and public health action.

1. Population Reference Bureau. Ageing of Population, *Glossary of Demographic Terms*. Accessed on October 11, 2022. https://www.prb.org/glossary/

Although many factors are at play in India's experience of fertility decline, key themes arise which include the role of women's education and the role of diffusion in influencing fertility behaviour. The changing mortality and fertility levels have an impact on population growth and on the population age structure. Changes in population growth and, particularly, changes in the population age structure are primary characteristics of the population ageing process. This chapter will:

1. Highlight the various issues of inter-generational bonds in India.
2. Describe the changes in the caregiving of older persons by the young generation.

Issues of older persons

Some of the key challenges faced by older persons are discussed by Siva Raju[2] in a situational analysis of the older adult. A variety of factors affect the quality of life of the older adult, including economic, social, psychological and other factors. Economic factors mainly include little to no income sources, increased economic dependence, few social support schemes with difficult access and issues which are exacerbated by other social factors such as widowhood, disability, gender and other factors. Social factors include altered family structures that may not be viable as sole support systems for the older person; changes in attitudes, behaviours, values and norms that increasingly favour individualisation; a perceived sense of decline in value in society; loss of decision-making power; and excess free time. Psychological factors impacting older persons include revised ideas of self, changing perception of self and others in relation to each other, views towards institutionalisation and other factors, resulting in many psycho-social frustrations. Health factors including the changing perceptions of health, revised dietary patterns, adjustment to physical and mental infirmities, and susceptibility to conditions more prevalent among older persons are all to be adapted to by the older person over the course of their ageing process. There is also older adult abuse that is highly prevalent. The country will need to effectively address many of these issues through a multi-pronged approach that can cater to the growing proportion of older persons across different strata.

2. Siva Raju S. *Studies on ageing in India: A review*. BKPAI working paper no. 2. United Nations Population Fund, New Delhi, 2012.

Vulnerable groups

Women in general are increasingly neglected in their old age due to factors such as urbanisation, migration and changing family structures. The cumulative effects of a lifetime of nutritional deprivation, hazardous occupations, heavy work, continuous childbearing and low levels of self-esteem leave them physically and mentally frail, while widowhood often leaves them destitute. Similarly, other vulnerable groups also deserve special care and attention. These groups include men and women who are disabled, frail older persons, those who are still obliged to try and work in the unorganised sector of employment such as landless agricultural workers, small and marginal farmers, artisans in the informal sector, unskilled labourers on daily, casual or contract basis, migrant labourers, informal self-employed or wage workers in the urban sector and domestic workers.

Multi-generational bonding

Indian society has traditionally been one where the family was the core focus of life. Strong values of love, care and mutual respect bound family members together. The traditional Indian family followed a patriarchal system, where no dissent was permitted, and no discussions were held about important decisions with the other family members. Communication between the adult children and the parents, especially the father, was limited. Young children respected older kin including grandparents, great-grandparents, parents, uncles, aunts and others, and would often live with extended family in what is today termed a "multi-generational household." Disrespect or disobedience by younger family members towards older family members was rarely observed. However, the advantage of such multi-generational households is that families were the best safety net in times of stress or need. Caregiving of family members was always the duty and responsibility of the entire family. Vulnerable family members such as widowers, single unmarried women and disabled individuals were all taken care of by other members of the family.

However, industrialisation, urbanisation, modernisation and the adopting of western lifestyles have all impacted the traditional family structure of India. Especially in urban areas, these factors have been responsible for younger generations moving into smaller-sized households, often leaving older adult members to live on their own.

Rural areas in particular face a "double demographic burden," where due to high fertility rates and considerable and sustained out-migration, the ratio of working-age persons in the rural population to older persons and children who require support is very high, with increased pressure on the working-age

population living in constrained economic and social conditions.[3] These factors together with alterations in the traditional family systems, changing values and norms arising in a rapidly changing society have brought new challenges that need to be addressed with new frameworks that can effectively cater to the changing scenario in India. With the changing family structure and shifting socio-economic milieu, the living arrangements of the older adult are changing, and caregiving is becoming a challenge. The following case study depicts the extent of vulnerability of older persons in contemporary society.

> *Ms. Kumari from Bihar, aged 74, has been a part of the Elderly Self Help Group (ESHG) for eight years. She and her family were devastated by the Bihar floods; however, the ESHG members helped each other to overcome the natural disaster and work towards financial stability. Ms Kumari mentioned that they have frequently held camps for the elderly to register themselves in various Government schemes they are entitled to. Through these camps, they pressurised the local Block Development Officer (BDO) to clear the procedural delays and prioritise providing the benefits of the government schemes meant for the elderly. Overall, this has created a large positive impact in the village where the older adults are not dependent on their families for monetary needs and are able to take care of their health expenses through the ESHG funds on a timely basis. They are now able to live with dignity and self-respect due to the various percolating benefits of ESHGs.*

In spite of the migration of young members to urban areas and increasing materialistic thinking among the younger generation, the institution of family continues to be the main choice for the old age support system.[4] The majority of older persons have mentioned that children should support the older adults in return for the support they received during their younger years. Rural older adults had more expectations both from the children and the government. Older adult women expected more support from children than men. Children continued to be the most preferred source of support in old age. The predominantly preferred living arrangement among all older adults is to live with their sons, a proportion that is highest in urban areas compared to rural areas. The preference of living with daughters is very low. Ageing does seem to have an influence on whether the older adults think their role within the family has diminished as they have grown older, or not. There is a two-way

3. Ramakrishnan H. Ageing population: Policy responses and challenges. *The Actuary India*. Updated on September 12, 2011. https://www.actuariesindia.org/sites/default/files/inline-files/ActuaryIndiaSepIssue_2011_HR.pdf
4. United Nations Population Fund. *Report on the status of the elderly in select states of India*. UNFPA New Delhi, 2011.

communication and interaction between the older adult and their non-co-residing children, with the children to older adult stream being dominant.

It is a matter of concern that older adults living alone have limited or no communication and meetings with their non-co-residing children. Older adults receive money from their children as their age advances. There are more older people living alone or with their spouse and receiving money from their adult children, than of the older adult living with children and others. The decision-making role of the older adult is mainly in issues related to marriage of children, buying and selling property, buying household items, giving gifts to relatives, education of children and grandchildren, and arrangement of social and religious events. The various activities that they participate in include: taking care of grandchildren, cooking/cleaning, shopping for household items, payment of bills, household chores, advice to children and settling family disputes. Overall, nine out of ten men and an equal proportion of women reported having not faced any abuse. Where abuse is reported, it is higher in rural areas than in urban areas and marginally higher for women in comparison to their male counterparts. Migration of children has emerged as the most important reason for the older adult to be living alone, but the other aspects of family conflicts and the desire to live independently does have a bearing in later life living arrangements, particularly the social and mental impact on the older adult living alone.

Older people living alone or only with their spouse has increased in recent years. Taking care of grandchildren and other dependents in the family is an important type of informal care provided by older adults. According to the Longitudinal Ageing Study in India,[5] rural older adult women have an average of ten grandchildren and spend, on an average, 20 hours per week taking care of them. The average number of grandchildren being taken care of by their grandparents is slightly lower for older adult men and urban respondents. The most common reasons for looking after grandchildren are that the grandparents are the preferred caregivers, the child's parents are working, the child is orphaned or the child's parents are away.

With a decline in financial status and functional abilities, older adults are often left out of the process of familial decision-making. The dynamics related to decision-making and the experiences related to ageing are important psycho-social issues that affect the overall well-being and life satisfaction of the older adult. One of the biggest challenges is to optimise the opportunities for increasing the mental and social well-being of the older adult so that they

5. International Institute for Population Sciences (IIPS), NPHCE, MoHFW, Harvard TH. Chan School of Public Health and the University of Southern California. *Longitudinal Ageing Study in India (LASI) Wave* 1, 2017-18 - India Report. https://iipsindia.ac.in/lasi

can have healthy and productive lives. Social isolation is a major risk factor for morbidity and mortality among older adults. Having experienced many of the major responsibilities in life such as raising children and completing an employment period, older adults have relatively more free time than the younger generations, and social participation and involvement in social activities or events become an important part of their lives. Participation in social activities includes a broad range of activities such as volunteering, informal caregiving, participation in educational activities, participation in social leisure activities and participation in religious activities.

Governmental efforts to promote inter-generational bonds

In India, a number of programmes and schemes have been identified by the government and implemented wherein older persons are the priority target group for social welfare interventions. Governmental focus has largely been in the areas of providing financial security, existence of voluntary organisations, provision in the constitution and promoting measures to improve the quality of life of older persons. Soon after independence, the Indian government constituted several committees to suggest a social policy for the nation and subsequently several social welfare programmes came into existence.

The Integrated Programme for Older Persons (IPOP) 1992 (revised in 2008) is to improve the quality of life of senior citizens through provision of basic amenities such as food and shelter, medical care, opportunities for entertainment and capacity building. The National Policy of Older Persons (NPOP) in 1999 (and a revised draft of NPOP, 2011) also ensures the well-being of older persons, through provision of state support and services towards basic needs such as shelter, financial and food security, healthcare, protection against abuse and exploitation. The Maintenance and Welfare of Parents and Senior Citizens Act in 2007 makes provisions for parents and senior citizens, ranging from protection from abandonment, establishment of old age homes, protection of life and property, and provision of adequate medical facilities, among others.[6] Some states have also introduced pensions for widows, agricultural workers and other vulnerable groups. However, their population coverage compared to the extent of the problem is insignificant. Evaluation of these programmes and schemes has clearly revealed that there exists a huge gap

6. Ministry of Statistics and Programme Implementation, Govt. of India. *Elderly in India, 2016*. Accessed on Feb 20, 2020. https://www.mospi.gov.in/sites/default/files/publication_reports/ElderlyinIndia_2016.pdf

between the awareness and knowledge of older people and the extent of utilisation of these programmes and schemes meant for them. The challenge of population ageing with the growing proportion of older persons needs to be tackled by multiple stakeholders working together. Government, civil society, academics and others need to come together to facilitate solutions that cater to the different aspects of population ageing in a socio-economic environment of lower levels of development. Voluntary organisations are being encouraged and assisted to organise services such as day care, multi-service citizen centres, outreach services, supply of disability-related aids and appliance-assistance for old persons to learn to use them, short-stay services and friendly home visits by social workers.

Recommendations to promote multi-generational bonding

The following measures need to be implemented on a priority basis to promote multi-generational bonding in Indian society:

- An ageing population and delayed parenthood have led to the increased demographic of the "sandwich generation" – middle-aged adults who are caring for both their growing children and ageing parents at the same time. The increasing pressure on this generation can undoubtedly impact their mental health. In view of this, there is an urgent need to re-evaluate the way we live, work and care.
- The institution and functioning of the family as a support structure for older people is under severe pressure because of poverty, unemployment and changing attitudes; external support is needed to strengthen the family and provide supplementary income.
- The social neglect of older persons seriously exacerbates the particular needs of this group as they move into and through old age. Traditional values that recognise the wisdom of older people and the contribution they can make need greater support in order to prevent the alienation of older people from the family and the community.
- NGOs cannot function effectively without government agencies creating the requisite environment; partnerships can be optimal in explicitly providing for the needs of older people and involving them in a supportive capacity in the implementation of welfare policies.
- Given the alienation of the young generation from the traditional intergenerational bonds with the old, there is a need to inculcate value education, starting from the primary level of education; accordingly, the school curriculum needs to be revised by emphasising the importance of intergenerational bonding.

- Introduction of programmes in schools and other educational institutions to open up suitable platforms for the interaction of the young generation with older people and including inter-generational service learning in the curriculum.
- Creation of inter-generational interactive spaces by designing public areas, where playgrounds can be for children and older adult-friendly amenities for the usage of the older adults in the community.
- Identifying active older persons with positive outlooks and promoting volunteerism among them through suitable programmes and schemes, by which their social participation can be promoted.

Conclusion with key takeaways

Population ageing in developing countries is occurring at a faster pace than in developed countries. There will thus be less time to adjust to the pace of population ageing. In the rapidly shifting Indian society, the traditional models of care are no longer adequate for the changing scenario.

- While the family still retains its hold in Indian society and is the main source of support for older adults, support from the state and the need to create alternatives is increasingly necessary. Such support would help to ease the pressure on both working-age persons and older persons who require their support.
- Policies would need to take into account both the employment and education needs of working-age persons, the changing familial and social systems, and the increasing needs of older persons in a variety of areas, from economic to medical to recreational, in ways that facilitate inter-generational solidarity rather than divisiveness between generations in competing for needs.
- The time has come to adopt a holistic approach for the promotion of a suitable environment wherein the generations can be integrated seamlessly.
- We need to adopt good practices that exist in other countries through which we can synergise and move in concerted directions to build an age-integrated society where it should be natural to experience multi-generational bonding across the various domains of family and community.

Chapter 7

A PLACE TO CALL HOME: COMMUNITY FACILITIES FOR OLDER ADULTS

Saumyajit Roy and Sama Beg

Mrs. and Mr. Sangma were very active in their local social circle in Meghalaya. Their daughter is in London with her husband and two small children. Four years ago, Mrs. Sangma was detected with late-stage breast cancer. She knew that her husband would not be able to cope with living without her in their large house during her treatment, so she urged Mr. Sangma and their daughter to move into an upmarket senior living development for the duration of her treatment. This smart thinking helped the family immeasurably because the senior living facility had a health center with a 24/7 clinical team, making the administration of medicines and emergency support much easier than at their home. Unfortunately, despite the best clinical care, Mrs. Sangma passed away from the disease. Mr. Sangma has still not recovered completely from the loss of his wife, but is amazed at how thoughtful she was to have pushed him to stay in a community of like-minded seniors who are now friends, providing him with support and companionship when required. Mr. Sangma feels comfortable living by himself in the community and remains actively engaged with numerous events and activities held at the club.

Introduction

The world today largely remains fascinated with youth, and trillions of dollars go towards anti-ageing marketing, leading us all to believe that getting old is a disease or a burden. But older adults are central to the existence of humanity. Elderhood is the third stage of life after childhood and adulthood. Our own ancient philosophy defines life through four stages – Brahmacharya, Grihastha, Vanaprastha and Sanyasa. As a civilisation, we have remained addicted towards adulthood and are missing out on enjoying the power of transitioning with pride into Vanaprastha or elderhood.

When a community celebrates its older adults and places them as its foundation, our youth obtain the knowledge, confidence and momentum to forge ahead with new discoveries while retaining age-old wisdom. In Africa, at around 65 years of age, older adults go through a second initiation for acceptance into the Elder Circle – as masters of the school of life. Older adults have the community's complete knowledge base and help both children and youth navigate through their life stages in a more informed manner. In Africa, there is a popular saying, "When an old man dies, a library burns to the ground." In South India too, a beautiful function called "sathabhishekham" takes place typically when a couple completes 80 years of age, celebrating an older adult who has seen 1,000 lunar cycles and more.

The modern older adult, with more education and longer life expectancy, is demanding more from elderhood. Older adults today are a one-billion-strong worldwide population consumer class redefining elderhood and fuelling a vibrant silver economy where healthcare is only a small part of the spectrum of possibilities. This changing genre of older adults will have specific needs of how they want to spend their years post-60, and what kind of living facilities would be suitable for their evolving needs.

Senior care has come of age and defines nine specific types of facilities ranging from specialised care facilities to care streaming in an older adult's home. This continuum of care persists both in "continuing care retirement communities" (CCRC) as it has been conceptualised in the west, or as "naturally occurring retirement communities" (NORC) – which is where over 90% of the world's older adults retire. The concept of "ageing-in-place" is picking up global interest given the impact of Covid in senior living facilities. In the last two years, over a billion dollars have been invested in start-ups focused on ageing-in-place for older adults across the world. This chapter will:

1. Provide an overview of how care models are evolving globally.
2. Explain the different types of senior living facilities available nationally and internationally.
3. Provide guidance on how older adults can choose where to retire irrespective of health conditions.
4. Discuss the steps of "ageing-in-place" for an older adult.
5. Offer suggestions on how to change the narrative so that the care ecosystem is holistic and not solely focused on disease or disability.

Global models for senior care: A comparison with India

The story in India for senior care is just beginning. In comparison to a supply of 1 bed per 55 older adults in the United States, 140 million older adults in

India have no more than 97,000[1] supply across old age homes and senior living developments today – a ratio of 1 bed per 1,400 older adults in India. This is across 480 old age homes and 60 senior living developments across India. There are no more than approximately 12,500 beds of formal quality as per a PWC 2020 estimate. With 3.84 million dementia cases in India (6.7%), out of 57 million worldwide, and the case volume expected to touch 11.44 million by 2050, there is an acute need to boost care homes specialised for memory care, in addition to homes catering to assisted living needs. A demand estimate by CII states that India has a latent need for 250,000 senior living bed units in 2018 which is estimated to increase to 503,000 bed units by 2025[2] across HIG/MIG/LIG economic classes. As we build our senior care models, it is important to learn from models across the world, both for care in facilities and care at home.

United States: The United States, with an older adult population of 55 million (per US 2020 Census[3]), has approximately 30,000 assisted living[4] communities with approximately one million beds. About 2% of Americans stay in such assisted living facilities and another 4% stay in nursing care facilities. It is estimated that the United States will need another 1 million senior living units by 2040 to cater to the rising demand from baby boomers. The Covid-19 pandemic highlighted how out of the 1 million deaths due to Covid-19, 200,000[5] took place in long-term care facilities and that 75% of deaths were older adults above 65. With rising costs of service in such facilities, interest is shifting to at-home models including taking care of seniors in the community under the much-acclaimed PACE programme.[6] The Program of All-Inclusive Care for the Elderly (PACE®) model is centred on the belief that it is better for the well-being of seniors with chronic care needs and their families to be served in the community whenever possible. PACE serves individuals who are aged 55

1. Tata Trusts. Report on old age facilities in India. Accessed on July 01, 2022. https://www.tatatrusts.org/upload/pdf/report-on-old-age-facilities-in-india.pdf
2. CII, Senior Living Community and Ignox Consulting. CII - Senior care industry report - India 2018. Updated on July 02, 2018. https://www.slideshare.net/saileshmishra1/cii-senior-care-industry-report-india-2018
3. Population Reference Bureau. Which U.S. states have the oldest populations? Updated on December 22, 2021. https://www.prb.org/resources/which-us-states-are-the-oldest/
4. American Health Care Association. Facts & figures. Accessed on October 12, 2022. https://www.ahcancal.org/Assisted-Living/Facts-and-Figures/Pages/default.aspx
5. The White House. Statements and releases. Updated on February 28, 2022. https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/28/fact-sheet-protecting-seniors-and-people-with-disabilities-by-improving-safety-and-quality-of-care-in-the-nations-nursing-homes/
6. National PACE Association. The History of PACE. Accessed on August 22, 2022. https://www.npaonline.org/policy-advocacy/value-pace

or older, certified by their state to need nursing home care, are able to live safely in the community at the time of enrolment and live in a PACE service area.

Europe: Several innovations are underway in the European region from dementia villages in Netherlands to multi-generational homes in Germany. Europe has historically given higher importance to building community participative models for the care of seniors. For example, all the residents of the Dutch village of Hogeweyk[7] (on the outskirts of Amsterdam) have dementia.

Japan: Japan leads the world in terms of its experience in taking care of seniors and has much to offer India as we evolve our senior care models. With an estimated 40% of its population above 65 by 2040, the country has created an array of policy interventions towards addressing its ageing population needs. The Long-Term Care Insurance System launched in 2000 started a model for financing long-term care for people above 65. As opposed to the western models of welfare, it aimed at targeting care to those who needed it. The model was further sharpened in 2006 with the introduction of the Community-based Integrated Care System under which the local government coordinates to offer health services to older adults. In 2013, Japan created a national dementia plan called the Orange Plan, which aimed to enable persons with dementia to maximise time in the community by developing dementia-friendly communities.

Types of care facilities

The Association of Senior Living India, an industry body set up by experts in the senior living industry, came up with a nine-point classification system for various types of senior care facilities.[2] While over 90% of India's seniors prefer to stay in the comfort of their own homes, it is a reality that older adults with specialised care needs or those who desire to move into a senior living facility get the choice they desire. It is to be noted that the below classification is applicable to all older adults, irrespective of whether the infrastructure caters to urban or rural older adults or older adults from high/medium or lower economic strata.

The nine types of senior living facilities are described in Table 7.1.

In order to usher standardisation in the quality of care, the Ministry of Social Justice and Empowerment has developed minimum standards for setting up senior care facilities. These standards have been developed keeping in mind the urban and rural poor as well, given the large number of facilities

7. Operabeds. Inspiring Dutch village for those with dementia. Accessed on August 22, 2022. https://operabeds.com/blogs/news/dutch-dementia-village

Table 7.1 Types of care facilities

	Type of Care Facility	Description
1	Independent living (IL) community	Apartment complexes, condominiums, cooperatives and other such retirement communities, offering private residences designed for the independent senior. These types of communities do not provide medical services but instead provide seniors with hassle-free living, with some recreational facilities. A seniors-only housing community could be a stand-alone facility or a part of a larger housing project as an area, tower or cluster of apartments/homes.
2	Assisted living (AL) community	AL offers help with non-medical aspects of daily activities in an atmosphere of separate, private living units. It can be likened to congregated living for residents less able to function independently in all aspects of their daily lives.
3	Skilled nursing facility (SNF)	SNFs offer the most intensive level of care on the residential care continuum. SNFs are equipped to handle individuals with 24-hour nursing needs, post-operative recuperation, or complex medical care demands, as well as chronically ill individuals who can no longer live independently. Such facilities may be freestanding or part of a senior community. SNFs may specialise in short-term or acute nursing care, intermediate or long-term skilled nursing care.
4	Continuing care retirement community (CCRC)	A CCRC offers seniors a facility that combines housing, services and healthcare, allowing seniors to enjoy a private residential lifestyle with the opportunity of independence and the assurances of long-term healthcare. Within the CCRC, there are three types of care available, providing a phased approach to older adult living accommodations: independent living, in which the person lives on their own in an apartment or cottage-style housing; assisted living offering some level of assistance for residents; and skilled nursing care, for residents whose health is deteriorating.
5	Memory care (MC) facility	MC facilities provide increased levels of care and safety for individuals with dementia.
6	Senior daycare (SD) facility	Daycare centres provide stimulation and rehabilitation to older adults undergoing medical care and related procedures.
7	Home care (HC)	Services provided to seniors within the senior's home (ageing-in-place) addressing clinical and non-clinical support needs including engagement activities, activities of daily living (ADL) assistance support, housekeeping, home engineering support, nutrition support.
8	PWD care	These are for senior citizens who have children with special needs such as autism, cerebral palsy, Down syndrome, etc. The model takes care of such senior citizens with special children living in the senior care centre and after the demise of the parents, take cares of the child for life.
9	Palliative care (PC)	PC is a multi-disciplinary approach to specialised medical and nursing care for people with life-limiting illnesses. It focuses on providing people with relief from the symptoms, pain, physical stress and mental stress of the terminal diagnosis.

required for this segment. Typically, the charges for facilities have a large range depending on whether the facility is not-for-profit, charitable or commercial.

Ageing-in-place

While less than 10% of seniors will elect to move to a senior living facility, 90% will remain in the comfort of their own homes ageing-in-place. "Ageing-in-place" is "the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level." Ageing-in-place offers numerous benefits to older adults – including life satisfaction, health and self-esteem – all of which are key to successful ageing.

Ageing-in-place has recently witnessed a massive increase in start-up capital with over $2.5 billion[8] focused on solutions to help older adults stay at their own homes. It is quite natural and organic for older adults to want to stay in their own homes for as long as they can. Operators who help older adults age-in-place help older adults stay at their own home and support them across their emergency, healthcare, conveniences, transportation and other needs. As opposed to the institutional setup of a CCRC, an established format of the senior living facility allowing an older adult to move from one degree of specialisation to another, most older adults choose to stay in their own neighbourhoods and manage life post-60s.

NORC was first coined in the 1980s by Michael Hunt, a professor of urban planning at the University of Wisconsin–Madison. He defined NORCs as neighbourhoods and housing developments, originally built for young families, in which 50% of the residents are 50 years or older and have aged-in-place. The reality is that a large number of older neighbourhoods in India have turned into NORCs with a significant percentage of their residents being above 60 years of age. Ageing-in-place (Table 7.2) has four key aspects, all of which collectively help the older adult have a balanced life during their 60s to 90s.

Stages of ageing-in-place care

How to choose between ageing-in-place versus moving to a senior living facility

While most older adults and their families would love to age gracefully at home, the reality is that families have to make a decision at times to move an older adult into a care facility. It is important therefore to build a mental model

8. Home Health Care. Aging-in-place enabler Homethrive has raised an additional $20 million in Series B funding. Updated on May 22, 2022. https://homehealthcarenews.com/2022/05/aging-in-place-company-homethrive-raises-20m-plans-aggressive-expansion-in-payer-marketplace/

Table 7.2 Stages of ageing-in-place care

Stage 1: @Home	What changes are needed in the older adults' homes to make it suitable for older adults?
Stage 2: @Carer	What changes are needed in the older adults' caregiver's environment to train them, help them and in turn protect our older adults?
Stage 3: @Support	What changes are needed in the older adults' support ecosystem to make it suitable for older adults?
Stage 4: @Elder	What can we do to undertake changes in the older adults' personal life, both in the physical and emotional ecosystem, so as to celebrate their presence?

on parameters that one must keep in mind before taking this important call. The five points that older adults and their families must evaluate before taking a decision to move into a facility are:

1. **One-stop community**: Older adults who want to age in a safe, secure, active older adult-specific community amidst like-minded other older adults and surrounded by 24/7 support for health and hassles can choose to move into an independent living community or a CCRC while they can still take care of their needs. The community facilities and being surrounded by other older adults make the community a perfect place to spend golden years.
2. **Loneliness**: For single older adults with no children or children staying far away, moving into a senior living facility makes great sense, especially if the community network around the current home is not as active. Approximately 30% of India's older adults stay alone or with their older adult spouse.[9] Even if they stay with children, many remain lonely and are unable to get the support and attention that they crave. Older adults staying alone have a higher likelihood of falls, healthcare challenges, social isolation, dietary challenges and depression.
3. **Risk to self or family:** Older adults suffering from dementia at a stage when they could become aggressive and potentially cause harm to themselves or others in the family may warrant an evaluation to move into a care facility. It is quite possible to continue staying at home but this would require the care team to be trained in non-pharmacological approaches towards managing care at home. At times this could become challenging especially if there is a single caregiver for the older adult.

9. *The Longitudinal Ageing Study in India Wave* 1 - India report. International Institute for Population Sciences, National Programme for Health Care of Elderly, Ministry of Health and Family Welfare, Harvard T. H. Chan School of Public Health, and the University of Southern California; 2020.

4. **Inability to manage ADLs**: The inability of the older adult to manage the six primary ADLs – bathing, dressing, toileting, transferring to/off the bed, continence and eating – warrants the family to evaluate having home care support. However, if the condition of the older adult requires intense 24/7 support, it would make more economical and practical sense to move into a care home.
5. **Health conditions**: As per data from LASI,[9] over 37% of older adults post 75 years of age suffer from cardiovascular diseases, 34% from hypertension, 19% from bone/joint diseases, 10% from chronic lung conditions, 11.5% from diabetes and 3.7% from neurological or psychiatric conditions; 24.1% of older adults suffer from multi-morbidities. As health conditions become more intense, families have a choice between investing in home-based specialised care memberships, which offer clinical support at home, or moving into care facilities where health support is more accessible.

While the above are five key parameters, it is highly recommended that families/older adults seek professional counselling, invest time in research, evaluate offerings in depth and visit in advance before making this decision.

Mona and her brother Mandeep both live outside India with their respective families, while their parents Mr. and Mrs. Arora live in Delhi. Mr. Arora is 82 years old and has Alzheimer's disease which is advancing to stage IV. He is also a diabetes patient. The primary caregiver is Mrs. Arora, who is 78 years old, and while she does not have any serious ailment, is increasingly finding it difficult to navigate the care management responsibilities. They have a full-time helper at home, a trusted hand who has been with the family for over a decade. Mona and Mandeep were anxious about their parents and researched online on what support they could arrange for them. After detailed research, they purchased a membership for their parents offering emergency 24/7 support, care buddy support, and clinical in-depth support. Mrs. and Mr. Arora do not want to leave their home, where Mona and Mandeep grew up, and despite repeated requests from their children to move to the US, love the community and the local ecosystem. Their age-in-place provider has become an extended family member and the best part is that Mrs. Arora can even go to watch a movie occasionally leaving her husband in the care of the help at home, giving her much-needed respite. Mona and Mandeep consider themselves lucky that they made the right decision rather than waiting for an emergency to shake them up.

Rural seniors: A neglected cohort needing attention

About 75% of India's seniors reside in rural areas without a focused programme supporting them. With the rapid migration of youth to urban areas

and the drop in agriculture as a key occupation, there is an urgent need to augment support and care for India's rural older adults. Rural day care centres in association with local panchayats and self-help groups have been tried out in some states but are yet to pick up scale. Rural seniors face an additional burden of reduced access to healthcare facilities and reduced mobility, causing challenges during emergencies and ailments. Over 100 million older adults in India stay in rural areas and are governed under 253,163 Gram Panchayats – a body which today has 3 million elected representatives with one-third being women. This is truly an opportunity for social entrepreneurs out there to build public–private partnerships, penetrate geriatric care at the grassroots level and leverage existing infrastructure for older adult care. Fortunately, the Panchayati Raj institutions are a great implementation vehicle on which older adult care for rural areas can be rolled out. Rural older adult care is a massive impact opportunity and can be supported by both central/state as well as local CSR funds.

Ageing-in-place at home vs. ageing-in-place at a care facility

While the west is seeing a rapid increase in demand for ageing-in-place, also accelerated by improvements in health technologies and remote monitoring devices, India will see a balanced growth of both ageing at home or ageing at a care facility, where the care facility will soon become the new home. It should be our collective responsibility as families and society to see to it that older adults in India remain the beacon of knowledge, values and culture of our neighbourhoods, and stay in their homes for as long as they can. When they cannot or should they choose to move in by their choice, India should have community facilities in nearby neighbourhoods where an older adult can continue to stay in touch with his/her roots while ageing magnificently. We must continue to keep older adult care in the locus of our collective focus.

Conclusion with key takeaways

Today's new older adult wants more health, more safety, more conveniences, more experiences and, most importantly, a more active meaningful life. The new older adults in India and across the world are changing the boundaries of what they can do in their golden years.

- **9-point classification**: Nine variants of senior care are available for seniors and industry enthusiasts to choose from. The market will see expansion and need on all the categories given massive supply–demand

gap. While less than 10% of seniors will evaluate moving to a senior living facility, 90% will remain in the comfort of their own homes ageing-in-place.

- **4-point programme for ageing-in-place:** Changes in the older adult's home environment, changes in the older adult's caregiver ecosystem, changes in the support ecosystem and changes in the older adult's physical and emotional ecosystem will help older adults age magnificently at home.
- **Deciding when to move in**: While most older adults and their family would love to age gracefully at home, the reality is that families need to make the decision at times to move an older adult into a care facility. Family members can benefit from the suggested structure to decide when to move into a senior living facility.
- **Challenge vs opportunity**: Much has been documented of older adult care as a challenge and the massive supply–demand gap, absence of insurance, funds, etc. This is precisely also an opportunity for entrepreneurs and change leaders to take on this opportunity and showcase the possibility of creating an integrated ecosystem using the best of geriatric knowledge, deep technology and a community-partnered ecosystem.

Chapter 8

EMPOWER TO PROTECT: THE SAFETY OF OLDER PERSONS

Mala Kapur Shankardass

Subhash, aged 56, lives in Shivpuri, a small town in Madhya Pradesh. Due to a recent accident, he has lost sensation and mobility in his hands, and is bedridden. His wife and disabled daughter do not have an adequate understanding of running a business, forcing him to leave the supervision of his shop and financial matters to his nephew. He feels exploited, insecure and ill-treated, because within a few short years, his nephew took full possession of his assets by making false promises and made Subhash, his wife and daughter live in an abusive environment. Subhash and his wife, initially unaware of any available recourse, still continue to suffer indignity and hardships along with their daughter, not wanting to seek any legal help for fear of repercussions of worse mistreatment by the nephew.

Introduction

The safety of older persons is a serious concern as the ageing population is rapidly growing. Due to migration, globalisation, changing family structures, weakening social ties, demographic and epidemiological transitions, technological developments and digitalised transformations, older people are increasingly facing vulnerabilities. The migration of younger people leaves older parents lonely and susceptible to age-related hardships, crime and abuse by known and unknown people. In addition, low technological awareness and digital illiteracy among older people is making coping with life in the contemporary context difficult, increasing their risk of becoming victims of fraudulent practices. Changing family and social relationships may leave older people isolated and insecure unless they make efforts to connect with community groups.

As life expectancies are increasing across regions, ageing populations in all their heterogeneity are prone to age-related problems of decreased vision, hearing, smell, cognition, agility, mobility and frailty. These along

with adult and digital illiteracy rates, which contribute to low health and socioeconomic status, increase their dependency and vulnerability to crime and abuse while decreasing their autonomy, dignity and safety. While many older people do feel safe in their circumstances and show resilience in coping with insecurities, societies need to take stringent measures to make environments safe and secure for older people and protect their rights. This chapter will:

1. Provide an introduction to crimes and abuse against older people in its existing forms, demonstrating the prevailing age-unfriendly environments in society.
2. Outline the available mechanisms to combat it in India.
3. Suggest viable options through government policy, legislative responses and programmatic measures undertaken by NGOs and civil society members to address the problem.
4. Recommend strategies to empower older people in living a safe, secure, abuse-free and dignified life.

Crimes against older people

Crimes against older people are seen in the form of murders, robberies, violence, harm, cheating, land/property grabbing, ill-treatment and abandonment. The latter two, referred to as older adult abuse, manifests as the breakdown of trust in relationships and covers multiple aspects of the violation of rights of older men and women, including that of persons with disabilities.

> *Sarla, aged 67, is an illiterate widow from Delhi who was abandoned in Haridwar by her son and daughter-in-law. Not knowing what to make of life, and unsure of her residence, family identity, meagre savings and ornaments, all now possessed by her son, Sarla begs on the street to make ends meet for her survival.*
>
> *Pushkar, a retired widower from Nasik with two married daughters in Australia, lost most of his life's savings by investing imprudently in three savings schemes on the ill advice and fraud of his tenant.*

These case studies are an illustration of different kinds of abuse and crime experienced by older adults. It reflects the growing menace of neglect, mistreatment, abandonment and financial exploitation prevalent in our society. The issue of non-reporting of crime including abuse due to several reasons is a concern requiring urgent remedial action from governments, NGOs, senior citizen forums and the media.

Giving visibility to this issue is important to build combating strategies as much as it is pertinent to encourage older people to raise their voices against the wrong being done to them. Conscious efforts must be made by all stakeholders to better the quality of life of older people. The use of technology to avail of tele-medicine, mobile apps, internet, retaining ownership of their savings/property and maintaining contact with relatives, friends and neighbours must become part of older people's lifestyles. This is possible especially since mobile/internet usage has tremendously increased in the country, although it is more limited among older women and persons with disabilities.

Although more older people are coming forward to report on self-experience of abuse and seeking solutions to combat it, as much as 80% of the cases of older adult abuse go unreported due to fear and lack of awareness on how to register a case. There are numerous cases of older people (especially older widows and persons with disabilities) losing their inheritance rights over family-owned property, but affirmative action to tackle such malpractices is missing due to lack of valid documents, tinkering of records and statements, threats to life and occurrence of violent acts against them. Evidence of physical and emotional abuse against older people is also captured by medical practitioners' records. Such incidences are noted more in urban areas but are not uncommon in rural and remote areas.[1] The crime records (NCRB yearly recent reports)[2] suggest that burglary, robbery and fraud against older adults have been increasing.

Research also suggests that older individuals placed in institutional care facilities (despite certain norms in place) may be physically abused or defrauded of personal possessions by staff members.[3] There is also the issue of unsafe environments for older people, especially for those with disabilities, living in homes, institutions and using public places.[4] Research indicates that older people are prone to crimes on unsafe roads, pedestrian paths and insecure public spaces. A recent survey says 31% of older people fear getting hurt in the locality due to frailty and bad infrastructure.[5]

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1. Shankardass MK. Reflections on elder abuse and mistreatment in India. In: Mala Kapur S, ed. *Handbook of Elder Abuse and Mistreatment*. Springer Nature; 2019:38.
2. NCRB, 2015, 2018, 2019, 2020 *Crime in India Statistics*. National Crime Records Bureau.
3. Shankardass MK. What do we know about elder abuse in the Indian context. In: Rajan I, ed. *Handbook of Ageing, Health and Public Policy: Perspectives from Asia*. Springer Nature; 2022.
4. Shankardass, MK. Elder abuse in the Indian context. In: *Handbook of Aging, Health and Public Policy*. Springer, Singapore; 2023.
5. HelpAge. *Bridge the Gap: Understanding Elder Needs, A HelpAge India Report*, New Delhi; 2022.

Abuse-related concerns

The growing incidence and prevalence of abuse of older adults in trusted relationships intentionally or through negligence by a family member – namely sons, daughters, sons-in-law, daughters-in-law, grandchildren, siblings if co-resident, caregivers or any associate – leads to harm, pain, suffering, injuries and deprivations of various kinds – economic, financial, emotional, health-related, and also in terms of social benefits.[6] The abuse of older adults across regions can be verbal, physical, psychological, sexual, abandonment, mistreatment, exploitation, neglect, isolation, disrespect, material exploitation and loss of dignity and respect. There is need for data from the police, legal authorities or through national surveys to be segregated on the basis of rural–urban and gender differentials, and criteria of disability. This would enable the adoption of a uniform research methodology and for a national definition of abuse of older persons to be adopted in order to address the problem appropriately and adequately.

It is pivotal to note there is resistance from older people in reporting mistreatment meted out by family members, especially their own children or caregivers; and when older people are the victims of a violent act or burglary or financial fraud or land/property grabbing, they are scared to report these because of threats of repercussions from the perpetrators. Disturbingly, statistics in the public domain reveal 18 million older people being homeless, quite clearly abandoned by their families. Mostly they remain passive recipients of abuse and adopt a non-confrontational attitude and behaviour. In addition, many are oblivious of the legislations, government provisions and redressal mechanisms to ensure their safety whether at home, in the community or in institutions. A HelpAge (2022) study shows only 33.5% of older people raising a voice against their perpetrators who are mainly from the family, and that 46.3% are oblivious to protection measures from their abusers.[5] It is observed that older people residing in institutions/residential care homes, when abused by caregivers or defrauded of personal possessions by staff members, are beginning to complain against the fraudsters or care providers as certain regulatory mechanisms that are in place in the new setups give them the confidence to do so and action is taken against the perpetrators. However, perceptions of what constitutes abuse and crime as an acute problem vary among people.

6. Shankardass MK. Perspectives on abuse and neglect of the elderly in India. In: Mala Kapur S and Irudaya Rajan S, eds. *Abuse and Neglect of the Elderly in India*. Springer Nature Singapore; 2018. doi: 10.1007/978-981-10-6116-5_2

Gender, socioeconomic and spatial dimensions of abuse and crime

Various studies depict gender vulnerability as one of the main causes of the abuse of older women,[1,3,7][8] in particular widows[9][10] both in rural[11] and urban areas[12] and even in slums[13] are more prone to being victims of abuse in Indian families and this cuts across class, caste and spatial barriers. The prime perpetrators of abuse are family members. This could be because of the feminisation of ageing in the country which results in a higher number of older women, and there are especially more numbers of widows than older men; and more older widows are being abused than older men as they are vulnerable due to low literacy, life course disadvantages, low socioeconomic status and poor health. Widows being deprived of their share of the family property or financial assets and possessions is a common practice in the country. Recent reforms related to their empowerment have not been able to change much for the current cohorts of ageing women at the grass roots level. Making older men and women economically independent and not isolated from communities reduces their exploitation and abuse from family members.

Empirical evidence also indicates that differently abled older people and those ageing with various acquired disabilities are prone to higher levels of abuse mainly as part of the care burden experienced by the caregiver. They are susceptible to various kinds of other crimes too. This was especially visible during the Covid pandemic.[14] Experts point out that abuse of such older

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7. United Nations Population Fund. *Report on the status of the elderly in select states of India*. UNFPA New Delhi, 2011.
8. *The Longitudinal Ageing Study in India Wave* 1 - India report. International Institute for Population Sciences, National Programme for Health Care of Elderly, Ministry of Health and Family Welfare, Harvard T. H. Chan School of Public Health, and the University of Southern California; 2020.
9. Gupta SK, Sekher, TV. Are elderly widows more vulnerable to abuse and violence? Findings from Jharkhand, India. In Mala Kapur S. and Rajan SI, eds. *Abuse and Neglect of the Elderly in India*. Springer Nature Singapore, 2018:139-156.
10. Puri K. Abuse of the elderly widows. In Mala Kapur S, ed. *Combating Elder Abuse in Australia and India*. New York: Nova Science; 2020.
11. Sembiah S, Dasgupta A, Taklikar CS, Paul B, Bandyopadhyay L, Burman J. Elder abuse and its predictors: A cross-sectional study in a rural area of West Bengal. *Psychogeriatrics*. 2020;20(5):636-644. doi: 10.1111/psyg.12550
12. Kumar P, Patra S. A study on elder abuse in an urban resettlement colony of Delhi. *J Family Med Prim Care*. 2019;8(2):621-625. doi: 10.4103/jfmpc.jfmpc_323_17
13. Chandanshive P, Subba SH, Parida SP, Mishra S. Prevalence patterns and associated factors of elder abuse in an urban slum of eastern India. *BMC Geriatrics*, 2022;22(1):1-11. doi: 10.1186/s12877-022-02986-9
14. Shankardass MK. The home, the vulnerable and the pandemic. In: Gopi Devdutt T, Anurita J, Mala Kapur S, ed. *Sociological Reflections on the COVID 19 Pandemic: Redefining the Normal*. Singapore: Springer Nature; 2021:35.

people can be considerably reduced with the use of assistive technologies, digital know-how and devices that help with care; also equipping older persons to be less dependent on families and caregivers.

A call to action for the Central and State governments

Governments need to operationalise appropriate mechanisms, strengthen the enforcement and legislative systems, and make a robust systemic collection of statistics from all parts of the country to guide action and raise awareness at the societal level for reporting crimes against older people, including abuse cases, financial fraud, property snatching, violation of rights of older people and any other injustice being done against them, in particular with regard to older women, those disabled, economically weak and living in rural, remote areas. On a more urgent level, the government needs to minimise ageism that is so prevalent in our society. In India, the rights of older people are still a grey area, despite the National Policy on Older Persons being formulated in 1999 and adopted by the government as per the Madrid International Plan of Action on Ageing (MIPAA) since 2002; this is a part of the global movement to take forward the Sustainable Development Goals agenda to be fulfilled by 2030, with the emphasis on leaving no one behind.

Legislative safeguards and provisions

Our country has various legislative provisions and grievance redressal mechanisms to safeguard older people's rights, but they are seldom used due to a lack of awareness and accessibility, and more significantly, the sociocultural mindset to avoid using such facilities. The Directive Principles of State Policy provide a framework to protect the interests of older persons. Under the Hindu Adoption and Maintenance Act, 1956, and the Code of Criminal Procedure, 1973, crimes committed against senior citizens may be registered via its different sections. At many police stations, senior citizens' cells are now operational to help in case of crime-related matters.

A very significant piece of legislation is the Maintenance and Welfare of Parents and Senior Citizens Act, 2007. It tries to mitigate the problem of neglected and abandoned senior citizens by making it an obligation for a child or heir to provide maintenance and/or provision for their parents and senior citizens by means of a monthly allowance. This Act also directs the State to provide old age homes for bridging the gap that exists between providing an allowance and an older person's need for a place to call home. It also directs the establishment of geriatric care units in hospitals. The Amendment to the Act brought in 2017 and 2019 brings into its fold many members of the family

to provide maintenance to an older person. It lifts the ceiling of ₹10,000/- as maintenance to equate it with the cost of living in rural and urban areas. It also extends the time period of imprisonment from three months to six months, for those identified by the Tribunal as neglecting older parents.

The modification of the National Policy for Older Persons in 2020 into the National Action Plan for Welfare of Senior Citizens (NAPSrC) is a promising development towards the safety and security of older people in the country. The launch of the Atal Vayo Abhyuday Yojana (AVYAY) scheme further brings in various measures to make older people self-reliant and live an empowered dignified life.

Available helplines

With Tata Trusts and the NSE Foundation, the government has launched a national Elderline number 14567 for older people operational across 30 states and union territories. It provides free information related to older adult care services, pension matters, legal advice, guidance, counselling and emotional support. With the provision of national emergency number 112 and a reach out to police through 100, older people who have been abandoned and/or are victims of abuse can seek help.

Besides this, various national-level NGOs have created their helplines to facilitate older people seeking information for their safety and needed services such as counselling, care facilities and information on legal, social and health matters.

HelpAge runs a toll-free National Helpline 1800 1801 253, operational in 23 states. This facilitates the rescue of abandoned older people, provides counselling to those in distress, and gives information related to health and social care, legal support, etc. It also assists in telecommunication with medical consultants and linking older people to various institutions such as old age homes, hospitals, police, government and non-governmental organisations.

The pan-India Dignity Foundation 24×7 helpline 1800 2678 780 provides trustworthy information and advice, especially on healthcare related to dementia, Alzheimer's, counselling, loneliness and depression. It operates in Delhi NCR, Karnataka, Maharashtra, Tamil Nadu and West Bengal, serving the cities of Mumbai, Pune, Kolkata, Bengaluru, Chennai and Delhi.

NIMHANS helpline 08046110007 provides psychological support to older people who are victims of abuse and crime.

Conclusion with key takeaways

Ensuring the safety of older people in all its dimensions must be a national priority, strategised by involving various stakeholders in bringing in age-friendly

policies and programmes, and by building supportive and enabling environments. Empowering older people is pivotal to reducing their vulnerability towards the risk of abuse and crime.

1) FOR GOVERNMENTS AND NGOs

- Remove the socioeconomic dependency of older people on families by providing pensions, health insurance, livelihood sources and adult as well as digital literacy.
- Provide affordable/free healthcare, improve access to services, counselling, self-care, digitalised provisions and health literacy encompassing mental health aspects.
- Connect older persons with community programmes and recreational facilities.
- Sensitise people towards respecting the aged and strengthen intergenerational bonding by reducing ageism, isolation/marginalisation of older people, and promoting positive images and rights of older people.
- Increase access to legislative measures, enforcement agencies and easy reporting of crime/abuse.
- Improve physical safety in places surrounding older people and secure built environments.

2) FOR OLDER PEOPLE TO BECOME SELF-RELIANT

- Not to tolerate abuse, adopt safeguarding against crime and take steps to report and seek justice.
- Take care of savings/possessions by keeping control and ownership of these with themselves.
- Make use of opportunities for learning, earning and being connected with families and communities in a positive and active manner.
- Make use of assistive technologies, devices and digital provisions to maintain autonomy, independent living and a dignified life.

SECTION III
ECONOMIC ISSUES

Chapter 9

THE NEXT CHAPTER: PREPARING FOR RETIREMENT

Neeraj Sagar and Sugandhi Baliga[1]

The "Sevavrati" model is a model of voluntary engagement for older people who are retired or nearly retired. The Sevavrati is an individual who is part of a larger group of people, mostly comprised of enterprising senior citizens with a heart to contribute to an organisation such as a hospital by way of their time and expertise. This concept evolved over the years as more and more retired professionals came forward to offer their time for a worthy cause. The Sevavrati actively participates in every aspect of the hospital operation including front desk management, OPD management, counselling the patients and families, facilitating home-cooked food for the patients, and supporting patients' family members in various ways including offering prayers. The Sevavratis assist in ensuring the smooth functioning of the hospital while significantly improving patient experience. The model has been working successfully for over 20 years.[2]

Introduction

Across the globe, the prospect of a burgeoning population of older adults has become a matter of concern for policymakers and practitioners alike. Retirement is inextricably linked with age and one's ability to work till a certain age. Over the twentieth century, due to the advancements of modern medicine, life expectancy has nearly doubled and is projected to keep rising, particularly in Asia. This means that people's retirement trajectories will need to adapt to their longer lifespans, particularly with regard to their financial and healthcare constraints. There is a significant discrepancy in the lifespan and health span (the portion of our life spent in good health) of roughly ten years, depending

1. Acknowledgement: Anuj Jacob, Tannishtha Sanyal
2. Sevavrati. Accessed on November 12, 2022. https://www.hedgewar.org/sevavrati.htm

on the habitat.[3] Closing the gap between health span and lifespan is one of the greatest medical and social challenges currently being faced, requiring progress against infectious and chronic diseases associated with ageing, including Alzheimer's and related dementias, as well as progress towards adopting more preventive health behaviours, starting with physical and mental exercises.

Another thing to be accounted for when looking at the effects of ageing are those individuals with existing disabilities or disabilities that may be a by-product of ageing. Roughly over a billion people worldwide have disabilities. In India, about 5% of older adults had disabilities in 2011 and that number only grew as they advanced in age.[4] According to data acquired from the *India Human Development Survey* 2015, it was noted that aged females were more vulnerable to disabilities and widows even more so.

In the case of older adults in the unorganised sector, the challenges are manifold. There are no safety nets for older adults to fall back on, and their wages fall significantly as their ability to do physical work reduces. Older adults work till they can and they use the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme to look for work.

This chapter covers the following aspects of preparing for retirement:

1. It outlines the specific considerations to keep in mind while planning for retirement.
2. It looks at retirement schemes and social security options for older adults in the formal and informal sectors in India.
3. It explores the role of work, social networks and finding your "ikigai" (reason for being).

Planning for retirement

It is estimated that people could spend up to one-third of their lives in retirement, given the increasing life expectancy. Retirement signals an important transition, one that can be made easier by some planning and preparation for the expected physiological and financial changes.

Firstly, while older adults should place a prime focus on their health and well-being by adopting a healthy lifestyle, retirement preparation requires one to anticipate ageing-related health concerns, as the likelihood for disease increases with age, for example, dementia or a potentially debilitating fall. It is beneficial to have a conversation with family members and other potential

3. World Health Organisation. Global health observatory data repository: Life expectancy and healthy life expectancy data for 2019. Accessed on November 12, 2022. https://apps.who.int/gho/data/node.main.688
4. Velayutham B, Kangusamy B, Joshua V, Mehendale, S. The prevalence of disability in elderly in India – analysis of 2011 census data. *Disabil Health J.* 2016;9(4):584-592. doi:10.1016/j.dhjo.2016.04.003

caregivers so that one can prepare the necessary legal documents and prepare for a situation of serious illness or injury. Clear documentation ensures that care and safety are arranged as per the will of the person involved in case of medical complications. These complications include, but are not limited to, a sudden decline in decision-making capability, difficulty managing transportation, difficulty living at home and a vulnerability to financial exploitation due to difficulty in handling financial affairs. Maintaining continual active engagement daily can slow the rate of cognitive decline, thus reducing their requirement to be reliant on the healthcare system as they age.[5] The above topics have been covered in-depth in the preceding and subsequent chapters of this book.

Secondly, financial planning for retirement is of the utmost importance in India as there is no robust and universal social security system, and the pension coverage of the organised sector is very low (Figure 9.1). Surveys[6] show that many aged 60 and above anticipate a shortfall between their retirement savings and what is actually needed for their next three decades. Some regret not starting to save for retirement earlier, with most only starting to save seriously for retirement between 35 and 40 years of age. Many anticipate supplementing their retirement requirements through part-time work, as the major source of their retirement fund is their personal savings, and not the government or family sources. With family structures changing from joint to nuclear, and migration to

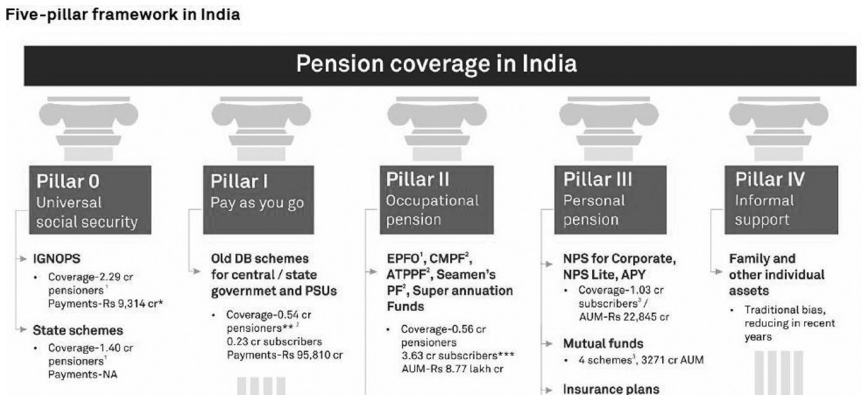

Figure 9.1 Pension coverage in India [Source: Financial security for India's elderly - the imperatives. CRISIL and PFRDA. April 2017. Accessed on December 21, 2022. https://www.pfrda.org.in/writereaddata/links/crisil%20pfrda%20report869bc61d-a231-42de-a77c-ff614b0af650.pdf]

5. Better Health While Aging. Accessed on December 01, 2022. https://betterhealthwhileaging.net/addressing-medical-legal-financial-advance-care-planning-healthy-aging-checklist-part-6/
6. LL Global and Society of Actuaries. *Spotlight on Retirement: India.* 2018.

urban areas, people can no longer depend solely on children or extended family for sustenance as they age. Hence, planning for retirement finances is even more crucial for all, regardless of gender, geography or other aspects.

The SEBI Investor Awareness Survey of 2015 showed that retirement did not even fall in the top five investment reasons among households in the country, with just 8.1% of the respondents surveyed having invested in any form of a pension plan. Just 7% of those above 60 are retired formally from the organised sector, and only one-fifth of them receive a regular pension. Post-retirement studies show that non-food expenses constitute 50% of the expenses, and 13% of that is spent on healthcare.

Almost half (46%) of working-age women around the world either don't know how much they are saving for retirement or have not started saving at all.[7] Women account for a larger portion of the informal sector and are also less likely than their male counterparts to be aware of relevant financial schemes and instruments.[8] Interestingly, the rural older adult populace is *more* likely than their urban counterparts to be aware of relevant retirement financial schemes and instruments.[9]

Meanwhile, the underprivileged have the benefit of the Indira Gandhi National Old Age Pension Scheme. This system can be accessed by government employees, while the formal sector typically benefits from the Employees Provident Fund. In the case of older adults in the unorganised sector, planning for financial security only gets more challenging. There are two targeted pension schemes that are focused on the informal sector in India – the Pradhan Mantri Shram Yogi Maandhan (PMSYM) and the Atal Pension Yojana (APY). These are contributory in nature. Locking hard-earned funds for future needs in such schemes is not ideal because their baseline earnings continue to be very low. Financial and social security planning for the unorganised and rural sector, therefore, is a different paradigm that needs to be dwelt upon differently in the realm of ageing. In addition, HelpAge has demonstrated through Elder Self-Help Groups (ESHGs)[10] (age above 55 years) the collectivisation process for older adults in rural areas. They include members who fall into the vulnerable categories such as persons with disabilities and older women (single, widowed, etc.). These ESHGs inculcate the habit of savings and thrift to enable easy access to small credits.

7. HSBC Global Factsheet. The future of retirement: Bridging the gap. 2018.
8. There are interesting start-ups such as www.salt.one that focus on helping working women manage their finances better.
9. International Institute for Population Sciences (IIPS), NPHCE, MoHFW, Harvard TH. Chan School of Public Health and the University of Southern California, *Longitudinal Ageing Study in India (LASI) Wave* 1, 2017–18 - India Report. https://iipsindia.ac.in/lasi
10. UNFPA. Caring for our elders: early responses. India ageing report - 2017. https://india.unfpa.org/sites/default/files/pub-pdf/India%20Ageing%20Report%20-%202017%20%28Final%20Version%29.pdf

Approaches to continued engagement post-retirement

Dr. Riley Moynes talks about the four phases of retirement, a framework that he developed after interviewing hundreds of retirees. The four phases are *(1) vacation*, *(2) feeling loss and feeling lost*, *(3) trial and error* and *(4) reinvent and repurpose.* He says that few people reach the fourth phase, where they rediscover meaning and their identity, and can establish a routine for themselves again. However, with a little effort, one may be able to find a renewed sense of purpose in this phase of life.[11]

The continuity theory of retirement suggests that older adults can be motivated to maintain a consistent, positive identity across time, and that consistent identity is associated with several well-being outcomes, including greater self-esteem and lower stress, anxiety and depression.[12] Volunteering and part-time work have been seen as an effective transition for retirees from full-time roles. Opting to stay in the workforce as a part of an organisation also allows for better access to healthcare infrastructure, resources, positive identity and integration into society.[13]

Some interesting engagement and active participation approaches have been identified for older adults and have been put into practice around the world, which we in India can also learn from.

Lifelong learning

In Singapore, there is a drive to create lifelong employability for its senior citizens. There exists a "Continuing Education and Training" (CET) programme to help their citizens re-skill and upskill to retain their edge in the job market; that coupled with a growing culture of volunteerism has meant that senior citizens stay active and healthy for longer.[14] Likewise, many lifelong learning universities offer certifications in various subjects of interest. In India, IGNOU (Indira Gandhi National Open University), TISS (Tata Institute of Social Sciences) and many courses on open-source platforms offer numerous certifications without any age bar, including those on digital literacy, as explained in Chapter 15

11. TEDx Talks YouTube channel. Dr. Riley Moynes' - The four phases of retirement. Published on May 27, 2022. https://www.youtube.com/watch?v=DMHMOQ_054U
12. Butler B, Kuiper NA. Relationships between the frequency of social comparisons and self-concept clarity, intolerance of uncertainty, anxiety, and depression. *Personality and Individual Differences*;2016;41:167-176.
13. Gerhard N, Eckart S, Jan Willem van de Maat, et. al. Measures for social inclusion of the elderly: The case of volunteering. European Foundation for the Improvement of Living and Working Conditions; 2011.
14. Gog SJ, Sim SK, Ramos CR, Sung J, Freebody S. Enhancing the Singaporean continuing education and training (CET) system and job quality for an inclusive society. In: Sung J, Ramos CR, eds. *Skills Strategies for an Inclusive Society: The Role of the State, the Enterprise and the Worker*. Singapore: Institute for Adult Learning; 2014:99-114.

titled *Becoming a Silver Surfer: Technology and Digital Literacy for Seniors*. A lifelong learning approach provides opportunities to socialise, remain engaged, nurture the curious mind and contribute to the knowledge pool, among other benefits.

Engagement/activity centres

The city of Edmonton in Alberta, Canada, credited by the World Health Organization as being an "age-friendly city," achieved this status by developing "Senior Centres" to deliver a variety of social services ranging from cultural engagements, physical activities, wellness programmes and outreach towards lifelong learning. These Senior Centres serve as community hubs that provide critical support to older adults within the city, specially designed as older adult-inclusive spaces.

In India, there are several organisations operating recreational centres for older adults. Dignity Foundation operates Chai Masti Centres across various cities, offering a safe and happy space to recreate, bond and explore their talents and hobbies. Similar centres are run by Varista, HelpAge, Nightingales and others. State governments jointly work with CSRs and NGOs in a public–private partnership mode for government offerings.[15] One such example is a joint partnership between Tata Trusts and State Government Health departments in operationalising the National Programme for the Health Care of the Elderly (NPHCE) and setting up recreational centres in the rural setting in collaboration with Gram panchayats.[16] The National Health Mission selected this model as one of the innovative practices in 2019.[17]

Volunteering

One model that seems to work across most countries at the macro- and micro-levels is that of volunteering. Volunteering not only includes senior citizens in civic participation but also has a tremendous effect in developing self-worth among older adults. There is also the added benefit of being a part of a larger organisational structure which is invaluable to seniors with a lack of family support, thus giving them added individual agency.[18]

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15. *The pioneer*. Activity centre for senior citizens opened. Updated on September 02, 2018. https://www.dailypioneer.com/2018/state-editions/activity-centre-for-senior-citizens-opened.html
16. VillageSquare. Community-based care improves lives of rural elderly. Updated on July 17, 2019. https://www.villagesquare.in/community-based-care-improves-lives-of-rural-elderly/
17. National Health Mission. Accessed on August 21, 2022. https://nhm.gov.in/New_Updates_2018/Innovation_summit/6th/We-care-Coffetable-book.pdf
18. Hank K, Erlinghagen M. Dynamics of volunteering in older Europeans. *The Gerontologist*. 2010;50(2):170-178.

Preparing for retirement ultimately boils down to finding the best way to contribute to society as one ages.

The International Longevity Centre - India (ILCI) is a voluntary organisation which aims to provide a healthy, productive and participatory life to older adults, especially women. One of their projects is the "Elders' Volunteers Bureau," a group of senior citizens working on a voluntary basis on various initiatives that provide them with financial independence as well as addressing their loneliness.[19]

Life cycle approach

Older women in India are subject to varied discriminations, including access to jobs and healthcare, abuse, denial of the right to own and inherit property, lack of basic minimum income and social security.[20] Various efforts and initiatives have been undertaken to enable senior women to spend the last years of their lives with dignity. One such effort has been initiated by Self-Employed Women's Association (SEWA) Bank to provide financial support to senior women from the economically weaker sections of society. It is imperative for them to have access to financial support to pay for their children's education, old age healthcare costs, adequate housing and other household expenses.[21] In serving its women members, SEWA Bank has adopted a life cycle approach, wherein women's financial requirements are mapped from their birth all the way till the day they die, and their product is designed to be able to meet their short-, medium- and long-term needs. SEWA Bank's objective is to assist women at all stages of their life by facilitating their inclusion in the financial ecosystem.

Post-retirement job opportunities

There are platforms that offer opportunities for older adults to profile themselves for potential employers to connect and network with them to access their knowledge and skill sets. Nightingales Jobs 60+ has established and managed an online job portal for older adults since 2013. Older adults and employers

19. Shakti S. *Women and Ageing: Innovative Practices for Care of Elderly Women in India*, with support from UNFPA, Delhi; 2014.
20. Dutta S. Social, economic and health concerns for elderly in India: evidences from NSSO data. *International Journal of Management Practice*. 2020;13(3):352-372.
21. Giridhar G, Subaiya L, Verma S. Older women in India: Economic, social and health concerns, building knowledge base on ageing in India: Increased awareness, access and quality of elderly services, thematic paper 2. 2014. https://india.unfpa.org/sites/default/files/pub-pdf/ThematicPaper2-Womenandageing.pdf

alike are able to register on this portal to utilise its services. Older adults in need of jobs are identified and their functional and intellectual capabilities and needs are assessed and classified. As and when job opportunities arise, suitable members and employers are matched and placed.

There are also start-ups such as WisdomCircle, SeniorExperts and HUM Communities that scanned the market to match older adults to many different types of meaningful opportunities. WisdomCircle has created three verticals for paid opportunities: (1) opportunities based on specific expertise that retirees have developed over a lifetime of working, (2) opportunities in teaching and mentoring and (3) opportunities in the social impact space. They also found that most people post-retirement do not want to work at the same fast pace that they used to work pre-retirement, and hence part-time opportunities that fit what people can carve out of their other commitments is their focus. They also have a specific vertical to focus on helping retirees from the Defence Forces find opportunities to reintegrate into civil society. The additional income that retirees earn from these roles will also help them financially in the long run.

The Senior Experts platform aims to satisfy the demand for a network of highly experienced professionals for a growing number of MSMEs across India. It enables older adults who have retired from their respective fields to continue contributing towards the growth of new businesses that need such invaluable expertise. It is a discovery platform for retired seniors and entrepreneurs.

HUM Agetech Pvt. Ltd. started as a social initiative with a mission to create India's first product-based agetech company that caters to all the daily engagement, information and companionship-related needs of retirees in their second innings. The recruitment vertical of HUM specialises in identifying top-performing talent for its clients across the US, Africa, Europe and the Middle East. HUM Jobs is focused on providing employment and entrepreneurial opportunities to retirees and has an active network of recruiters in 20+ cities across India.

Conclusion with key takeaways

The future of retirement is ever-changing, and the age of retirement is likely to rise with longer life expectancy. This chapter has provided a broad understanding of planning for retirement and tips that may be followed by the older community.

- As part of the planning for retirement, it is necessary to start early and prepare for preventive healthcare, financial planning and active engagement.

- An ongoing set of routines in everyday life is a critical part of ageing successfully.
- Access to most of these engagements is currently enabled through technological innovation for communication and networking. If one continues to be digitally savvy, access becomes easy and empowering.
- Older adults today can live an independent and dignified life if ageing is planned in advance and thought about in a structured way.

Chapter 10

ALL ABOUT MONEY: MANAGING YOUR FINANCES

K. S. Raghunandan

Case 1: *Mr. Sinha worked with a public sector company for his entire career and retired with a pension of ₹32,000 and a retirement corpus of ₹27 lakhs. During his working years, he provided the best education for his two sons, for which he had to withdraw from his PF fund. He had very little savings and didn't have a house for himself. He and his wife shifted to his hometown in Bihar and were living in their ancestral property with his old mother, as his sons were settled abroad. A large portion of the retirement corpus was spent on renovating/repairing the old house and ₹15 lakhs were invested in a Senior Citizen's scheme. His mother and wife were both ailing and needed frequent hospitalisation. Though he was covered under the health insurance scheme provided by the public sector company, his medical expenses were rising due to unavailability of facilities accepting the scheme. He hasn't spoken to his sons about the financial issues he has been facing. However, his elder son assessed the situation and stepped in to help take care of the challenges Mr. Sinha faced.*

Key learnings: retirement planning, inadequate risk coverage, role of children

Case 2: *Mr. Thomas, aged 60, retired from a private sector job with a corpus of ₹1.5 crores. Over the years, he had also invested in shares of some companies and bank fixed deposits approximately ₹1 crore. Immediately after his retirement, he invested in all Government schemes for Senior Citizens and the remaining ₹2 crores in Bank FDs and debt mutual funds. Since the corpus seemed to be large enough to last, Mr. Thomas started pursuing hobbies and frequent travels with his wife. These expenses were being funded by withdrawals from the MF investments. Gradually, over the next three years, they had withdrawn 100% of the MF investments, leaving just the government schemes and Bank FDs. The monthly income through government schemes were not sufficient to meet the expenses.*

Key learnings: longevity risk, financial discipline, management of retirement corpus

Case 3: *Mrs. Shakuntala Sharma lost her husband Mr. Balakrishna Sharma four years ago and currently lives in her husband's ancestral house in Ichhawar village in Madhya Pradesh. Mr. Sharma was a successful wheat-growing farmer and had five acres of agricultural land. They had two sons who were both given a good education and are now settled in good careers. Mrs. Sharma initially tried living with her sons alternately for a few months but preferred to shift back to the village. Mr. Sharma had been working till his last day and never planned for his retirement. He had invested a major portion of his savings in local chit funds and NBFCs promising high returns. He lost almost the entire invested amount in these schemes. When he died, there was approximately ₹10 lakhs in the bank and no other financial/liquid assets. Mrs. Sharma could not manage the farming activities herself, found the going difficult and depended on her sons to meet her expenses. She was told that the ancestral property of land and house were valued at ₹2 crores but there was no paper trail of ownership and selling was not easy. She is considering leasing out the land on a profit-sharing basis.*

Key learnings: importance of planning, investment in the right financial assets, protection of wealth, the need for proper documentation

Case 4: *Mr. Srinivasan was a Cost Accountant and retired as a Senior Manager. He was always very careful and frugal about spending money and had meticulously built a fair amount of savings by the time of his retirement. He had three children – all had a decent education, got married and were well settled in life. His wife, son, daughter-in-law and grandchildren were living together in the house he had built. The son was busy in his career and did not feel the need to enquire about the investments that his father was making. Mr. Srinivasan suffered a stroke when he was 82 and his health started deteriorating rapidly. The son noticed one day, in his father's pooja room, many unbanked cheques and matured fixed deposit receipts. He tried to check with Srinivasan, who now hardly spoke. But the father could not remember and signalled to his son to handle it. Now the son is lost as to how to go about handling his father's finances and does not know what the father has not told him.*

Key learnings: the importance of sharing information with family, potential erosion of family wealth, estate planning

Introduction

The importance of health and its impact on one's wealth is fairly well known. Equally, not being in control of one's finances can have a serious impact on one's mental and physical health. Financial security is a necessary condition for overall well-being, especially for older adults.

Wealth management during the golden years has perhaps not received the attention it deserves, especially in India. India still has relatively low financial literacy of 27%.[1] Almost three-quarters of older adults are fully or partially dependent on others, and such dependency is even higher for older adult women.[2] Additionally, while managing one's wealth post-retirement, there is hardly any room for error: the salary income has stopped, the day-to-day expenses have to be managed out of a finite corpus and there is limited time to bounce back from costly mistakes. The pandemic has underlined the fact that the uncertainties of life are real: diseases, accidents/falls or death can happen to anyone at any time. This chapter will:

1. Provide an overview of why financial planning is important for older adults.
2. Discuss how to calculate and plan for retirement.
3. Elaborate on how to manage a retirement corpus.
4. Explain the importance of asset allocation and financial discipline.
5. Outline the need for communication with your family about your financial status.
6. Describe how to protect oneself against financial risks and fraud.

Financial planning for older adults

Increasingly, older people are living by themselves: what would have been automatically handled while living in a large family with familiar surroundings would have to be explicitly provided for, thereby increasing the complexity of planning. There are multiple parameters to consider and each older adult has to deal with his or her own unique situation.

Older people have to protect themselves from a number of typical pitfalls: poor retirement planning often leading to inadequate income, poor asset allocation, poor risk mitigation – risks of longevity, diseases/incapacitation, non-existent/inadequate health insurance cover, unplanned erosion of savings due to poor contingency planning, scattered investments, not having a will, etc. Most importantly, older adults should recognise that the absence of proper documentation/communication with family members can prove costly.

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1. National Centre for Financial Education. *Financial literacy and inclusion in India survey report 2019*. Accessed on August 12, 2022. https://www.ncaer.org/wp-content/uploads/2022/08/NCFE-2019_Final_Report.pdf
2. UNFPA. Caring for our elders: Early responses. India Ageing Report 2017. Accessed on August 13, 2022. https://india.unfpa.org/sites/default/files/pub-pdf/India%20Ageing%20Report%20-%202017%20%28Final%20Version%29.pdf

Let us look into some of the key aspects of financial planning by stepping into the shoes of Mr. Sinha, Mr. Thomas, Mrs. Sharma and Mr. Srinivasan in the four case studies at the beginning of the chapter.

How to plan for retirement

There is a wise saying (Subhashita) in Sanskrit that one should pursue or acquire knowledge and wealth as though one is ageless and eternal (while doing the right things – Dharma – as though death is imminent). We will not be immortal, but life expectancy is certainly increasing. In 1960, the average life expectancy in India at birth was 41 years which has improved to 70.42 years in 2022 (which represents an improvement of 4.6 years for every decade).

Today's retirees will live even longer, on average. This trend will only continue/accelerate in the future. If you are 60, you have already been doing a few things right – the life expectancy for you is another 18.02 years. At age 80, the average life expectancy is a further 6.8 years. Reaching the milestone of 100 years is no longer going to be such a rarity (100+ years is the fastest-growing segment of the population in the world today).

Planning for retirement is therefore no longer an exercise for a 10–15-year period as it might have been in the past, but should cover a much longer period – say 30 years – since we are going to live longer, on average. What does that mean in terms of how much corpus you need to start with, at the time of retirement? The only way to get a meaningful answer is to undertake an exercise of planning and analysis.

Needless to say, the best time to start this planning is well before you retire (and as early in your career as you can) so that you can target and achieve a certain corpus by the age of your retirement to meet your projected needs. However, regardless of the time you undertake the exercise, assumptions need to be made and scenario analyses need to be undertaken.

Estimate the monthly expenses, any large outflows and any other plans you have such as travel, etc. with approximate timelines, over the time period you choose. It would be good to separate "must haves" and "nice to haves." It is indeed difficult to accurately estimate how much money is enough for old age because your financial needs will be coloured by myriad factors such as your or your spouse's health condition, your family responsibilities, social obligations, lifespan, etc. But to avoid situations such as the one Mr. Sinha (Case 1 above) found himself in, it is important to plan with whatever reasonable assumptions you can make. One could also analyse the impact of change in assumptions so that one can form a good idea of what could be the corpus one would need, and arrive at what the potential gaps are, relative to the money already in hand (or projected to be in hand) by the time of the retirement.

As much as 86% of Indians above 50 years regret not having started to save for retirement early enough. Consequently, nine in ten urban Indians worry about savings not lasting through retirement.[3] In the case of Mr. Thomas (case 2 above), he did not realise early that there was a big gap between the money he had and the expenses he was incurring. Just like Mr. Sinha and Mr. Thomas, most of India's older adults are in this situation where the corpus does not last for long, causing potentially serious financial difficulties.

In such a case of insufficient corpus, the older adult has to supplement the income by continuing to work for as long as possible (or else one would be financially dependent on other family members). This is indeed the case in India: nearly 71% of the older adults in the country aged between 60 and 80 years are compelled to work, according to a survey conducted by the United Nations Population Fund (UNFPA) India.

The second option would be to cut down on spending. This may not be a practical option unless the gap is marginal and can be bridged by eliminating some "nice to have" expenses.

For those who own the property they live in, another option to consider is reverse mortgage, which is briefly discussed later in this chapter.

How to manage a retirement corpus

Let us now restate the problem differently. Given a certain corpus at the beginning of retirement, how can older adults manage the withdrawals in such a way that the corpus lasts for a long time?

A US-based financial adviser named William P. Bengen first attempted to solve this problem and articulated the now famous "4% rule."[4] He analysed the historical investment data of stock and bond markets in the US over several decades and determined that if an individual withdraws 4% from the portfolio (corpus) in the first year and thereafter withdraws similar amounts (post adjustment for inflation), then the money in the portfolio can last for 30 years, irrespective of the market conditions. So, if you had a corpus of ₹5 crores, you could withdraw ₹20 lakhs in the first year (4%). In the next year, if the inflation is 5%, you withdraw ₹21 lakhs (5% more than 20 lakhs) and so on for 30 years and you should still be safe. For this to work, Bengen considered a portfolio of 50% equity and 50% bonds. In other words, the rule will not work if one invests only in debt products: a portfolio approach is needed.

3. Max Life Insurance. India retirement index study reveals 9 in 10 urban Indians worry about savings not lasting through retirement. Accessed on November 02, 2022.
4. Bengen WP. Determining withdrawal rates using historical data. *Journal of Financial Planning.* Oct 1994:14-24.

While it is used as a thumb rule in the US now, it serves as a useful lesson for us: With the time horizons of 20–30+ years, we can no longer consider investing retirement corpus into only no-risk options, to preserve capital. When the time horizon was only 10–15 years as used to be the case earlier, losses could not be risked since there was little time to recover from them. But in the current circumstances, older adults need to have the right asset allocation approach.

Asset allocation and financial discipline

Longer time horizons and the impact of inflation require older adults to have the right asset allocation approach as part of the wealth management strategy.

Indian older adults are high on real estate assets and low on liquidity. It is important to review why you need to own real estate assets other than the house you live in, and make decisions to monetise a few properties and keep it simpler for you to manage as well as for your family to inherit.

As for the financial assets, a mix of equity and debt is highly recommended. One thumb rule that is often used is to invest (100 minus your age) percentage into equity. This is just an approximate guide and one needs to account for factors such as risk appetite, timelines, return requirements, etc. The money needed for short-term (12–18 months) and emergency funds should be invested in short-term debt funds/bank deposits.

Older adults should review asset allocation in line with changing market conditions: returns, interest rates, inflation and change in circumstances, spending patterns, etc. Special attention should be paid to the impact of inflation since this could result in unplanned erosion. This discipline is most important.

Those older adults who are well-placed financially often look to leave a legacy or gift for their grandchildren. This component of their assets can be invested in aggressive mutual funds for the long term.

You should seek professional help where necessary. Get a trusted partner to answer your questions, deploy and track the investments.

Communicating with your family

Discussing financial matters with family, especially adult children, is often not easy for older adults due to some insecurity, procrastination or simply not wanting to "disturb" the children! Equally, the children may be hesitant to raise this topic with their parents especially when they still seem to be able to handle it themselves. This reluctance on both sides results in critical information not

getting passed on, leading to the potential loss of family wealth. The family of Mr. Srinivasan (case 4) is facing this possibility. Almost 1 lakh crores of unclaimed money is lying in the Indian financial system (banks, insurance companies, etc.).[5]

It is therefore important for older adults to make someone trustworthy from their immediate family privy to their finances, keep the documentation in order and try to have a one-page summary of their finances. Mr. Srinivasan (case 4) and Mr. Balakrishna Sharma (case 3) could have done better in this regard.

Many older adults do entrust their children with the task of managing their money so that in the event of any emergency, funds can be accessed more easily. When senior citizens are living by themselves, this assumes special importance. Children should also try to proactively have an early conversation with their parents, and offer to help or connect them with experts who can help them. There is a need for the children to be sensitive and mindful of their concerns too. In Mr. Sinha's case above, his son stepped in to help.

Protect what you have by protecting against risks

Adequate health cover: It is critical that older adults take early action to have adequate health insurance. This one step, if not done, can have significant adverse consequences since seemingly small health issues can suddenly snowball into major illnesses incurring exorbitant medical expenses.

Protect against financial risks: Financial risk is the possibility of losing some or all of your principal. A quote attributed to Will Rogers: "I am not so much interested in the return ON my money as I am in the return OF my money!"

Mr. Sharma (case 3) lost his lifetime savings by not guarding against financial risks. Older adults have often been victims of fraud.

Financial scams and frauds are discussed in some detail at the end of this chapter.

Be careful with debts: Older adults also need to be very prudent while taking any debt obligation. Given that their income is limited, extricating themselves from the debt cycles could prove to be a huge challenge.

Estate planning

A discussion on wealth management for older adults is not complete without highlighting the need for estate planning. While the details of this are covered in Chapter 13 titled *Leaving a Legacy: End-of-Life Estate Planning*, suffice to say that estate planning (e.g. a will) is the way to ensure that your assets are inherited by the people to whom you want them to be transferred after your passing away.

Not doing this critical action leads to poor or undesirable results and avoidable hassles for your legal heirs.

Reverse mortgage

A significant number of older adults in India have a house property in their name but many of them are short on liquidity and do not have enough income to sustain their lifestyle.

A reverse mortgage is a loan available to home-owning seniors in the form of a lump sum or annuity, but the obligation to repay the loan is deferred till the owner dies (or the home is sold or the owner needs to be shifted to an aged care facility). On the death of the borrower, the legal heirs can pay off the dues and take the title of the property or the lender sells the property to recover the dues and pay any balance to the legal heirs.

Reverse mortgage has not become popular in India yet. The scheme itself has some lacunae – a low cap of ₹1 crore, a maximum tenure of 20 years after which payment stops, lack of awareness/publicity, etc. Besides, Indian older adults are not yet comfortable with the thought of burdening their children with financial liabilities.

Regardless of the above, this remains a very good option for seniors to consider, to help with their liquidity needs, for funding long-term care, etc.

Financial scams/frauds

According to a recent survey, 42% of Indians surveyed experienced financial fraud in the last three years; 74% of those who experienced it failed to get their money back.[5] Financial scams targeting older adults are costly, widespread and on the rise.

Ponzi schemes and investments with high "promised" returns: Recently, over 2 lakh depositors complained of having been cheated of ₹8640 crore in Ponzi schemes.[6] In Bangalore, depositors of a co-operative bank alleged ₹90 crore fraud.[7] An octogenarian couple was duped of over ₹5 crores after being tricked into investing their lifetime savings into a website development company on the promise of double the returns.

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5. LocalCircles. 42% Indians surveyed experienced financial fraud in the last 3 years; 74% of those who experienced it failed to get money back. Updated on August 04, 2022. https://www.localcircles.com/a/press/page/bank-account-fraud-survey
6. *The Hindu*. Over 2 lakh depositors cheated of ₹8,640 crore in Ponzi scheme. Updated on August 10, 2022. https://www.thehindu.com/news/cities/chennai/over-2-lakh-depositors-cheated-of-8640-crore-in-ponzi-scheme/article65754001.ece
7. *The Times of India*. Bengaluru: Bank depositors allege Rs 90 crore fraud. Updated on August 27, 2022. https://timesofindia.indiatimes.com/city/bengaluru/bengaluru-bank-depositors-allege-rs-90-crore-fraud/articleshow/93809793.cms

One needs to be careful with promises of aggressive returns. Anything that looks too good to be true is probably so.

Cyber-scams, robocalls: Along with the increasing use of e-commerce, online banking and UPI payments, the vulnerability of older adults to frauds has also increased. A 65-year-old man lost his savings of ₹6 lakhs to crooks posing as electricity department officials.[8] A senior citizen was duped of over ₹11 lakhs by cyber fraudsters when she tried to recover the money she had lost while ordering some items online.[9] An Indian armed forces person based out of Bengaluru lost ₹7.2 lakhs in a cyber fraud scam.[10]

Scamsters impersonate government officials, bank or insurance company employees, relatives and friends, grandchildren and even romantic partners, and use various tactics including phishing emails, text messages and high-pressure tactics of threatening or playing on the emotions of their victim to part with personal data or cash as quickly as possible. Scams are designed to catch us off-guard and they can happen to anyone.

Older adults can take help from family members by setting up alerts in case of any suspicious activities or large withdrawals.

There are a number of steps you can take to keep yourself secure. Do refer to and follow 30 tips for secure online transactions published by the government at the National Cybercrime reporting portal,[11] which also has other useful information such as helpline contact numbers, frequently asked questions, etc.

Conclusion with key takeaways

Financial security is a necessary condition for overall well-being, especially for older adults. With increasing longevity, planning for retirement is crucial since one has to plan for a much longer period. The retirement corpus has to be managed carefully and invested with the right asset allocation approach, getting professional help where necessary. Financial discipline and taking

8. *The Times of India*. Cyber crime: Jamtara gang cons elderly Delhiite of Rs 6 lakh. Updated on December 09, 2022. https://timesofindia.indiatimes.com/city/delhi/65-yr-old-conned-of-rs-6-lakh-by-fake-discom-officials/articleshow/96093291.cms
9. *Business Standard*. Senior citizens loses over Rs 11 lakh to cyber fraudsters in Mumbai. Updated on January 15, 2022. https://www.business-standard.com/article/current-affairs/senior-citizens-loses-over-rs--11-lakh-to-cyber-fraudsters-in-mumbai-122011500648_1.html
10. *The Hindu*. In less than a year, police recover ₹66.5 crore from fraudulent transactions. Updated on November 08, 2021. https://www.thehindu.com/news/cities/bangalore/in-less-than-a-year-police-recover-665-crore-from-fraudulent-transactions/article37374410.ece
11. Ministry of Home Affairs. Secure Online Financial Services! Accessed on January 17, 2023. https://vikaspedia.in/education/digital-litercy/information-security/being-safe-online-1/secure-online-financial-services

actions to protect oneself against risks are equally important. One should be careful not to fall prey to financial fraud. Getting the documentation right, communicating with the family on financial matters and estate planning are some of the other actions that older adults need to take to prevent avoidable hassles and potential loss of the family wealth.

- Plan for longevity: a post-retirement time horizon of 30 years (vs. 10–15 years earlier), as life expectancy is increasing. Many older adults will need to work beyond 60 years.
- Manage your corpus well: Asset allocation, periodic review and financial discipline.
- Protect against risks: Avail adequate health cover, watch out for frauds, be prudent with debts.
- Take the help of experts.
- Communicate with family and keep documentation in order.
- Do not delay estate planning.
- Be open to products such as reverse mortgage to supplement your income.

Chapter 11

COVERING YOUR BASES: THE IMPORTANCE OF INSURANCE

Yegnapriya Bharath and P. J. Joseph[1]

Ram Chand (aged 72 years) is from Akoni village in the Ballia district of Uttar Pradesh. For the most part, he does not visit a doctor when he falls sick. His wife Phoolvati gives him home remedies. Ram Chand has never been diagnosed for his current condition of diabetes. One unfortunate evening, he collapses when he is about to leave home to meet his friend. His neighbour rushes him to a private hospital in Ballia and alerts his children, who live in Ballia town. Ram Chand has had a heart attack and needs surgical intervention immediately. The hospital wants to know if Ram Chand is insured, and on finding out that he is not, demands a deposit that the family cannot afford. His elder son works for a private bank and is covered under a group health insurance policy along with his wife and two daughters, but his parents are not insured. He either did not think of insurance for his parents or could not afford it. Ram Chand's daughters are not in a position to help and his youngest son is still studying. For Ram Chand, insurance was never a priority, as he had more important obligations such as tending to his family and educating the children.

Introduction

Insurance is an important mechanism for making good any financial losses that arise out of various unforeseen occurrences in one's life. Planning for and obtaining appropriate life insurance, accident insurance, health insurance, travel insurance and others, including property such as insurance for one's home, vehicle, assets and so on can bring peace of mind as the various risks are transferred to an insurer, who becomes the risk carrier. Health insurance, in particular, assumes significance for the older adults, given the chances of greater health expenditure at that stage of an individual's life.

1. Disclaimer: This chapter is written by the authors in their respective personal capacities and not on behalf of any authority or organisation.

There are any number of Ram Chands in the country. As we grow older, we become more and more vulnerable to health catastrophes. Health expenditure is known to have driven families to poverty where everything they own is sold or pledged to garner finances for health treatment. While affordability is a major hurdle, there can also be others such as availability and accessibility, apart from lack of awareness. This chapter will:

1. Create awareness about insurance covers, particularly health insurance, that are available for older adults, and the need to have them.
2. Explain insurance as a financing mechanism, especially for catastrophic health expenditures.
3. Outline how commercial health insurance schemes function and the coverage they offer.
4. List the rights and duties of an insurance policy-holder.

Insurance: A necessity for a stress-free life

While life expectancy in our country has been increasing, as we grow older, we all have concerns about financial security for our families. One way to ensure that is to opt for life insurance. Ideally, life insurance must be purchased when one is young, but life insurance covers may generally be purchased up to the age of 65, though it will involve medical examination of the people proposed to be covered beyond a certain age, generally beyond 45 or 50 years, depending on the insurer and the product.

It is also important to ensure that one's property including one's home, vehicle, possessions, etc. is protected from the vulnerabilities of damage and loss due to various causes such as fire, natural catastrophes and so on. Various general insurance companies offer cover for these. It must be remembered that Third-Party Insurance for motor vehicles is mandatory as per law. Therefore, every individual owning a motor vehicle must ensure that this cover is in place.

Travel insurance mainly involves health insurance coverage when one is travelling abroad though there are certain other covers too for loss of passport, delays in flight, loss of baggage and other unforeseen situations. Since many older adults travel abroad to be with their children, it is useful to take a travel insurance policy if one goes abroad.

The most critical insurance coverage for older adults, however, is health insurance. In fact, health insurance is an absolute necessity for older adults, given the spiralling costs of healthcare, in particular where hospitalisation is involved. The remainder of this chapter, therefore, focuses on health insurance.

Health insurance for older adults

The Government of India launched the *Ayushman Bharat* – a flagship scheme in order to provide Universal Health Coverage. The *Pradhan Mantri Jan Arogya Yojana* (PM-JAY) is one of the two components of *Ayushman Bharat*, the other being the Health and Wellness Centres opened by the Government as part of its primary care programme. The scheme provides a health cover of ₹5 lakhs per year per family for secondary and tertiary care hospitalisation, and has no age restriction, which is a boon for older adults as they have the opportunity to be part of the scheme irrespective of their age. PM-JAY covers approximately 50 crore beneficiaries that form 40% of the Indian population consisting of poor and vulnerable families (with a maximum annual income of ₹5 lakhs). PM-JAY is fully funded by the Government with the cost of implementation being shared between the Central and State Governments. More information about PM-JAY can be found at www.nha.gov.in.

In the private sector, there are around 900 commercial health insurance products available in the market in India today. Most of the products are designed to cover expenses incurred due to hospitalisation arising out of a disease or accident, and pay according to what one is eligible for as per the terms and conditions of the product, that is, the insurance policy. The payment can take place through the "cashless" method or the "reimbursement" method. In the "cashless" method, the insured (the one who is covered under the insurance policy) or beneficiary does not have to pay for the hospitalisation expenses upfront as the payment is made by the insurance company directly to the hospital. In the "reimbursement" method, the insured or beneficiary bears the expenses in the first instance and then makes a claim with the insurance company or a Third-Party Administrator (an entity employed by the insurance company to service claims under policies issued by it).

Ideally one should purchase health insurance while young so as to reap the best benefits insurance can offer. However, insurance can be bought by older adults as well. It is important to understand what type of insurance products are offered in the market, which one is best suited in terms of affordability, design (i.e. coverage) and services received, including comfort with regard to the touch point for servicing.

Some of the important aspects concerning health insurance that need to be understood are:

1. **Extent of coverage:** Depending on the extent of coverage required as well as affordability, an appropriate limit of coverage (known as Sum Insured) needs to be chosen. Insurers offer various levels of coverage.

One can either choose a "floater" cover where there is a single Sum Insured covering all the members in the family or an "individual" cover where there is a separate Sum Insured or limit of cover for each individual.

2. **Type of policy:** There are two types of health insurance policies available in the market. One covers the cost of health expenditure actually incurred (sum insured) and the other covers the cost as a "benefit" wherein a lump sum (sum assured) amount is paid when a covered (often critical) disease is diagnosed. A variation of the benefit-based cover is hospital-cash wherein a fixed sum of money is paid for every day of stay in the hospital. A health insurance policy can be on an individual-, family-, floater- or group-basis (i.e. a company, an association, a not-for-profit organisation, etc.). A common group policy is where an employer purchases a policy for its employees and allows retirees, parents and parents-in-law to participate as members.
3. **Cashless facility:** In the event of hospitalisation, when the insured person does not have to pay the hospital upfront, it is called a cashless facility. The insurance company, either directly or through another entity called the Third-Party Administrator (TPA) pays the hospital instead. The process in the provision of cashless facility involves an authorisation by the insurer or TPA of the amount estimated by the hospital towards treatment. Usually, this happens in tranches over the course of the stay as the hospital raises authorisation of amounts towards treatment (medical/surgical) delivered. Once the treatment is completed, a final approval is to be given by the insurer or TPA before the discharge of the patient. It is important for a policy-holder and his or her family to keep track of the demands raised and the amounts authorised by the insurer/TPA to understand whether there are any items not covered by insurance. While choosing the hospital, one must ensure that the hospital is in the insurance network. Some insurance companies do not engage TPAs, and contract with hospitals to offer cashless facilities.
4. **Sharing of costs by the insured person (co-pays):** It is necessary for an insured person to understand whether the insurance policy requires the policy-holder to bear (as a percentage) a portion of the medical costs called the "co-pay." In a co-pay arrangement, the policy-holder needs to pay a portion of the medical expenses out of pocket, and the insurance company will pay the remaining amount.
5. **Looking out for certain rights or benefits under the policy**: Just as an insurance policy defines terms and conditions limiting what is covered, there are also often benefits that could be available to

the policy-holder. Typically, a health insurance policy may offer a free preventive health screening after a certain number of claim-free years (years when no claim is made under the insurance policy) or there may be a provision for the accrual of a bonus (usually termed as a cumulative bonus or a no-claim bonus) for the years that no claims are made. Of late, benefits related to wellness or fitness are also being provided under a health insurance policy.

6. **Types of treatments covered**: While choosing a health insurance policy, it is necessary to understand the types of treatments allowed or disallowed. All policies cover a certain period for pre-hospitalisation and post-hospitalisation treatments. Most of the health insurance products in India cover in-patient treatment, meaning that they cover costs incurred towards hospitalisation. However, there are a few products that do offer outpatient cover which would be useful for older adults. There are various innovations taking place in the field of medicine, including new methods of treatment, modern surgical procedures, new drugs and so on. While health insurance products definitely cover established medical procedures, recently there have also been products that cover new treatment procedures and other innovations. However, there could be certain limits imposed for coverage of these. It is important to watch out for such conditions or clauses and be aware of them.
7. **Coverage for treatment at home when hospitalisation is not possible**: There is another aspect of health insurance cover that is known as "domiciliary treatment." It denotes coverage for medical expenses that are incurred at home (covering treatment that exceeds a certain duration, usually around three days) for an illness or disease that normally requires hospitalisation but where hospitalisation is not possible because the attending medical doctor advises home care or because of non-availability of a room in the hospital or because the condition of the patient is such that he or she cannot be moved to a hospital. Coverage for domiciliary hospitalisation is particularly beneficial for older and very old adults, given their age and the fact that issues relating to mobility are more likely to arise.
8. **Coverage for dental treatment and day care procedures**: It is also necessary to understand whether the insurance policy offers dental coverage, and, if so, what is actually covered. Products that cover only hospitalisation usually cover only dental surgeries. Products can also cover day care procedures for various diseases. Usually, the product will indicate what kind of day care procedures are covered or are not covered.

9. **Recognition of AYUSH as a treatment option**: As per the directives of IRDAI, health insurance covers must recognise AYUSH (Ayurveda, Yoga, Unani, Siddha and Homeopathy) as a treatment option. AYUSH is not to be confused with naturopathy, which is generally not covered under the policy. There are a few aspects of health insurance coverage that one needs to look out for and understand clearly. If these aspects are not clearly understood by just reading the products, one must make sure to ask questions of the agent or other approved distribution channel that the insurance product was bought from for a clearer understanding.
10. **Pre-existing disease and whether it is covered**: IRDAI has stipulated a standard definition for "pre-existing disease" which states that an existing disease (meaning a disease or condition that a person has before purchasing an insurance policy for the first time, or is purchased after a break in insurance) is covered under the policy after a certain amount of time (which is variable) has elapsed from the first date of the purchase of the policy. It is necessary for policyholders to disclose all pre-existing conditions or diseases in the proposal form to ensure that there are no rejections.
11. **Exclusions and conditions under the policy**: There are certain expenditures or circumstances and situations where the policy does not pay. These are known as "exclusions." The exclusions that apply in a health insurance policy need to be read in detail and clearly understood. On the other hand, "conditions" refer to payments that may be considered subject to or contingent upon another event happening or when certain circumstances and situations occur. One should also look out for "waiting periods" where certain diseases are covered only after a certain duration of waiting time.
12. **Payment of premium under an insurance policy**: There are provisions relating to the payment of the premium that one must understand. An insurance policy may require payment of premium in advance at one go, or permit payment of the premium in instalments. It is important to look for this information and understand what the options are.
13. **Wellness and preventive features**: Look out for wellness and preventive features in an insurance policy. There are insurance products that give discounts for those following a healthy lifestyle. There are insurance products that may also offer preventive health screenings which can be a very useful feature for older adults.
14. **Basic cover, add-ons and top-up policies**: The health insurance products available in the market may be in the nature of basic products

with or without add-ons or top-up (or even super top-up) covers. "Add-ons" add features to a basic product – for example, additional coverage for telemedicine or additional Sum Insured for diagnostics and so on. Top-ups and super top-ups offer a wider scope of coverage by enhancing the limit of coverage or Sum Insured. It is important to understand the available options to choose the ones that are felt to be necessary.

Joyce has always striven for a healthy work–life balance and believes that she manages to achieve it most of the time. She is also a fitness freak who hardly ever misses a workout session. She works for an MNC where late hours and tight deadlines are frequent. She is hitting 65 and thinks she is still going strong until one day her knees give way. They simply refuse to cooperate – since then, it has been pain all the way. Doctors say the replacement of both knees is inevitable. Joyce could afford to buy health insurance but she always thought it was a waste of money. Whenever her friends tried to convince her to buy a health insurance policy, she disagreed. "It's a dead investment," she would say, "You end up paying more than you get even if you have made claims!" But now, Joyce will have to bear all the medical expenses towards the surgeries and the post-operative treatment. She is jolted by the sudden realisation that her advancing age comes with an increased likelihood of other ailments.

Coverage for vulnerable groups

Older women can buy any of the health insurance products available in the market. A few insurance companies also offer health insurance products specially designed for women. As per the applicable health insurance regulatory framework, insurers cannot deny coverage to any person aged up to 65 years on grounds of age. However, there are health insurance products that have an age of entry that goes beyond 65 years, generally up to 75 years. Recognising the specific needs of older women, these products offer coverage for various critical illnesses including breast cancer, ovarian cancer, vaginal cancer, etc.

Older persons with disabilities are also a vulnerable group. While products or insurance schemes designed specifically for them may rarely be available, they can seek coverage under other health insurance products that are generally being offered.

Shaping insurance for older persons in the future

Insurance is constantly evolving and new solutions are emerging as alternatives to traditional insurance covers. These alternatives gain importance from the point of view of better coverage and also ease of administration, especially at the point of an insurance claim, which really is the moment of truth. The

concept of parametric insurance is becoming more and more popular as an alternative to traditional indemnity policies, which involves reimbursement of actual expenditure incurred.[2] Of course, in health insurance, as already discussed above, there are benefit-based policies where a claim is paid as soon as a diagnosis is made, which is the trigger for the claim, irrespective of whether the treatment has been taken or has commenced. However, where catastrophic risks are involved, parametric insurance covers offer the best solution. This has become more relevant today in the backdrop of the Covid pandemic.

When it comes to health insurance, while wellness and preventive features have been introduced in a small way, the future will be about offering better insurance coverage for healthy ageing. Preventive and promotive healthcare services will gain importance as a part of integrated health insurance. The Government is already focusing on preventive and promotive healthcare through the National Health Mission and this is part of the strategy for the "National Programme for the Health Care of Elderly,"[3] an initiative *vis-à-vis* the "National Policy on Older Persons."

Your rights and duties as an insurance policy-holder

Everyone who has purchased an insurance policy or is about to purchase one has certain rights and duties.

Rights

1. Your policy must come with a Customer Information Sheet (CIS) that gives you the important information related to the product, including what is covered and what is excluded.
2. When your insurance policy is renewed continuously, the insurance company cannot exclude a disease for which a claim has already been made by you.
3. Renewal of your insurance policy cannot be denied except on grounds of fraud, moral hazard, misrepresentation or non-cooperation as long as the product has not been withdrawn from the market.

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2. Provines, A, Goring K. Parametric insurance: a captivating solution.Updated May 18, 2022. us.milliman.com/en/insight/parametric-insurance-a-captivating-solution.
3. Verma, R, Khanna, P. National program of health-care for the elderly in India: a hope for healthy ageing. *Int J Prev Med*, 2013;4(10):1103-1107. www.ncbi.nlm.nih.gov/pmc/articles/PMC3843295.

4. Every health insurance policy comes with a free-look period. You can return a health insurance policy and obtain a refund of the premium due within the free-look period (defined in terms of the number of days) of purchase of the policy if you no longer want it.
5. You are entitled to have a physical copy of the policy, apart from an electronic copy.
6. Always fill out the proposal form yourself; if you take help to get it filled, have the contents read out to you before signing it. Ask for a copy of your proposal form.
7. You can ask for the policy in any Indian language of your choice.
8. A delay in intimation of a claim for genuine reasons cannot be grounds for an insurance company to repudiate your claim.

Duties

1. Give answers to the questions in the proposal form truthfully.
2. Do not approach an insurance company to buy insurance only when you are sick.
3. When you are entitled to a claim and are making one, ensure that you do not inflate the claim or make false claims.

Remember

1. To ascertain that the person you are buying the insurance from is an authorised one.
2. To ascertain that the entity selling the insurance to you is a registered one.
3. To ascertain that the policy contains all the detailed terms and conditions of the cover and read them carefully.
4. To ask questions to understand aspects of the policy that are unclear to you.
5. To keep the policy renewed at all times.
6. To read and understand the procedure to be followed in the event of a situation leading to a claim.
7. To keep the insurance policy and/or health insurance card safely and in an easily accessible place. Let your family members know where it is.

Conclusion with key takeaways

There are various health insurance covers to choose from in the market. The extent of coverage required depends on the need and the capacity to pay the premiums, that is, the price charged for the insurance. Most health insurance

covers in India offer protection against hospitalisation on a cashless basis where one does not have to pay for the covered health expenditure upfront – the insurer pays the healthcare provider directly. The key lies in obtaining insurance cover early in life and renewing it to remain protected. If one chooses to obtain insurance only when one is old and/or sick, insurers may not be willing to cover them. Insurance can be obtained either directly online or through agents and/or approved intermediaries. Today, insurance functions within a well-laid-out regulatory mechanism in the country that ensures that the interests and rights of an insured person are well protected, an aspect that enhances the trust factor for a person holding an insurance policy.

- Insurance, in particular health insurance, is a necessity for older adults.
- There are different options for different sections of the population – while Government schemes offer protection for the economically vulnerable segments, commercial insurance options are available for the other segments.
- It is important to choose the right commercial insurance cover based on one's needs.
- It is necessary to obtain and understand the complete information about the insurance products, in particular what exactly is covered and what is not.
- Policyholders have rights as well as certain duties.

Chapter 12

THE RIGHTS OF OLDER ADULTS: AN ACCOUNT OF LAW, POLICY AND PRACTICE IN INDIA

Omprakash Nandimath V.

Gopalakrishnan Nair, who was a wealthy businessman in Mumbai, came down to Kerala to settle down in his old age. His wife and children remained in Mumbai. In Kerala, Gopalakrishnan Nair stayed with his nephew and niece, on whom he settled his properties on account of his love and affection, and on the grounds that the beneficiaries will be maintaining and taking care of him in his old age. Later, left to fend for himself, he approached the Tribunal to declare the settlement void, under Section 23(1) in the Transfer of Property Act. The deed contained a specific recital that the settlement was made on account of the fact that the beneficiaries were taking care of and maintaining Gopalakrishnan Nair in his old age. Thus, the judge affirmed the setting aside of the deed.

Introduction

Population ageing is one among the four mega-trends characterising global population studies, which means that by 2050, every sixth walking person on this earth will be an older person. Therefore, it is critical that all economies plan their policies accordingly and support the growing older population. This can be two-fold: the first would be to provide adequate protection to older adults from physical, sexual, psychological and emotional abuse, abandonment, neglect and loss of dignity. The second would be to include and integrate the older population into the mainstream of economic activities as much as possible (using the older population as productive human resources to the extent practical and feasible). Given this backdrop, the present chapter attempts to capture both policy and legal initiatives in India to ensure senior citizens' welfare; and attempts to evaluate its adequacy both in terms of policy/law as well as its implementation. The aim of this chapter is to:

1. Sensitise the public about the issue of the growing older population, globally and particularly in India.
2. Capture both policy and legal initiatives in India to ensure senior citizens' welfare.
3. Evaluate their adequacy both in terms of policy/law as well as implementation.
4. Explain the constitutional mandate *vis-à-vis* the older citizens in India, and the Maintenance and Welfare of Parents and Senior Citizens Act, 2007.
5. Draw conclusions by understanding the successful implementation of the schemes and the Senior Citizens Act in India.

The global view

The least realised yet irreversible and inevitable phase of one's life is ageing. The existence of a sizeable number of the older population is taken as a human success story reflecting the advancement of public health, medicine and economic and social development. The decline in fertility has added to the growing share of the senior population globally.

The global policy goal is to achieve the 17 Sustainable Development Goals by 2030. Many of these interrelated goals have implications on how economies plan their policies carefully towards their senior population, particularly about eradicating poverty and hunger, improving health, providing basic services, etc. Therefore, providing support and social protection is the key to making the senior community remain engaged and active in their surroundings.

The Indian context

In India, a senior citizen is a person who has attained the age of 60 years or above. As per the 2011 census, 71% of older adults resided in rural areas and 29% in urban areas. Kerala has the maximum number of seniors (about 16.5%) and Bihar the least (7.7%). The economically dependent seniors are supported mainly by their children, followed by their spouses, grandchildren and, in a minority of cases, by others. About 65% of older adult men and 18% of older adult women in the age group of 60 to 64 years had participated in economic activity. In the age group of 65 years and above, participation in economic activity by older men and women is seen to be at a much-reduced level. Physical, sexual, psychological and emotional abuse; financial and material abuse; abandonment, neglect and serious loss of dignity and respect are among the top senior citizen abuses reported in India.

The constitution protection

The Indian constitution guarantees every citizen the right to life and personal liberty (as a fundamental right). This fundamental right merely recognises

the natural right of any individual to survive and excel in his or her desired field of activity without infringing upon public policy at any point in time. In Art. 21, the constitution imposes an explicit duty upon the State to protect the life and liberty of all, and not to interfere in an individual's life unreasonably. The constitutional courts in India have exhibited an immense amount of creativity while interpreting the concept of the right to life and personal liberty – and have moved light years ahead. The right to life is, therefore, not to be mistakenly restricted to mean mere animal existence but to encompass all such human activities which deserve protection or promotion. In terms of senior care and protection, it is sufficient to note that the Supreme Court has emphasised the right to live with dignity as part of the right to life. Moving further, the apex court has laid down that this approach is the key to achieving social justice as postulated in the Preamble of the constitution. Thus, the ideology of older adult care fits well into the list of obligations for the State.

Art. 41 of the Indian constitution specifically states, "the State shall, within the limits of its economic capacity and development, make effective provision for securing the right to public assistance in cases of old age." Falling into the ambit of the Directive Principles of State Policy, this provision imposes a soft obligation for the State to strive and achieve while formulating its policies. However, the Supreme Court has stepped ahead and expressly stated that there is a need for continuous monitoring of the progress in implementing the constitutional mandate to make it available to older adults in all healthcare and medical facilities. This has converted the soft obligation under Art. 41 to a real obligation upon the State towards the senior citizen.

There are several international attempts to mainstream the criticality of senior care while devising State policies. The Madrid Plan of Action and the United Nations Principles for Senior Citizens adopted by the UN General Assembly in 2002; the proclamation on ageing and the global targets on ageing for the year 2001 adopted by the General Assembly in 1992; the Shanghai Plan of Action 2002 and the Macau Outcome document 2007 adopted by UNESCAP form the basis for the global policy guidelines to encourage governments to design and implement their own policies from time to time. Human rights also herald the issue of senior persons' care in a big way. India being a signatory to all these international documents had undertaken an additional obligation to implement these into its domestic policy framework. India had customarily practised dualism while implementing its (intentional) treaty obligations.

Interestingly, the Supreme Court has intervened and modified this pure dualistic approach. It has been observed that "regard must be had to international conventions and norms for construing domestic law when there is no inconsistency between them, and there is a void in the domestic law." This

teases the pure approach upon a sovereign state to implement its international obligations at its convenience. While deciding the *National Legal Services Authority v. Union of India*, the Supreme Court again went on record to state, "if Parliament has made any legislation which is in conflict with the international law, then Indian courts are bound to give effect to Indian law, rather than international law. However, in the absence of contrary legislation, municipal courts in India would respect the rules of international law." The approach directly makes international obligations apply domestically as long as they are not inconsistent with our constitutional obligations. These international obligations *vis-à-vis* senior persons are in conformity with our constitutional mandates. They will be taken as aids in interpreting laws in favour of older persons' right to life and dignity.

In the context of these international and constitutional obligations, both the Central and State governments in India have carved out many welfare schemes for senior persons. Broadly these policies touch upon aspects such as pensions, travel concessions, income tax relief, medical benefits, extra interest on savings, schemes providing security, etc.

The Ministry of Social Justice and Empowerment is the highest nodal agency in India, which coordinates all such schemes and provides technical assistance to provincial governments in the better implementation of these policies and plans.

National Policy on Senior Citizens, 2011

Establishing an age-integrated society is the attempt of this policy, which strives to develop a formal and informal social support system so that the capacity of the family to take care of senior citizens is strengthened and they continue to live in the family securely. True to the Indian ethos, institutional care is counted as the last resort. The policy not only recognises the special needs of senior citizens living below the poverty line, but also visualises the State's obligation to support them to ensure their social security, healthcare, shelter and welfare. States will set up homes with assisted living facilities for abandoned senior citizens in every district of the country with adequate budgetary support. To realise these goals, an enactment has also been brought in (this is further discussed below).

Schemes and programmes of the central government for the welfare of seniors

The central government runs many schemes/programmes to achieve its welfare obligations towards senior citizens. They can be categorised into

the following broad baskets *viz*. (i) income livelihood security in old age; (ii) healthcare provisioning; (iii) safety, non-discrimination and crimes against older persons; and (iv) other miscellaneous welfare programmes (such as housing, productive ageing, skilling older adults, etc.).

Income livelihood security in old age programmes – Nearly one-eighth of the world's older adult population lives in India, although a sharp increase in these numbers is estimated in the year 2050. Studies indicate that approximately 18 million older adults are living below the poverty line in India, and this number naturally swells as the older population grows over time. Otherwise also, old age poverty is a critical issue as age advances and productivity reduces along with the income of older adults. The increase in consumption expenditure, inflation and out-of-pocket health costs add to the list, pushing older people into poverty. Poverty among older adults tends to be more permanent than that among young adults, and older adults are unlikely to escape the poverty trap. The poverty rate, as the modern trend suggests, is higher in the case of countries with fewer social security programmes. In countries with a well-developed pension system, poverty rates are considerably lower among seniors.

The National Social Assistance Programme (NSAP) is a social security programme for the welfare of seniors in below-poverty-line households. When the programme commenced in 1995, there were three schemes *viz*. (i) National Old Age Pension Scheme (NOAPS); (ii) National Family Benefit Scheme (NFBS); and (iii) National Maternity Benefit Scheme (NMBS). The first one is relevant to our discussion. The old age pension was provided under the **Indira Gandhi National Old Age Pension Scheme** (IGNOAPS) to persons belonging to BPL households. Eligible people are entitled to a monthly pension of ₹200 up to 79 years of age and ₹500 after that. As the states are implementing the programme at the ground level, they have added their share of (top-up) money to the sum indicated here. It ranges from ₹50 (in the case of Meghalaya, Mizoram) to ₹1000 (Chandigarh, Delhi, Himachal Pradesh, Telangana).

The **Pradhan Mantri Vaya Vandana Yojana** (PMVVY) is administered by the Ministry of Finance but implemented by the Life Insurance Corporation of India (LIC). The main objective of the scheme is to protect seniors against a future fall in their interest income due to variations in market conditions. The scheme provides an assured return of 8% per annum, payable monthly for ten years. The differential return gap will be borne by the Government of India as a subsidy on an annual basis. There are some threshold limitations to participating in the scheme. This scheme ran successfully till 2020. However, for the financial year 2022–2023, LIC has assured a return of 7.40% p.a., payable monthly.

Income tax rebate – As per the Indian income tax law, any individual resident who is 60 years and above is considered a senior citizen, and any individual resident above the age of 80 years is a super senior citizen for computation of tax liability. It has been the usual practice to offer tax rebates to seniors every financial year. Currently, the exemption limit for a resident senior citizen is ₹3 lakhs, which is 50,000 more than others. Seniors above 75 years of age are exempt from filing tax return (subject to certain conditions, of course). Super senior citizens do not have to pay tax or file returns up to ₹5 lakhs of annual total income. Every person whose estimated tax liability exceeds ₹10,000 is required to pay an advance tax. However, a senior citizen need not pay advance tax, provided he or she has no income under the head "profits and gains of business or profession."

During this time, people have to spend a lot on medical expenses. Premiums paid towards health insurance by senior citizens are exempt up to ₹50,000. For super seniors, the deduction for the payment of medical premiums, as well as the actual expenses incurred on their treatment, are deductible from gross income (u/s 80D of the Income Tax Act). The seniors need not pay any tax on interest earned up to ₹50,000 in a financial year. Senior citizens get a deduction limit of ₹1 lakh if they undertake any treatment for a specified disease or critical illness in a financial year (u/s 80DDB).

The Annapurna scheme, administered by the Central Government, provides 10 kg of food grains per month free of cost to those senior citizens who, though eligible, have remained uncovered under IGNOAPS. **Antyodaya Anna Yojana**, administered by the Department of Food and Public Distribution, oversees rice and wheat supplied at a highly subsidised cost to households of widows/terminally ill/disabled persons/senior citizens with no assured means of maintenance or societal support.

Healthcare provisioning – The burden of morbidity in old age is enormous. In response to India's international obligations towards senior care and the statutory obligation, the Government of India (Ministry of Health and Family Welfare) launched the National Programme for the Health Care of Elderly (NPHCE) during 2010–2011, with the intent to provide accessible, affordable and high-quality long-term, comprehensive and dedicated care services to an ageing population. The scheme promotes the concept of active and healthy ageing and creates a whole new "architecture" for ageing. In addition to the National Health Mission (NHM) component of providing primary and secondary care service delivery through the existing channel, the programme comprises another two critical components. The first is the **Rashtriya Varsity Jan Swarthy Yojana**, wherein specialised services are provided through Regional Geriatric Centres (RGCs), and the second is a

research component regarding a longitudinal ageing study in India (**LASI**). This programme also emphasises promoting public–private partnerships in geriatric healthcare, mainstreaming AYUSH (Indian systems of medicine) and developing a reoriented focus on geriatric issues in medical education.

Rashtriya Vayoshri Yojana – This is a dedicated scheme for seniors belonging to the BPL category. This is a central government-funded scheme wherein physical aids and assisted living devices are provided to seniors. The Artificial Limbs Manufacturing Corporation (ALIMCO), a public sector undertaking under the Ministry of Social Justice and Empowerment, implements the scheme. Various devices such as walking sticks, elbow crutches, walkers, tripods, hearing aids, wheelchairs, artificial dentures, spectacles, etc. are provided under the scheme. A committee headed by the Deputy Commissioner (District Collector) will identify in each of the districts the would-be beneficiaries. The State governments or the district-level committees may also utilise the data of BPL beneficiaries receiving old age pension under NSAP or any other scheme for identification of seniors to be the beneficiaries under this scheme. The devices are generally distributed in a camp mode.

Aadhar benefits for pensioners – The Ministry of Electronics and IT has cited the key benefits of Aadhar for pensioners as easy PF disbursement (by linking EPF account with Aadhar), timely option pay-out (by linking the pension account with Aadhar) and a digital version of the life certificate that is required in order to maintain the pension with Aadhar *Jeevan Praman*. UIDAI, the issuer of the Aadhar, said that Aadhar micro-ATMs help pensioners with money withdrawal and direct transfer of LPG subsidy into the recipient's bank account.

Miscellaneous programmes – In addition to the above, a few programmes are worth noting.

Senior Citizens' Welfare Fund – Pursuant to the budget speech 2015–2016, the senior citizens' welfare fund was established to promote the overall welfare of senior citizens, including promoting financial security, healthcare and nutrition, the welfare of older adult widows, funding old age homes, short stay homes, day care of senior citizens, etc. This fund draws from the unclaimed credit balance of several accounts under various schemes of the central government, including post office savings accounts, post office recurring accounts, post office time deposit accounts, Kisan Vikas Patras, national savings certificates, and Sukanya Samriddhi for more than seven years. The Ministry of Social Justice and Empowerment is the nodal ministry for administrating the fund, and the inter-ministerial committee is constituted to oversee its administration.

Reverse Mortgage Scheme – The reverse mortgage scheme was launched in 2007 by the Finance Ministry to benefit seniors. Senior citizens can mortgage their residential property against a loan of 60% of the house's value, with a minimum tenure of ten years. The borrower (senior citizen) can avail funds in monthly payments to cover any emergency or periodic expense. The senior citizen who has availed of the facility can continue to live in the mortgaged house even after the loan tenure expires, as the settlement occurs only after the borrower passes away. With no immediate burden of repayment, a senior citizen can take the highest advantage of this scheme as long as he or she is alive. Reverse mortgage is explained in further detail in Chapter 10 titled *All About Money: Managing Your Finances.*

Maintenance and Welfare of Parents and Senior Citizens Act, 2007

Earlier in the chapter, a reference was made to the Directive Principles of State Policy, which obligates the State to take welfare measures for seniors. To effectively carry out that obligation, both under the constitution and several international covenants, the Maintenance and Welfare of Parents and Senior Citizens Act, 2007, was passed.

The responsibility of a senior citizen who is unable to maintain him- or herself from their own means (earnings or proceeds off property they owned) is cast upon their children or relatives, as the case may be. The relative shall take care of a childless senior if holding the senior's property or inheriting the property after the death of the senior citizen. Interestingly with the legislative declaration, the State appears to have abdicated its responsibility towards seniors. Otherwise, technically it can be argued that the State would take care of a senior citizen who does not have any children, a relative who either has possession of the senior's property or is likely to inherit the property.

The recognition and conferment of rights to the senior citizen expect him or her to fight a legal battle before the maintenance tribunal constituted under the Act when he/she is aggrieved. How practical it would be for an aged and infirm senior to fight a legal battle is highly questionable. Once taken up, the tribunal would pass its order for maintenance after summary proceedings. Once such an order is passed, the tribunal is empowered to enforce its order. The law provides a partisan appealing right to only the aggrieved senior citizen to the Appellate Tribunal. Neither the senior citizen nor the defending children or relatives are allowed to have the assistance of a legal practitioner. This mandate makes the senior citizen fight for his or her rights alone or by taking assistance from any association or friend who is not a legal practitioner.

Old age homes – The State Governments have to establish and maintain as many old age homes at accessible places in a phased manner and also see that at least one old age home is established in each district and accommodates at least 150 indigent senior citizens.

Medical care to seniors – The Act places an active obligation upon the State Government to ensure that government hospitals or hospitals funded (fully or partially) by the government provide beds for all senior citizens as far as possible. In such hospitals, along with providing separate queues to be arranged for senior citizens, a facility for treating chronic, terminal and degenerative diseases is created for the seniors. In addition, the law mandates the government to start research activities for chronic older adult diseases and ageing, and earmarked facilities for geriatric patients in every district hospital duly headed by a medical officer with relevant experience.

Protection of life and property of senior citizens – *Inter alia*, the responsibility of the State Government is to prescribe a comprehensive action plan for protecting the life and property of the senior citizen and depute executives for the same. The District Magistrate (or such other designated executive) has been vested with the power to nullify the transfer of the senior's property by way of gift or otherwise. This can be done if the senior's property is transferred either as a gift or otherwise to the transferee, where the latter undertakes to take care of the senior by providing basic amenities and basic physical needs, but the transferee ultimately dishonours such duty. This provision of law and vesting power with the executive has far-reaching consequences in protecting the property of the senior.

Recommendations

The policy landscape in India indicates that a few policies aimed at the welfare of senior citizens do exist. How these policies are implemented on the ground is another matter. Lack of data (in the public domain) helps us to start with this *prima facie* presumption that we need to move many miles to claim that we have implemented these policies. Unless there is a proper action plan to implement these policies, nothing much can be achieved.

Polices, unlike laws, do not pose a heavy burden upon the State to implement them wholeheartedly. Non-implementation or partial implementation of policies cannot be challenged in court for their implementation. Until the enactment of the 2007 Senior Citizens' Act, there was no legislative effort to recognise the rights of seniors in India. However, except for establishing old age homes, the State has passed on its obligations to the next generation of seniors. The recognised rights of the seniors can only

attain justiciability by seniors fighting for themselves or some organisations sponsoring their cases.

While designing a welfare plan, *can the State push the responsibility of seniors' care solely towards their family?* is a critical question in light of the changing social fabric of India. The genesis of the problem arises when seniors are counted to be unproductive, and their family starts ignoring their care or welfare. Should the senior be expected to fight for his or her rights? Or should the State start taking responsibility?

The growing rate of the senior population would mandate the State to make them more productive to help the nation's growth. Therefore, it is pertinent to have several policies and programmes for appropriately skilling seniors.

The dependency of seniors is one of the single largest detriments, making them feel worthless or burdensome. The dependency does not arise out of physical and health needs but otherwise as well. Learning new skills helps seniors adapt to changing times, and that reduces their dependency factor to a great extent, making them feel agile. Therefore, the need to fulfil the requirements of senior citizens towards lifelong learning has to be addressed. The courses regarding pension planning, health, new knowledge of technological devices and volunteer training are the most interesting and demanding subjects for senior citizens. The only sustainable way is to educate and skill the seniors and enable them to continue contributing to society. The perspective is "active ageing" and the aim is to provide seniors with the knowledge and skills related to active older life, physical health and safety – all of these are what senior citizens need.

Conclusion with key takeaways

It is high time we realise that seniors are the world's most untapped resources. A prevalent stereotype is that seniors become free from responsibilities and are not engaged in productive or obligatory work. However, it is realised now that they are probably not to undertake strenuous work, but society needs their experience, guidance and service. The age and reduced physical ability tend to disconnect and isolate seniors from the mainstream, and a there is a high probability that this disengagement might lead to cognitive decline and triggers many psychological and health detriments in them. Longitudinal and cross-sectional studies have shown that healthy seniors are far happier than others and have a good quality of life as they age, commensurate with younger employed adults. Continuous engagement in lifelong learning and skilling is probably one viable solution for senior citizens to maintain a higher quality of life.

- Globally the senior population is on the rise (due to increased life expectancy and a decline in the birth rate). The global overview and Indian context have provided a background for the issue of the growing older population.
- The policy and legal initiatives in India to ensure senior citizens' welfare have been described and evaluated.
- The Maintenance and Welfare of Parents and Senior Citizens Act, 2007 and its implications have been described in detail.

Chapter 13

LEAVING A LEGACY: END-OF-LIFE ESTATE PLANNING

Babugouda S. Patil

Mr. Govind was a hardworking entrepreneur who had acquired properties in several cities. His children and their families were living in houses that he had purchased. Now Mr. Govind in his advanced age needs continuous assistance. His youngest daughter Neeta quit her job and decided to spend time with Mr. Govind and take care of him. Neeta's presence helped Mr. Govind to recover his lost health, and more importantly, he developed a renewed interest in life and social gatherings.

Mr. Govind wants to pay back Neeta for all her sacrifices. She sacrificed her career, her family, and even her personal life. He wants to give Neeta a larger share of his property, as well as conveying other information, such as his wishes for his last rituals, his final resting place, instructions about medical care, and many more things. Can he do so?

Introduction

The above illustration is just one of many scenarios that older adults experience. "What will happen to my body, my reputation and my estate?" There is a need for a well-planned devolution of property to the next generation. This is a necessity in order to avoid disputes and enjoy the properties. In addition to devolution of property, there are many other things to be conveyed. How can this be done? How can these instructions be conveyed? How can one know whether these wishes will be adhered to?

It is important to note that one's "legal personality" survives beyond one's "natural personality." This means that a person survives in law much longer than biologically. There are certain documents that need to be created under the law for one's legal personality to survive. One such document is the Will and the other is a Deed of Trust. This chapter will:

1. Describe the different avenues available to manage the estate.
2. Explain the pros and cons of each avenue.
3. Apply real-life situations to those pros and cons to make an informed decision.
4. Explain the capacity, duty, and rights of different parties in each avenue.

Will

A Will is the document which enables one's legal personality to survive beyond the lifetime of the individual. A Will is a "legal declaration of the intention" by the writer of the will pertaining to his/her property and other important instructions which he/she desires that should take effect or operate after his/her death.

Before going into the details of the law relating to Wills, let us look at the technical terms used in Will drafting:[1]

a. **Testator/Testate**: A person who has made a Will or given a legacy (the person who has written the Will).
b. **Interstate:** A person who has died without a Will.
c. **Probate**: Sometimes, the execution of the Will is objected to by the relatives. To overcome those objections, the matter would be decided by the court. When the Will passes the test of the court, it will be known as Probate.[2]
d. **Beneficiary:** A beneficiary is a person or organisation who gets the estate under the Will. There are three types of beneficiaries:
    i. Primary: A primary beneficiary is the person entitled to receive the estate on the death of the Testator.
    ii. Contingent beneficiary: The second beneficiary in line. This person will receive the asset under the Will only if the primary beneficiary has died before the Testator.
    iii. Residuary beneficiary: A person in whose name no specific estate is granted; however, this person is entitled to receive everything that has not been specifically allotted to anyone.

e. **Executor:** The person put in charge of implementing all the directions given in the Will. Generally, the executor would have possession of the Will.

1. Gopalakrishnan. *Law of Wills* (Eleventh Ed.). Lexis Nexis: 2021.
2. Ramanatha Aiyer P. *The Major Law Lexicon* (4th Ed.). Lexis Nexis: 2010.

f. **Codicil:** It is an instrument made in relation to a Will which can explain, alter or add to the disposition made by a Will. This can be made at any time after the writing of the Will at any different place, at a different time and before different witnesses.

Characteristics of a Will

1. Wills can be handwritten by the testator. This is called a holographic will and can serve as proof of the authentication of the Will. However, it is important to follow all the procedural requirements to make a valid Will.
2. The law differs for an **Oral Will**. It is permitted for Muslims, whereas, for Hindus, it is not permitted. However, it is important to note that, the burden of proving an Oral Will is not easy. It is difficult to obtain satisfactory evidence. Therefore, an Oral Will is not advisable.
3. There can be no Will if it does not deal with property. A Will can contain instructions (funeral, burial or ritual instructions), but it also needs to deal with the disposition of property.
4. A Will or codicil does not mandatorily require a stamp, or registration. But it is advisable to get it registered for authenticity and to survive the test of validity in the Open Court.
5. The testator can write a **Temporary Will.** An example is, "As I am going on a pilgrimage, I would like to state that in the case of my death during the pilgrimage, my property is to be equally distributed amongst my brothers." This becomes a Temporary Will, because a condition narrated in the will is "death during expedition." Hence, if the condition occurs, the Will would operate; otherwise it would become defunct.
6. The beneficiary of the Will enjoys the "right of election." He/she may choose to accept the contents of the Will or refuse. However, one cannot accept one part and reject the other part of the Will. Therefore, if the Will creates profits for the beneficiary along with burdens, he/she needs to accept both or reject both (such as stocks from a profitable company as well as from a non-profitable company). Both need to be accepted; such a Will is called an **Onerous Will**.
7. Two or more persons (related or unrelated) may make a **Joint Will**. The joint will can be enforced partially after the death of one testator, or a condition can be put to take effect after the death of both. Joint Wills are revocable jointly, separately or even after the death of one.
8. If the testator properties are in two different countries, for the sake of convenience, properties in both countries can be disposed of through

different **concurrent or duplicate Wills**. As the technical requirement of the Will differs from country to country, it is advisable to draw two Wills. They will be treated as wholly independent of each other.

Capacity to make a Will

1. The testator must be a major. A minor is not recognised by law as capable of partaking in any civil transaction including writing a Will.
2. There are a few conditions that need to be present to pass the test of Open Court: the testator must have a disposing mind, free from all extraneous influences with sound mental condition. The testator's age, disease condition and mental strength are important considerations. Therefore, the mind and memory of the testator must have the capacity of recollecting, discerning and feeling the relations. He/she must have sufficient capacity to comprehend perfectly the conditions of his or her property, and must have sufficient active memory to recollect in the mind without prompting the particulars of business and property.

Suggestions for drafting the Will

1. The testator having the Will drawn up by an Advocate who is specialised in estate management provides strong presumptive evidence in favour of the regularity of the Will.
2. If the writer of the Will is a substantial beneficiary, then generally the court is suspicious of the capacity of the testator. Further, the court grows suspicious of undue influence, coercion or fraud if the beneficiary is in a position of active confidence, such as a caregiver, caretaker or spiritual adviser. To avoid such allegations, the testator needs to take a few precautions such as avoiding the presence of any beneficiary in the room where the Will is being drafted.
3. The beneficiary needs to be identified clearly and precisely. It is advised to use the Aadhar number and PAN number for the purpose of identification.
4. If the Will consists of several sheets, it is appropriate for the testator to sign each sheet. This is to avoid chances of addition or deletion of pages after the execution of the Will.
5. Choose appropriate witnesses. The presence of two witnesses together is mandatory.
    a. Both witnesses should be present along with the testator. All signatures should occur as one transaction.
    b. Like beneficiaries, the witness also needs to be identified clearly and precisely (Aadhar or PAN number).

c. The beneficiary of the Will, the executor of the Will and the advocate who has drafted the will cannot be witnesses.
d. Witnesses need not know the contents of the Will, as they need only witness the procedure of drafting and signing (witness to the absence of coercion, fraud and undue influence). However, it would be advisable that both witnesses are actively involved in the drafting of the will, as they can provide clarity if the Will runs into rough weather.
e. The chosen witnesses need to be sufficiently younger in age to ensure that they outlive the Testator.
f. It is also advised that witnesses sign every page and any alterations made in the document before attestation.

6. After the execution of the Will, no alterations are permitted on that Will. Any change must be effected by a new Will or codicil which must be executed in the same way that the Will was executed.
7. Write as many times as possible. The all-time best advice for writing a Will is to reconsider the Will from time to time. The advantage of the law of the Will is that it can be replaced, rewritten or amended as many times as the person wants. Revocability is one of its unique characteristics.
8. Be a just and wise testate. There are various instances of great professionals and reputed legal luminaries who failed to write a Will which could pass the test of Open Court. The main reason for the failure was the diminishing physical and mental health of the testator. Therefore, write your Will while you have a sound mind in a sound body.
9. The contents of the Will need not be merely property or devolution of property; it can also include wishes and instructions about the process of cremation and physical remains of the deceased. As far as medical treatment is concerned, the Deed of Will cannot provide any safety as it can be enforced only after death.

Deed of Trust

Mr. Gourish is in a fix; he wants to protect his precious ancestral property from land grabbers in the form of real estate developers. His problem is complicated as one of his three children suffers from mental illness and another is an alcoholic. The one prudent son is hand-in-glove with the real estate sharks. The advocate said that a Will cannot be an option as the property is not self-acquired. Secondly, the Will cannot protect the interest of the two vulnerable children. How can the property be protected, and how can he ensure that his children are not dispossessed?

The Deed of Trust could be one of the best succession plans. The following discussion will help the reader understand the ability of the Deed of Trust to protect.

"Trust" is a legal concept created to keep one's property under the ownership and control of another person (trustee), in confidence that he/she will use it for the benefit of someone else (beneficiary). This is a fiduciary relationship and requires the exercise of utmost good faith on the part of the person in whom the confidence is reposed (trustee).

A fiduciary relationship is a special kind of relationship built purely on trust and faith. One party would have complete control over the thought process of the other party, only because he/she enjoys a position which makes the first party believe that this person will put other interests ahead of his or her own. A popular example of such a relationship is that of teacher and student, spiritual guru and disciple, etc.

The trust can also be created in a Will called the "testamentary trust," or it can be a "hereditary trust deed," where the trustee can be designated for all future time to come.

The trust is a characteristic device of organising "intergenerational wealth transmission" when the settlor has assets or complex family affairs. Creation of the trust establishes an additional layer of protection to the property. On the death of the parent, the children can be trustees, but being trustees, though they can enjoy the property, they also need to take care of the property as per the instructions provided under the Deed of Trust. No additional right can be created in favour of their children. They are bound by the deed.

Important terminologies

Author of the Trust (settlor): The person who creates the trust. An older adult who decides to protect the property by creating a trust will be known as the settlor. Any person competent to contract, with a right to alienate property, can be a settlor. The simple test to be applied is, whether the person is authorised to write a Will on a property. If yes, he or she can draft a trust deed on the same property.

Trust Property: A property capable at law to be given away to any extent to any person. In simple words, only self-acquired property (and not ancestral property) can be trust property.

Trustee: The person who enjoys the trust and confidence of the settlor. He or she would be authorised to take care of the trust property for the benefit of specific persons (beneficiaries). The trustee is in a fiduciary relationship with the beneficiary. A trustee is not merely a nominal owner but a full owner. There cannot be a trust deed without a transfer of ownership.

A trustee can be anyone who is both

- Competent to hold a legal estate and has the natural capacity and legal ability to execute a trust including the settlor, and
- Domiciled in India.

Beneficiary: the person who will be benefitted out of trust property. The beneficiary can be a person (related or unrelated), a religious institution or even any organisation; if the testator believes in the religious institution, he/she can contribute to its development by giving property through a Will. To create a trust, the property should be held for the benefit of another (beneficiary).

The language of the deed must distinguish the holding of property "on behalf" (manager) with "for the benefit" (trustee) of another.[3]

Essentials of a valid Trust

1. The Author must manifest his/her intention to create a trust (Figure 13.1). The object of the trust, the identity of the trustee and the identity of the beneficiary must be mentioned clearly without any ambiguity. Any ambiguity may lead to a void trust deed.
   There is no format for a Deed of Trust. Therefore, the settlor needs to lay down the duties and powers of the trustee clearly, including the procedure of taking decisions, such as "The majority decision of the trustee is required to …." In some cases, it can be "Unanimous decision is required to …."
2. Trust formation requires the transfer of ownership to the trustee with the liability attached and the person in whose favour the ownership is transferred accepting such an obligation (Figure 13.2). (This rule will not be applicable for the trust created by Will.)
3. Acceptance of obligation has two different consequences. If the trustee refuses, then the trust cannot be brought into action. The settlor needs to find another trustee. If the beneficiary refuses, then the trust will continue to operate excluding that beneficiary, as long as other beneficiaries are available.
   Therefore, it is suggested that trust formation has distinctive advantages:
   1. It is most suitable for complex succession of property (transfer of ownership without right to sell).
   2. There is complete control of the property even after death.
   3. The property can be handed over to an efficient person.
   4. The generations that follow must abide by the terms and conditions.

3. *Halsbury's Laws of India* (Trust & Charities, Vol. 37), 2nd edition. Lexis Nexis: 2016.

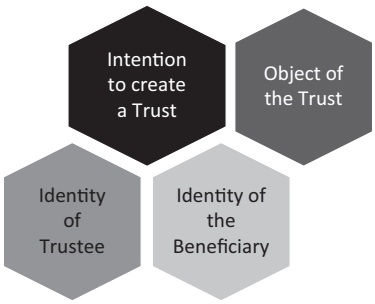

Figure 13.1 The essentials of a valid Trust

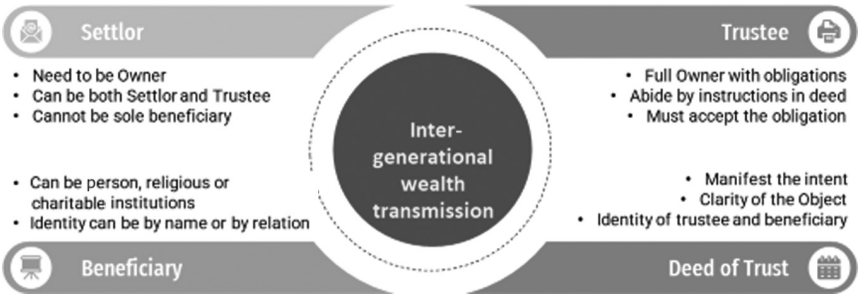

Figure 13.2 Estate planning for inter-generational wealth transmission

Conversely, the disadvantages are:

1. The trustee has to agree to the obligation.
2. There is immediate transfer of ownership from the settlor to the trustee (unless they are the same person).
3. If the trustee does not abide by the terms, the beneficiary needs to initiate court proceedings.
4. The beneficiary needs to be alert regarding the trust.

Power of attorney[4]

Senior citizens' physical strength is greatly compromised with age. However, sadly, the law is incapable of considering these weaknesses.

4. The Powers of Attorney Act, 1882 (Act No. 7 of 1882).

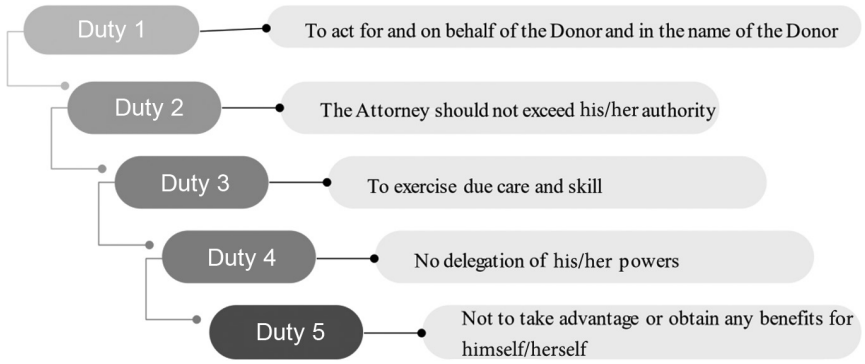

Figure 13.3 Duties of an attorney

Appearance before authorities, payment of taxes, etc. need to be done from time to time. At present, technology has reduced these difficulties to a great extent, but adaptability remains a greater concern. In this regard, the law has found a way to help the people who cannot do the regular needed legal work.

Power of attorney is a declaration of appointing someone (attorney) to act on behalf of a person (declarant) who cannot be present due to any reason. Any legal work can be delegated to such an attorney from the sale of property to payment of taxes or the operation of a bank account. These are convenient options created to help the dependents.

Precautions while granting power of attorney

- It is the creation of an agent to act on your behalf. The power and scope of the agent solely depends upon the power of attorney deed.
- The wording and language in the power of attorney needs to be precise.
- It is always necessary to have an "exclusive advocate" (which means an advocate representing you and not the agent or attorney) to draft the same.
- The language should safeguard the declarant rather than protect the interest of the agent (Figure 13.3).

Understanding power of attorney

There are three aspects to the power of attorney: types, execution and revocation.

Types

There are two types: general and special power of attorney (PoA). As the name suggests, the agent of the general power of attorney enjoys unlimited power to deal with property. This unregulated, unabridged power can lead to problems. Therefore, it is very important to draft the deed by limiting and regulating the powers.

On the other hand, a special power of attorney is for a specific purpose only, such as collection of rent, where the role is limited only to collecting rent. It is suggested that special power of attorney is more desirable as the interest of older adults can be protected without exposing them to unnecessary risk.

One more type of power of attorney which has not gained much prominence is the medical power of attorney. The holder or the agent is authorised to take all decisions on behalf of the patient. This would be an important step if the person is in a vegetative stage and all decision-taking power remains with one agent. The agent can take decisions ranging from the type of treatment, who should be treating, to where the person should spend his/her time before death.

Precautions for the medical power of attorney:

- The PoA should be drafted clearly and the necessary powers should be delegated.
- The agent should spend time with the patient to understand his/her attitude and approach.
- The agent should be briefed properly, as it is expected that the agent will implement the wishes of the patient.
- Organ donation details can be included in the same.

Execution

The execution of power of attorney could be done with a simple procedure. This is a simple document drafted on stamp paper, which varies from ₹100 to ₹500 depending upon the nature of power transferred through the PoA. The only mandatory procedural requirement is the execution of the PoA in the presence of a Public Notary. Again, in the interest of a better chance of survival of court scrutiny, it is advised to take additional precautions. Hence, even though registration of this document is not compulsory, it is better to register it with the sub-registrar's office within the jurisdiction where the concerned immovable property lies. Similarly, while attestation

of a PoA is not compulsory, it is advised to have two witnesses for better evidentiary value.

Revocation

Revocation is the withdrawal of the authority of the agent. Generally, power gets withdrawn once the purpose of PoA is performed. So, a PoA to sell immovable property will come to an end with the sale of the property. Sometimes, the death of the party to PoA (either Principal or Agent) can revoke the deed. But most commonly, PoA is revoked due to withdrawal of PoA by the Principal.

Withdrawal of PoA is done by notice to the agent. If PoA is registered, then revocation is done by a registered deed to that effect. Sometimes, it is even advisable to issue a public notice in the newspaper about the act of revocation of PoA.

Suggestions

- Under ordinary circumstances, special power of attorney should always be preferred over general power of attorney.
- The Agent's power to make decisions should be related to day-to-day affairs, such as payment of costs and agreeing to the next date. It should not extend beyond that, for example, agreeing to the settlement of disputes, terms of settlement, amount of compensation, etc.

Older women and estate management

Women as senior citizens suffer from a double disadvantage. Until recently, women barely enjoyed the right to property, and being senior, her vulnerability multiplies due to physical and mental frailty.

A woman has various relationships with the male members of the family – wife, widow, daughter, sister or member of the joint family property. Until recently, in any of those roles, she enjoyed only a scarce right to property. The Hindu Succession (Amendment) Act, 2005, provided equal right to property to women along with other Hindu family members. The right to property of women in other religions has also not been given a fair deal. Additionally, the right to property is not an end in itself; there is a dire need to educate them to manage the ownership and possession during their lifetime, and to devolve property on death.

The law does not make any difference as to the right to Will, Deed of Trust or even power of attorney of women. The fallacy lies in the utilisation of these

facilities. It is important to create awareness, especially among senior women, about estate management.

Persons with disabilities and estate management

The discussion on estate management in the light of PwD or PwMI (Persons with Disability or Persons with Mental Illness) has two aspects. Firstly, the devolution of property belonging to PwD or PwMI; and secondly, when such persons are the beneficiaries. In the first instance, due to legal incapacity, either the guardian or the court will step in and monitor the devolution of the property. In the second, where the PwD or PwMI are beneficiaries, the law has taken special care to protect their interest: the estate is to be managed for their benefit.

Regarding Wills, visually impaired, hearing and speech-impaired persons can make a valid Will by communicating the testamentary instructions to a reliable acquaintance. The affidavit of the writer of the Will should be attached stating the nature of the signs and motions as to the instructions given. However, a PwMI cannot make a Will without assistance. In the case of minors, the trust can be created on the property of a minor with permission from the Civil Court. However, the intervention of the court is a necessary precautionary step to avoid the misuse of law.

Conclusion with key takeaways

The continuation of life after death is a reality. To ensure a smooth and effective transition of life as well as assets to a new generation there are certain safeguards to be taken by older adults. In addition, the property and business need to be managed during the life of the older adult. For that purpose, there is a need for authority to make decisions on his or her behalf. This chapter has provided guidance to older adults on how to draft a Will, precautions to be taken to ensure the passing of the court examination and the actual drafting of a Will. It also provided guidelines in the drafting of trust deeds, power of attorney (authority letter to deal with day-to-day business or property) and other authority letters that deal with various end-of-life aspects.

- Estate management saves future generations from unnecessary litigation.
- The Will is not the only method, but merely one of the available options.

- One can write as many Wills as one wants, as the validity will not be affected.
- Trust deed is an option less explored but is worth exploring for certain cases.
- Utilise power of attorney to one's own benefit, but ensure that power is defined clearly.

The diagrams in this chapter were created by the author using slidesgo.com and freepik.com.

SECTION IV
TECHNOLOGY AND RESEARCH

Chapter 14

DIGITAL HEALTH SOLUTIONS: THE FUTURE OF HEALTHCARE FOR OLDER ADULTS

Saravana Kumar and Manzoor Shaik

Mr. Ansari, a 65-year-old man with high blood pressure, is visiting his daughter in the city. In the case of a sudden spike in blood pressure, his wearable device can note the spike and alert his doctor and an emergency contact about the abnormality. Through a video call, a doctor can quickly assess his condition while an ambulance, having received the alert, is en route to Mr. Ansari to ensure that he reaches an ER in the shortest possible time. The digital records of Mr. Ansari can be accessed by the ER doctor and they can prepare well in advance to receive and treat him.

Introduction

As stated in the introduction to this book, one in six individuals in the world will be 60 years or older by the year 2030. Between 2020 and 2050, the number of people 80 years or older is projected to reach 426 million worldwide. The tale of the Indian subcontinent is no different. The Longitudinal Ageing Study of India (LASI) projections predict that there will be over 319 million older adults by 2050, threefold the number identified by the census in 2011.[1] While 75% of older adult people have one or more chronic diseases, 40% have one or more disabilities and 20% have problems with their mental health, states the report.

To both sustain and ensure that our nation continues on its path of growth and development, it is our collective responsibility to ensure that our senior citizens are healthy, active, independent, socially engaged and can contribute to society with their wealth of experience and knowledge. This, however, is easier said than done. It is a challenge for our healthcare system to improve capacities and build systems to provide timely and appropriate care to older

1. International Institute for Population Sciences (IIPS), NPHCE, MoHFW, Harvard TH. Chan School of Public Health and the University of Southern California. *Longitudinal Ageing Study in India* (LASI) Wave 1, 2017-18 - India Report. https://iipsindia.ac.in/lasi

people. This is where health technology can come in to support our healthcare system. This chapter will:

1. Describe the need for specialised care systems for older adults.
2. Explore how health technology can be used in various settings for assisting older care.
3. Examine the scope for future health technology.

The healthcare needs of older adults

The World Health Organization (WHO) categorises people aged 60 years and older as senior citizens.[2] With advancing age comes certain anatomical and physiological changes within the human body (as described in Chapter 2 titled *How We Grow Old: The Science Behind Healthy Ageing*) which are sometimes confounded by disease and disability. Owing to this, there may be a risk of either over-treating or under-treating with the routine approach if one does not take into account age-based considerations.

To add complexity, the older population are a heterogenous group, in which some may suffer from loss of mobility, sensory impairments and disorders, and others may lead physically active lives free of major health concerns. In recent years, a new term "*Superagers*" has emerged,[3] which refers to people in their 70s and 80s who have the mental or physical capability of their decades-younger counterparts. The first and most crucial step towards understanding is separating sickness from age. Most diseases have a larger prevalence with age, hence ageing and sickness typically go hand in hand. However, sickness and ageing are not the same thing.

The potential of technology for the health needs of older adults

From the lenses used for telescopes by Galileo making their way to spectacles, to using nuclear physics research to better the treatment of cancers, the medical field has always benefited from absorbing the latest cutting-edge technologies of various fields into the realm of patient care. This has extended to geriatric care, where modern technological advancements have enabled healthcare workers in all aspects of the care of older adults.

2. World Health Organization. Ageing and health. Accessed on October 31, 2022. https://www.who.int/news-room/fact-sheets/detail/ageing-and-health
3. World Health Organization. Ageing and health. Accessed on October 31, 2022. https://www.who.int/india/health-topics/ageing

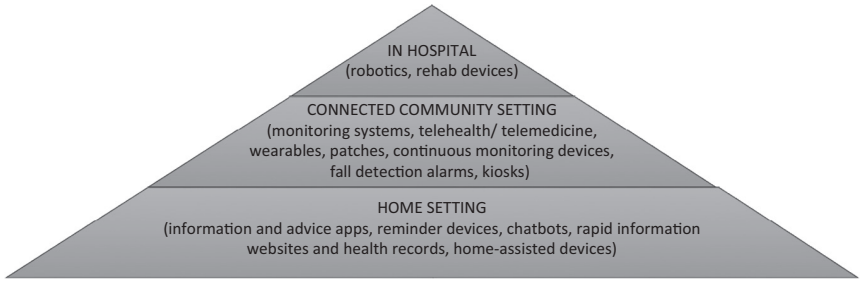

Figure 14.1 The spectrum of technology support available for older adults in India today

A routine visit for health needs increases their risk of exposure to an assorted array of hospital-acquired infections, complicating their existing conditions. In any hospital, older adults are the age group with the highest average of occupied bed days. Admission to a hospital means restricted movement and interactions, leading to an overall loss of morale for older patients. Thus, traditional methods should be replaced with specialised systems to assess older patients, diagnose their problems accurately, plan and implement the right treatment and evaluate the remediation. The potential of technology to reimagine health and wellness for older adults spreads across multiple domains such as domestic situations as well as in core healthcare settings such as a hospital.

Domestic technology today focuses on "comfort devices" and "active alarm systems" in case of falls or abnormal oxygen levels, or fluctuating blood glucose levels. The connected care system which has evolved especially for those who require close monitoring includes remote monitoring (video-assisted), remote diagnostics, remote coaching, therapy and "wearables" for self-monitoring and measurement. The technology available can be graded as those which provide "information and access" from the home setting, "connected care eco-system" and advanced care mechanisms in the healthcare setting (Figure 14.1).

Telemedicine

Telehealth is the application of technology to enhance the provision of healthcare in both clinical and non-clinical settings, such as medical administration and education. Telemedicine is the term used to describe the clinical aspect of telehealth. It manages medical care without in-person visits by interacting with patients remotely and through technology. These tools include secure messaging, video consultations, telephone consultations, electronic health in the form of health apps and digital health.

Though in practice for quite some time, telemedicine gained serious traction during the Covid-19 pandemic, particularly during the lockdown

in our country. Patients had the luxury of meeting their preferred doctor from the comfort of their homes, not worrying about the commute, traffic or wait times. The familiar and comfortable atmosphere of the patient's own house, which is significantly less stifling, enables the patient to explain their symptoms more clearly, leading to the development of a better treatment plan by the doctors. This also immensely increased the ease with which the family member(s) could join the consultation, alleviating their apprehensions especially when living distantly or separately.

Telemedicine consults are facilitated through a smartphone-based application or through a URL (website)-based secure login. Ideally this service has provisions to upload vital parameters and diagnostic test reports prior to the doctor consultation, and enables doctors to issue digital prescriptions at the end of the consult. The near face-to-face environment thus created also helps in cognitive assessment and identifies early signs of Alzheimer's or dementia by the doctor. This also reduces the incidence of self-medication and over-the-counter medications, the adverse consequences of which are more serious for older adults.

Currently there is no global gold standard established for telemedicine portals, but there are several such portals now easily available in our country typically associated with larger health organisations. Each portal is distinct based on the organisation which offers the service and may offer a different experience.

Health kiosks

This hybrid telemedicine solution is offered through an ATM-sized kiosk placed within senior communities and living spaces where older adults can regularly evaluate their health status including their body mass index (BMI), heart rate, oxygen levels, temperature, blood pressure, ECG, etc.; keep track of their health; and update their family members. These kiosks also enable consultations via their in-built app connecting the preferred healthcare provider directly whenever required, and also provides home delivery services of diagnostics and medications (Figure 14.2).

Wearable devices

Wearable technology had a humble beginning as a simple fall alert device based on an accelerometer, and has evolved to the current "smart wearable healthcare devices." They are increasingly being used to support health monitoring of older adults at home or in assisted living facilities, thus enabling their independence and well-being. Wearable healthcare devices

Figure 14.2 Illustration of a health kiosk [image used with written permission from *India Health Link*]

range from activity and fitness trackers such as the Fitbit and Apple Watch, which gather data on physiological parameters such as sleep duration, heart rate, the number of steps walked and calories burnt, to more sophisticated devices that can collect advanced clinical data such as blood pressure, glucose and oxygen levels such as those provided by Health Sensei. Regular monitoring of clinical parameters by wearable devices can facilitate home-based telecare for older adults, thereby reducing provider visits and associated costs.

Apart from regular tracking of vitals, fall detection technology is now made available in the newer generations of wearables, as falls and complications related to falls continue to be significant risk factors for prolonged morbidity in older adults. The devices which detect falls can share the exact GPS location, alert the emergency contact person and activate Emergency Medical Services (EMS), ensuring that the injured person is treated within the golden hour for a heart attack or stroke leading to a fall.

Artificial Intelligence (AI) researchers are integrating AI in wearable devices with the aim of preventing adverse events from happening by continuously receiving vital parameters, simultaneously analysing the data and sending early warnings based on prediction.

Continuous monitoring devices and ECG recordings

The Internet of Things (IoT) has been a ground-breaking development. The IoT-era devices ccollect and analyse data and communicate with other devices. From the rudimentary fitness trackers on our phones to insulin delivery systems, wearable devices have shown the possibility of round-the-clock observations and possible titration of dosages to suit a body's current physiological conditions. This becomes even more useful in senior citizen care as it is necessary to have a constant measure of a person's heart rate, blood pressure, sugar, calorie intake, etc.

They also help in the early detection of cardiac dysrhythmias using a continuous ECG monitoring device that can be worn around the chest or just a few small sticky band aid-like tapes pasted over the chest that can transmit continuous ECG tracings to the recordable device which can be reviewed later by the healthcare providers to detect any abnormality.

This service is usually provided by a healthcare organisation that continuously monitors the data and dispatches EMS support in case of an adverse event (Figure 14.3).

Rapid access to information

Electronic health records which are an integral part of practising medicine have the potential to be game changers. The continuity of care will be much better if the reviewing doctor can view the patient-specific dashboard displaying digital health records in a concise manner highlighting recent events or intervention. This will empower the caregiver to be proactive rather than reactive, and also reduce caregiver fatigue by prioritising actions. The digital collection of data and information on patients allows for analysis. Trends can be visualised and macro-level societal interventions can be performed.

Caregiver training

The number of trained and qualified caregivers in geriatric care is currently very low and with an expected threefold rise in the senior citizen population, the resource constraints are only going to increase. With the demand exceeding

Figure 14.3 Illustration of a continuous monitoring device [image and logo used with written permission from *Health Sensei*]

supply, the resultant burden on the caregiver can directly or indirectly lead to a dip in the quality of care provided. Simulation technology-based training modules have been developed in some parts of the world which have been shown to not only impart better training to a caregiver but also helps develop empathy towards older people.[4]

Technology and medication management

Medication management apps and pill dispensers ensure that older adults follow their medication schedules. These technologies prompt users to take their measured doses at the prescribed times. Many apps send reminders when it is time to refill a prescription along with pharmacy contact information so the user can reorder medication from within the app.

4. RealityWorks, Inc. YouTube page. RealCare geriatric simulator. Published on March 24, 2017. https://www.youtube.com/watch?v=7C0rESFMzm4

Assistive devices

Assistive devices aim to restore independence, increase self-sufficiency, promote high self-esteem and improve mental and physical well-being.[5] Older people tend to need help and assistance with simple daily activities such as bathing, dressing, moving in and out of their residences, shopping, handling finances, transportation, housekeeping, etc. Requiring someone else's help for these mundane routines causes acute embarrassment in some older people leading to an intentional reduction in their quality of life. The seniors feel they are not accorded their deserved dignity (a pillar of patient care). Assistive devices have done wonders in this area and have given back independence and freedom to many. Their impact cannot be quantified since a simple assistive device in a few cases has given them a new lease of life.

A lot of research has gone into the development of assistive devices over the years, making them user-friendly and customisable and unique to the specific needs of a person. They range from simple canes which help in mobility to now available activator poles which help both in mobility and rehabilitation, ceiling hoist systems, automatic turn systems in the bed, portable grab bars, seat lifts, stair climb assists and so on.

Assistive devices enhanced with assistive technologies (ATs) are in development, which stand to benefit senior citizens with disabilities and aid in rehabilitation as part of one's daily routine.

Technology synergy at home

All the discussed methods of geriatric care cannot act in silos, but need to work together. For example, a mobile application to book video consults helps only in one aspect of their care – access to consultation. What is needed is a Geriatric Eco-system – a combination of measures including improvement in their home environment through assistive devices with measures such as quieter rooms, lower beds, handrails for using the toilet, anti-slip tiling and support rails in bathrooms, ease of access to switches, chairlifts, etc., integrated with voice assistants and on-person wearable devices of continuous monitoring which measures a whole host of parameters and informs the caregiver and the doctors of the smallest abnormality in real time. This along with periodic and automatic appointments through telemedicine for regular

5. World Health Organization. Assistive technology. Accessed on October 25, 2022. https://www.who.int/news-room/fact-sheets/detail/assistive-technology

interactions with the doctors can enable not just a long life but also a fulfilling and rewarding one.

AI-based technologies using biomarkers such as electrophysiological data of the brain, voice, breathing or coughing as diagnostic markers, enable early detection. Through such intervention, disease progress can be arrested early or better managed. Another use case for AI technology for senior care could be with voice assistants that can be used to control lighting, doors and home appliances. Imagine a voice bot or listening device that can detect stress or anxiety levels in seniors depending on their voice, pitch or activity. Similar in form to fall detection alarm systems, these can help provide early warnings and escalate triage services.

The example at the beginning of this chapter demonstrates the seamless use of technology to provide quick and high-quality patient care.

The main critique of using technology for geriatric care has been the "lack of technological know-how among older people." But nothing could be farther from the truth. The older generation has adopted all the latest technologies in their form and fashion, and the brilliance of any new technology lies in its adaptability and usability. Certain specific changes may need to be made to help older people with the adoption of technology, but in no way are these changes a deal breaker. Keeping the user interface (UI) simple and intuitive with large and bold fonts will go a long way in encouraging more to adopt technology and benefit from it. In other countries, efforts are ongoing to ensure that health technology is not an isolated aspect of older adults' lives but integrated into their daily living. An older adult-friendly support eco-system is being created starting from the doorstep of the senior citizen to everything and every place they may interact with. Our nation is just waking up to the needs of older adults, and a strong private–public partnership is the only way to create a senior-friendly India.

Conclusion with key takeaways

With our growing older adult population living longer than ever, we must use a wide range of new technology, innovations and services to solve and relieve healthcare woes. By providing the education and support they deserve, as well as designing devices that prioritise their needs, and evaluating which ones benefit them the most, we can help older adults improve their health and maintain their independence, empowering them to enjoy happier and longer lives.

- Ageing comes with certain physiological changes, and the prevalence of certain diseases increases with age, necessitating specialised care for older adults.

- Technology plays a vital role in both effectively and efficiently meeting the healthcare needs of senior citizens; these technology solutions must have a senior-centred design making adoption easier.
- Technology is being used to reimagine health and wellness for older adults in various settings including domestic ones (home or assisted living facilities) as well as in healthcare settings such as nursing homes and hospitals.

Chapter 15

BECOMING A SILVER SURFER: TECHNOLOGY AND DIGITAL LITERACY FOR SENIORS

Divya Alexander and Kalyan Sivasailam

When a digital literacy centre was set up in Sudumbre village in Maharashtra, the women of the village came forward to participate in the digital education programme. Shortly thereafter, a marriage proposal was received for a girl in Sudembre from a family in a neighbouring village. Armed with their newfound knowledge, the women were able to verify the supposed land ownership of the groom and his inheritance status by checking online, and only then did they accept the proposal for the girl. These women are now familiar with digital technologies and are able to procure products from cities by shopping online using e-commerce portals, which allow them to compare prices and make informed decisions, instead of having to settle for whatever is available locally. Similarly, women in a village near Trichy who also underwent digital literacy training are now confident in their use of digital devices, and glad that they are no longer dependent on their children to book train tickets or religious ceremonies.

Introduction

The previous chapters have aptly described the statistics and situation of older adults in our country, ranging from physical and mental health to safety and community. There are many Information and Communication Technologies (ICTs) that have been developed to promote healthy ageing, continued independence and much-needed social contact to senior citizens. Several of these devices, applications and services can aid seniors from the safety and familiarity of their own homes.

While many older adults are already familiar with current technologies, older populations as a whole can benefit from digital literacy initiatives on how to use digital tools. Once they learn how to utilise these tools, a whole new world opens out to them, enabling them to find solutions to many challenges. The medical applications of technology do not fall under the scope of this chapter; they have been described in the previous chapter.

This chapter will:

1. Examine how technology can improve and enhance the lives of older adults in India, both urban and rural.
2. Demonstrate the importance of digital literacy in older adults to enable the complete use of technologies designed for them.
3. List some applications and online platforms in the relevant categories such as communication, assistance for daily living, online payment systems, health and wellness, digital literacy, entertainment, etc.
4. Discuss technology for vulnerable groups such as older women and older persons with disabilities.
5. Explore how countries with a significant percentage of older populations are transforming their communities to care for their older adults.
6. Discuss the risks that one needs to be aware of while using technology in the care of older adults.

The benefits of technology for older adults

While India is a "young" country with only about 10% of the population comprising older adults, that number translates into 139 million (a number significantly greater than the population of most countries) and is projected to reach almost 319 million by 2050.[1] Technology can be part of a holistic solution to improve and enhance their lives in several ways:

1. Enabling older adults to live independently for longer.

There are a number of assistive technologies that can help older adults with the activities of daily living, such as dressing, bathing and managing medications. For example, wearable devices can remind older adults to take their medication on time and in the correct dosage; smart home technology can automate tasks such as turning off lights and adjusting the thermostat for seniors living alone.

2. Facilitating communication between older adults and their caregivers.

Many seniors find it difficult to leave their homes, which can make it challenging for them to receive the care they need. Video conferencing technology can enable them to connect with their caregivers and receive timely support when needed, without having to leave their homes.

1. HelpAge India, *Bridge the Gap: Understanding Elder Needs, A HelpAge India Report*, New Delhi; 2022.

3. Providing caregivers with better tools and resources to support older adults.

There are several apps and online tools for caregivers to manage medications, schedule appointments and keep track of important information about their older adult clients. By providing caregivers with access to these tools, technology can improve the quality of care that older adults receive.

4. Improving the overall experience of receiving older adult care.

There are several virtual reality (VR) and augmented reality (AR) technologies that provide older adults with stimulating and engaging activities. These can help improve cognitive function, reduce boredom and isolation, and improve the overall well-being of older adults.

India has the second-largest online market in the world, with over 900 million internet users.[2] The penetration rate for smartphones is about 54% but drops to 5% for those aged above 55 years.[3] There are also wide variations depending on age, gender, rural/urban areas, socio-economic status, etc.

The importance of digital literacy

Many older persons in the country are already familiar with social media and communication apps as they have had internet access, helping them to feel connected to their loved ones. But there are many applications of technology outside the communication realm which can benefit them. Three-quarters of respondents in a survey carried out in the NCR reported that lack of digital knowledge made them feel marginalised and underprivileged.[4] Hence, digital literacy is the first step for older adults to take advantage of technology solutions.

Greater familiarity with digital tools will reduce dependency, increase autonomy and boost self-worth among the older population. Some platforms and applications that are being used in India are: **Empowerji (Android and IOS)**, an application specifically designed for senior citizens in India. It teaches them how to become tech-savvy at their own pace, without having to

2. *Statista.* Internet usage in India - statistics & facts. Accessed on February 21, 2023. https://www.statista.com/topics/2157/internet-usage-in-india/
3. *Statista.* Smartphone penetration rate in India from 2010 to 2020, with estimates until 2040. Accessed on February 21, 2023. https://www.statista.com/statistics/1229799/india-smartphone-penetration-rate/
4. *The Times of India.* 85% of senior citizens in NCR are digitally illiterate: study. Accessed on November 16, 2022. https://timesofindia.indiatimes.com/city/delhi/85-of-senior-citizens-in-ncr-are-digitally-illiterate-study/articleshow/60811671.cms

rely on others for learning. The **digital literacy programme by HelpAge India** conducts workshops across the country, introducing older adults to the online world. **Easy Hai** is a Bengaluru-based start-up that trains people, mostly over the age of 50, in the use of smartphones and laptops through classes and tutorials conducted over Zoom.

The following case study examines the importance of digital literacy among older adults. Healthcare accessibility for older adults, in general, is poor in rural India. Mobile applications for healthcare resources would therefore be a viable solution to fill this gap. However, any apps whether for fitness, medication, appointments, medical service searches, etc., would remain unused by the older adult community without IT initiatives specifically for them. An integrated older adult health IT infrastructure in rural areas can support the delivery of information to ensure that patients, caregivers and health professionals can access the information they need.

> *In India, a system of e-health was developed for the village of Mourigram in West Bengal. The Elder health IT framework was designed in collaboration with family, community and the government, to meet the needs of the rural elderly in India. The already existing system of e-governance was elaborated to the healthcare service delivery system for the project. An assessment was conducted to extract issues relating to the lives of older people in relation to their social participation, family relationships, confidence and self-esteem. These revealed the fact that the older women in the region were completely unaware of technology use or e-services in healthcare. After specific regions of need were identified, gadgets such as smartphones and tablets (supported by the IDEA network) that facilitate mHealth services were distributed among 20 community members after initial training by Suchetona (NGO) on device usage.*
>
> *The use of the elder health IT in this rural set-up (community centers and primary health care offices) enabled 96% of those who had no official social security such as Provident Fund, gratuity, or pension after retirement to be included in the system of care. The integration of the social service institutions in Mourigram with the provisions of geriatric care through an online framework was a cost-effective way to access healthcare. The framework was a stepping stone for addressing social challenges, reducing health inequities and enhancing the quality of life for the elderly. Comparing how the attitudes and behavioural preferences of older people, informal caregivers and operational staff had changed owing to the use of the elder health IT, it was seen that about 95% of older women in the region expressed their desire for more services in addition to the services available through the initiated framework.*

The Mourigram experiment can be replicated in other villages in rural India, with the stated intention of further connecting older adults to recreational centres, older adult nutrition programmes, exercise facilities and senior citizen clubs, thus bolstering social engagement, autonomy and privacy of the seniors in India.

Technologies to improve the lives of older adults

Once the users have become familiar with digital tools, they can look to online platforms and applications for almost anything including assistance with daily living, communication and community, health and wellness, entertainment and learning, safety in emergencies and online payment systems. Some current apps and online platforms in these categories are described below.

For assistance with daily living, **Alserv** is an online platform developed by a start-up in Chennai. This online platform provides assisted living services in five categories: food and catering, medical, security, housekeeping and maintenance. Through the app, users can connect with vendors for home-cooked food or order groceries. The **Maya Care Foundation** uses an online booking system to send representatives to accompany older adults to the hospital, pick up their medical reports, read or write to them and more.

Older-friendly features can be installed on smartphones via apps such as **Senior Phone** (**Android only**), which replaces the standard phone screen with larger, colour-differentiated and easy-to-read icons, text and buttons, along with an SOS button to determine one's location if lost; **Equal Eyes** which makes mobile devices easier to read and access for older citizens with poor eyesight; **Magnifying Glass + Flashlight** which uses the digital zoom feature of the smartphone camera to enlarge images and text, and provides additional lighting by turning the camera flash into a torch to assist older adults in reading text on prescription bottles or restaurant menus; **Voice-to-Text/Dictation Software**, which allows the user to send text messages or write notes by dictating it instead of having to type it out.

For community-building, the **Evergreen Club** is a platform developed by Seniority to help the over-55 group to digitally "meet" over a range of interests such as gardening, yoga and dance therapy. Online platforms enable people to stay connected to loved ones; the widely used applications in India include **WhatsApp, Facetime, Skype, Telegram, Signal, Google Duo and Facebook Messenger**. Most of the text-based applications also include **Voice Recording**, which enables people to send voice notes instead of text messages to their intended recipient. This is especially useful for older adults in a multi-lingual nation such as India (especially Tier-II cities and beyond) who are more comfortable communicating in their mother tongue but may not be able to access the language-appropriate phone keyboard.

For safety in emergencies (SOS features), an **SOS app** introduced by HelpAge India serves as a one-stop security measure for older adults nationally, connecting them to the HelpAge Local Helplines across the country. The helplines are staffed by HelpAge counsellors 24×7 in order to be of assistance to older adults in distress, connecting them with the local police, hospitals or old age homes in emergencies. With the ubiquity of accelerometers in smartphones

and smart watches, **fall detection alarms** have emerged as a major use case when it comes to older people. Apple pioneered fall detection on the Apple Watch, which would also place a call to 911 (in the US) if the user did not stand back up again. Many other manufacturers are now building features like this and making this potentially life-saving technology more accessible.

There are any number of apps for other purposes such as health and wellness (**Hearty Seniors, Senior Fitness, Lastpass, Google Fit** and **Get Set Up)**, online payment systems that older adults can use for daily life in India (**PhonePe, Google Pay, PayTM, BHIM, QR codes** and **online bank transfers**) and entertainment and learning, such as **YouTube, Netflix, Prime, Disney Hotstar** (movies and TV), **Audible** (for listening to books), **Kindle** (for reading), **Spotify** (for music), **Kuku FM** and **Pocket FM** (for podcasts and stories in regional languages), **Duolingo** (learning languages) and brain training activities to help delay the onset of dementia such as **Luminosity, Dots, WordBrain, Words with Friends, Solitaire, Elevate, Wordle** and so on.

Making technology accessible for vulnerable groups

• Older women

Women form 48.5% (590 million) of India's population, but 70% do not have basic telephony services, let alone data.[5] In India, less than one-third of the over-65 female population is literate (able to read and write). This is a huge disadvantage when it comes to using digital technology or computers, especially when coupled with other factors such as lack of reliable internet and cost of internet service subscriptions. There are very few digital tools in local languages, which exacerbates the situation.

To address the low level of digital literacy in India, the government has launched two programmes that aim to provide basic digital literacy to one member of every household in the country. In total, about 51 million candidates have been trained under these programmes, but the gap between male and female users of mobile internet was 41% in 2021.[6]

5. *The Financial Express*. Digital space is a great leveller; will women, elderly be left behind? Updated on June 13, 2016. https://www.financialexpress.com/life/technology/digital-space-is-a-great-leveller-will-women-elderly-be-left-behind/282621/; *ORF Online*. India's gendered digital divide: how the absence of digital access is leaving women behind. Updated on August 22, 2021. https://www.orfonline.org/expert-speak/indias-gendered-digital-divide/
6. *Business Standard*. How digitisation and access to the internet are leaving Indian women behind. Updated on October 30, 2022. https://www.business-standard.com/article/economy-policy/disconnected-how-digitisation-access-to-internet-is-leaving-women-behind-122103000187_1.html

Women, particularly older women, are placed lowest in the order of priority for digital devices in most families. In rural areas, male heads of households are often the only family member to possess a digital device. Relying on them for internet connectivity hinders women's use of these devices, diminishing their digital empowerment, independence and individual growth.[5] India's digital gender gap is the result primarily of three factors: the rural–urban divide, the income-based divide and social norms that view mobile phones as a risk to women's reputation, meaning that women's online activity is "often governed by male relatives."[5]

The case study at the beginning of this chapter illustrates how useful digital literacy can be for older women in rural areas.

• Older persons with disabilities

According to the Longitudinalageing Study in India (LASI), "75% of elderly people suffer from atleast one chronic disease. 40% of the elderly people have a disability and 20% have issues related to mental health."[7] In addition, as people get older, their cognitive skills and ability to understand and learn start to decline. They are also prone to losing their sensory abilities, making it more difficult to adapt to constantly changing digital technologies. Paradoxically, these same technologies solve many of the problems faced by seniors. Holly Tuke describes some assistive technologies such as screen readers, braille displays or high-contrast displays, screen magnifiers, foot switches, eye-tracking software and augmentative and alternative communication (AAC) tools such as the one used by Stephen Hawking.[8]

Technology initiatives for older adults around the world

• *Europe*

Advanced Telecare is a home automation system coupled with telecare, implemented in the Limousin region in **France**. The service aims to allow older people to live independently at home. The system uses different available technologies such as sensors and light paths installed at home to prevent accidents and keep older people safe in their homes. The technologies at home are connected through a bracelet or a pendant, worn by the older person, to a

7. International Institute for Population Sciences (IIPS), NPHCE, MoHFW, Harvard TH. Chan School of Public Health and the University of Southern California. *Longitudinal Ageing Study in India (LASI) Wave* 1, 2017–18 - India Report. https://iipsindia.ac.in/lasi
8. Scope. What is assistive technology? And how do disabled people use the web? Updated on February 16, 2021. https://business.scope.org.uk/article/assistive-technology-devices-definitions-how-disabled-people-use-the-web

telecare system. The telecare system is available 24/7 and it can be activated either by the older adults if they need help or automatically through the sensors if they have an accident, thus allowing professionals to appropriately intervene. The system also helps to better provide care at home.[9]

ACTION is a technology-based home care service implemented mostly in the municipality of Borås in **Sweden**. ACTION aims to increase the autonomy, independence and quality of life of frail older people and their family carers. These objectives are achieved by providing a self-care and family care support service, which gives end users access to information, education and support *via* the use of ICT in their own homes. ACTION has four components: (i) integrated multimedia caring programmes that families access via their (ii) personal computers; (iii) ACTION call centre; and (iv) education and supervision programmes for users and for staff working directly with the service in the municipalities (*ibid.*).

- ***USA***

Intuition Robotics' debut product is a robot called ElliQ, which Dor Skuler, co-founder and CEO, calls "a sidekick for happierageing."[10] The proactive cognitive artificial intelligence product initiates conversation to help the senior stay in touch with family or loved ones, engage in healthy behaviours – including nudges to take medication – and stay connected with the outside world. Loved ones can interact with ElliQ as well, sending photos through the app that the senior can see and respond to via a video screen.

- ***Singapore***

In Singapore, there is a push to close the "silver" digital gap so that older people are not left behind in the digitally enabled smart nation. The government has rolled out various initiatives such as the *Seniors Go Digital* programme for digital literacy, mobile access to provide lower-income seniors with subsidised smartphones and phone plans, and digital ambassadors to teach them how to use the devices. As part of a government initiative for an older-inclusive society, Singapore

9. Joint Research Centre and Institute for Prospective Technological Studies. *Report on Case Studies of the Technology-based Services for Independent Living for Older People*. 2016. doi: 10.2791/3435
10. Intuition Robotics. Intuition Robotic launches ElliQ, the award-winning care companion robot, for commercial sale. Updated March 15, 2022. https://www.prnewswire.com/news-releases/intuition-robotics-launches-elliq-the-award-winning-care-companion-robot-for-commercial-sale-301502682.html

Management University and Tata Consultancy Services pioneered an Assisted Living Platform called SHINESeniors equipping seniors' homes with unobtrusive technology that monitors the resident's physical environment and daily living patterns, alerting caregivers when there is any variation from the norm.

Potential risks of technology use in the care of older adults

There are a few potential risks of increased technology involvement in care for older adults. Some of these risks include:

- Privacy and security concerns: As more personal information is stored and shared digitally, there is a risk that this information could be accessed by unauthorised individuals or organisations. This could lead to privacy breaches, identity theft and other potential harm to older adults.
- Dependency on technology: If older adults become too reliant on technology for their care, they may be at risk of losing important skills and abilities that are necessary for independent living. For example, if an older adult relies heavily on a smart home system to perform tasks such as turning off lights and adjusting the thermostat, they may lose their ability to do these tasks manually if the technology fails or is unavailable.
- Accessibility barriers: Not all older adults have access to or are able to use technology, due to physical limitations, cognitive impairments or lack of access to technology. This could create disparities in care and leave some older adults at a disadvantage.
- Potential for misuse or abuse: If technology is used improperly or without proper oversight, there is a risk that it could be used to exploit or harm older adults. For example, if a caregiver uses video conferencing technology to monitor an older adult without their consent, this could violate the older adult's privacy and dignity.

Overall, it is important to carefully consider the potential risks of increased technology involvement in care for older adults and to take steps to mitigate these risks. This may include implementing strong privacy and security measures, ensuring that technology is used in a way that supports and enhances, rather than replaces, the abilities of older adults and ensuring that technology is accessible and used ethically.

Conclusion with key takeaways

ICTs can play a significant role in improving the lives of senior citizens as they have the potential to not only decrease social isolation but also be a platform for the promotion of healthy ageing, continued independence and entertainment.

- Digital literacy is essential in order for older adults to fully benefit from ICT, both in the urban and rural context.
- Some technologies, safety features, applications and online platforms for the needs of older adults are described.
- The accessibility of technology for older women and for older persons with disabilities is examined.
- Some innovations in other countries where older adults comprise a significant part of their populations are explored.

Chapter 16

AGEING AT THE CELLULAR LEVEL: ADVANCES IN RESEARCH

Arvind Ramanathan

Introduction

India has significant healthcare challenges, including less than optimal access to healthcare providers. The data available from the World Bank[1] shows that India has much less than one hospital bed and physician per thousand people, when compared to more than two or three in other nations. This disparity is going to be exacerbated as the population ages.

The effect of the increasing older adult population is expected to affect the rural population even more adversely due to limited access to healthcare and education. It is now recognised that ageing is the major risk factor for all diseases including heart disease, skeletal muscle loss, cancer, Type II diabetes and Alzheimer's disease.[2] There is an exponential increase in the risk of these diseases as we age, with a particular increase after the age of 60. Providing treatments for each of these diseases will be a major challenge for a developing country such as India. A strategy to mitigate this upcoming challenge is to address the underlying driver of ageing itself, which may be able to parallelly target multiple ageing-related diseases. Targeting the ageing process and enhancing healthy ageing in both urban and rural environments will be critical to ensure the growth and sustainability of India. This chapter will:

1. The World Bank. Hospital beds (per 1,000 people). Accessed on December 01, 2022. https://data.worldbank.org/indicator/SH.MED.BEDS.ZS
2. Jaul E, Barron J. Age-related diseases and clinical and public health implications for the 85 years old and over population. *Front Public Health*. 2017;5:335. doi:10.3389/fpubh.2017.00335. MacNee W, Rabinovich RA, Choudhury G. Ageing and the border between health and disease. *Eur Respir J*. 2014;44(5):1332-1352. doi:10.1183/09031936.00134014

1. Examine how scientific research targets the ageing process in ways that can lead to significant improvements in health span.
2. Provide a summary of insights from ongoing research efforts in ageing biology.

Ageing is encoded in our genes

A turning point in our understanding of one factor of ageing arrived with the insight that the ageing of animals is encoded in their genes. The number of genes in multicellular animals (the part of the genome that encodes proteins) varies from a few thousand to tens of thousands, with the human genome encoding about 20,000 to 25,000 proteins. In seminal experiments in the latter part of the twentieth century,[3] it was discovered that laboratory-grown nematode worms (which live for about 20 days) extended their lifespans by about 20% by mutations in only one gene. This opened the floodgates for exploring the paradigm that genes could affect lifespan. The discovery of numerous gene mutations which have an impact on lifespan brought the realisation that ageing is not a phenomenon of merely damage accumulation as thought previously, but that it is an actively controlled process. Remarkably, the same genes discovered from worms have now been studied in longer-lived animals such as fruit flies and mice[4] showing similar effects on their lifespans as well. This finding now opens significant possibilities in examining the same genes in humans as well. So, what is the identity of these lifespan-regulating genes, and how do they impact ageing? The gene that was initially identified in nematodes, and that has now also been found to be associated with ageing in other animals is a protein called insulin-like growth factor-1 (IGF-1). This gene has been the subject of intense investigation, leading to the elucidation of numerous other proteins that process the signalling of IGF-1. IGF-1 plays a central role in how cells process nutrients, especially glucose. Therefore, these discoveries have led to the insight that signals that govern how the body utilises glucose and other nutrients are at the heart of regulating how animals age. In the following paragraph, the description of the study of centenarians further validates the importance of IGF-1 in humans.

3. Martin GM. The biology of ageing: 1985-2010 and beyond. *FASEB J.* 2011;25(11):3756-3762. doi: 10.1096/fj.11-1102.ufm
4. Yu Z, Seim I, Yin M *et al.* Comparative analyses of ageing-related genes in long-lived mammals provide insights into natural longevity. *Innovation (Camb).* 2021;2(2):100108. doi:10.1016/j.xinn.2021.100108

What can we learn about ageing biology from centenarians?

Five "blue zones" have been identified in our planet where people live extraordinarily long and healthy lives[5] – Loma Linda, California, USA; Nicoya, Costa Rica; Sardinia, Italy; Ikaria, Greece; and Okinawa, Japan. The people in these regions reach the age of 100 at ten times the rate of other places. There are nine evidence-based factors in the blue zones that are thought to slow the ageing process – (i) moving naturally – such as in gardens without reliance on mechanical conveniences; (ii) a sense of purpose – referred to by Okinawans as *ikigai*; (ii) downshifting stress via prayer, "happy hours," naps; (iii) an 80% rule, leaving a gap of 20% between not being hungry and full; (iv) preference for a plant-based diet; (v) red wine (one or two glasses per day); (vi) a sense of belonging, possibly in a faith-based community; (vii) prioritising loved ones; and (viii) being part of social groups.

But is there a genetic component as well? It is known that longevity can be inherited. Now studies have been carried out to sequence the genomes of centenarians, leading to remarkable insights.[6] Studies point again to the protein IGF-1, a version of which is also present in the humble nematode worm in the previous paragraph. This shows that no matter the size, there is a fundamental role for insulin signalling in animals that can influence ageing. There are conflicting results on whether the levels of IGF-1 in centenarians are increased or decreased, reflecting the complexity of how this protein regulates human metabolism. But there is emerging evidence that overall centenarians have lower circulating IGF-1, increased insulin sensitivity and lower circulating insulin levels. This may suggest that centenarians are more efficient in the use of glucose, as compared to humans who live shorter lifespans. Lower IGF-1 levels are also correlated with lower incidences of cancer and cardiovascular disease. IGF-1 may therefore emerge as an important biomarker for enhancing lifespan and health span in humans.

Ongoing research on calorie restriction and nutrient signalling in controlling ageing

The recognition that the metabolism of glucose and other nutrients is an important factor in controlling the ageing process has led to an interest

5. Buettner D, Skemp, S. Blue zones: lessons from the world's longest lived. *Am J Lifestyle Med*. 2016;10(5):318-321. doi:10.1177/1559827616637066
6. Vitale G, Pellegrino G, Vollery M, Hofland LJ. ROLE of IGF-1 system in the modulation of longevity: controversies and new insights from a centenarians' perspective. *Front Endocrinol (Lausanne)*. 2019;10:27. doi:10.3389/fendo.2019.00027

in leveraging these factors for healthy ageing. One such approach is calorie restriction (CR). CR involves reducing dietary intake below energy requirements while maintaining appropriate nutritional levels.[7] This approach has been shown to improve lifespans and health spans in numerous lower and higher animals and is being actively explored in human subjects. It is known that Okinawans (of the blue zone) practice mild CR and eat green vegetables ensuring nutritional levels. In spite of the promise of CR, it carries potential risks such as inadequate nutrition, and unintended effects on bone and muscle functionality. For these reasons, trials of CR in older adults have not been carried out. An alternative approach to targeting nutrient utilisation has been through the use of the common anti-diabetic drug metformin.[8]

It is now known that this drug can activate signals associated with CR (such as increased turnover of cellular proteins) and improved insulin sensitivity. Though this drug has been shown to improve the lifespan and health span of laboratory animals, trials are planned to test this drug in humans for positive outcomes in attenuating the hallmarks of ageing. Nutrients related to nicotinamide adenine dinucleotide (NAD) are also being explored in their ability to ameliorate ageing-related dysfunction in various tissues including the skeletal muscle.[9] NAD is a cofactor (a necessary part of numerous chemical reactions in the body), and it has been shown that levels of this molecule within tissues diminish during ageing. Restoring NAD levels by biochemically available precursors has been shown to slow the ageing process of tissues including skeletal muscle. Trials of numerous NAD precursors are currently underway in humans to access efficacy and safety.

Skeletal muscle preservation during ageing

Ageing-related loss of skeletal muscle mass (called sarcopenia) and frailty are hallmarks of the ageing process and present important targets for healthy ageing. The primary drivers of sarcopenia remain to be uncovered, especially in the Indian older adult population. One such study has been launched by

7. Flanagan EW, Most J, Mey JT, Redman LM. Calorie restriction and ageing in humans. *Annu Rev Nutr.* 2020;40:105-133. doi:10.1146/annurev-nutr-122319-034601
8. Glossmann HH, Lutz OMD. Metformin and ageing: a review. *Gerontology.* 2019;65(6):581-590. doi:10.1159/000502257
9. Covarrubias AJ, Perrone R, Grozio A, Verdin E. NAD(+) metabolism and its roles in cellular processes during ageing. *Nat Rev Mol Cell Biol.* 2021;22(2):119-141. doi:10.1038/s41580-020-00313-x

the Bangalore Baptist Hospital in collaboration with DBT-inStem Bangalore. This study will measure nutritional factors in the blood that might correlate with the risk of sarcopenia in older adults, and help to devise preventive measures. Nutritional factors such as the amino acid leucine, creatine and vitamin D have been suggested to have positive roles in managing sarcopenia, though this remains to be validated, especially in an older Indian population.[10]

Preserving skeletal muscle can be a major driver of healthy ageing. It is now known that skeletal muscle is a major reservoir of glucose and important for driving insulin sensitivity. Apart from its metabolic role, it has emerged that skeletal muscle is an endocrine organ, or in other words, it secretes hormones and compounds (referred to now as myokines) that communicate with numerous other organs including the brain.[11] For example, studies have shown that skeletal muscle secretes a protein called brain-derived neurotrophic factor (BDNF) during exercise that can improve brain function. This could be one of the reasons why even brief exercises can positively impact memory skills. Skeletal muscle also secretes numerous factors that improve liver and fat tissue function. Therefore, preserving skeletal muscle mass and function with age can in turn help to improve the functioning of numerous other tissues within the body, ensuring healthy ageing.

Targeting old cells in ageing and ageing-related diseases

The body is composed of numerous tissues and organs, which in turn are composed of cells, which have specific roles within the tissue, including maintaining structure and other biochemical functions. Cells within tissues regularly renew themselves, but as the body ages, older cells accumulate within tissues. These cells are known as senescent cells. There is now an emerging understanding that these cells are not just silent bystanders, but secrete numerous factors that drive inflammation, known as senescence-associated secreted proteins (SASPs), that can drive ageing-related diseases.[12] Senescent cells have been found proximally at the site of numerous diseases

10. Morley JE, Argiles JM, Evans WJ *et al.* Nutritional recommendations for the management of sarcopenia. *J Am Med Dir Assoc.* 2010;11(6):391-396. doi:10.1016/j.jamda.2010.04.014
11. Barros D, Marques EA, Magalhaes J, Carvalho J. Energy metabolism and frailty: the potential role of exercise-induced myokines - A narrative review. *Ageing Res Rev.* 2022;82:101780. doi:10.1016/j.arr.2022.101780
12. Di Micco R, Krizhanovsky V, Baker D, d'Adda di Fagagna F. Cellular senescence in ageing: from mechanisms to therapeutic opportunities. *Nat Rev Mol Cell Biol.* 2021;22(2):75-95. doi:10.1038/s41580-020-00314-w

such as macular degeneration, arthritis and neurodegenerative diseases such as Alzheimer's. In animal models, senescent cells have been shown to be associated with Type II diabetes in adipose tissue driving tissue inflammation. These evidences have led to the hypothesis that eliminating senescent cells directly might alleviate ageing-related diseases. In this context small molecule drugs have been designed, individually or in combination, that can selectively kill senescent cells, termed senolytics.[13] Senolytics in animal models have successfully ameliorated hallmarks of ageing including inflammation, sarcopenia and frailty. Senolytics are currently undergoing clinical trials in humans to access toxicity and efficacy. The success of these trials can provide a new avenue to treat ageing-related diseases and potentially the ageing process itself.

Rejuvenating stem cells in the aged tissues

Stem cells are cells that have the potential to generate numerous cell types in the body. Most organs have tissue-resident stem cells that can regenerate their respective tissues in case of injury. These adult stem cells have been studied in numerous tissues including the liver, adipose tissue, brain, blood etc. Skeletal muscle stem cells have been particularly well studied in the context of ageing. It is clear that with age, there is a depletion of stem cells, and a diminished capacity to give rise to injured tissues.[14] The mechanisms underlying the age-related loss of stem cells, and whether this is the result of either cell-intrinsic effects and/or the influence of physiology, is currently being tested. Potentially, rejuvenating stem cells can promote the regeneration of aged tissues. Replacement of depleted stem cell pools is a challenge in terms of culturing these cells outside the body, and then ensuring that injected cells are targeted to the right tissue niche for optimal function.[15] Stem cell replacement therapies are being tested in the clinic, currently in the context of muscular dystrophies and other myopathies. These treatments could potentially be applied to ageing-related diseases such as sarcopenia in the future.

13. Chaib S, Tchkonia T, Kirkland JL. Cellular senescence and senolytics: the path to the clinic. *Nat Med.* 2022;28(8):1556-1568. doi:10.1038/s41591-022-01923-y
14. Chen W, Datzkiw D, Rudnicki MA. Satellite cells in ageing: use it or lose it. *Open Biol.* 2020;10(5):200048. doi:10.1098/rsob.200048
15. Judson RN, Rossi FMV. Towards stem cell therapies for skeletal muscle repair. *NPJ Regen Med.* 2020;5:10. doi:10.1038/s41536-020-0094-3

The ageing clock: Can we measure how old someone is?

Age is the result of a complex combination of factors including genetics, epigenetics and environmental factors such as stress, diet and pollution. Therefore, the number of years someone has been alive (chronological age) is different from their biological age. Biologists who are studying ageing are finally making inroads into measuring biological age using genomic measurements. These biological clocks may be medically useful measures of health and mortality. Therefore, they may measure tissue-wise dysfunction/degradation and predict the risk of mortality for an individual. A promising approach for ageing clocks is by measuring marks in the epigenome.[16] Unlike the genome that we are born with, the proteins associated with DNA, and DNA bases are chemically modified by environmental influences, and this is the epigenome ("epi" meaning outside). Therefore, measuring these marks across the genome might reflect the biological age and memory of stress signals during the ageing process. In this approach, changes in DNA methylation are measured across the genome, and correlated with known chronological age of a large group of individuals, to access the group of DNA regions including those regions associated with genes. Following this approach, epigenetic clocks using 353 regions of the genome have been shown to predict the age of a person. Interestingly, using this clock, it was shown that centenarians age more slowly than the average population.[17] In the future, these clocks may be used to monitor healthy ageing and recommend lifestyle or medical interventions to older adult patients.

Conclusion with key takeaways

In the 20th century the dramatic prolonging of human lifespan was driven by the discovery of antibiotics, vaccines, advances in public health and early detection of diseases. In the 21st century we are in the midst of a second revolution in extending human lifespan and health span, with fundamental insights into genetic and nutritional drivers of the ageing process itself. A new class of "anti-ageing" medical interventions is on the horizon that may target the causes of ageing and thereby prolong health span significantly.

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16. Duan R, Fu Q, Sun Y, Li Q. Epigenetic clock: a promising biomarker and practical tool in ageing. *Ageing Res Rev.* 2022;81:101743. doi:10.1016/j.arr.2022.101743
17. Horvath S, Pirazzini C, Bacalini MG *et al.* Decreased epigenetic age of PBMCs from Italian semi-supercentenarians and their offspring. *Ageing (Albany NY).* 2015;*7*(12):1159-1170. doi:10.18632/ageing.100861

- Ageing is an active, regulated process that can be targeted.
- The genetic, environmental and nutritional factors that control ageing have been summarised, and the results from ongoing research projects will be available in the coming years.
- Strategising healthy ageing efficiently can help to alleviate the burden on the medical system, especially in areas where easy access to healthcare professionals is not available.

Chapter 17

THE SOCIO-ECONOMIC AND HEALTH STATUS OF OLDER ADULTS IN INDIA: EVIDENCE FROM THE LONGITUDINAL AGEING STUDY IN INDIA

T. V. Sekher

Introduction

As of January 2023, India is the world's most populous country. In the 2011 census, the older adult population (aged 60 and above) accounted for 8.6% of the total Indian population, numbering 103 million older persons. This is projected to further rise to 19.5% (319 million) by 2050.[1] The dramatic and widespread nature of these current and ongoing demographic shifts indicates that the population ageing challenges that India will face are inevitable and exist on an enormous scale. The demographic *vis-à-vis* the epidemiological transition in India has shifted a major share of the country's burden of disease from children to the older population.

The alarming number of older persons in the population and its far-reaching implications call for robust data on ageing. Although adult health and ageing are being increasingly investigated, there are no comprehensive and internationally comparable national survey data in India that encompass the full range of topics necessary to understand the health, economic, social and psychological aspects of the ageing process. The Longitudinal Ageing Study in India (LASI) is designed to fill this gap.

1. United Nations, Department of Economic and Social Affairs, Population Division. *World Population Prospects 2022:* New York, United Nations; 2022.

The Longitudinal Ageing Study in India

Launched in 2016, the LASI is a national survey of scientific investigation of the health, economic and social determinants and consequences of population ageing in India. The LASI is a panel survey representative of the older adult population for India and its states and union territories (UTs). The LASI Wave 1 covered a panel sample of 73,396 individuals aged 45 years and above, including 32,000 older persons from all states and UTs of India.[2] The LASI is India's first and the world's largest study that provides a longitudinal database for designing policies and programmes for the older population. The LASI is internationally harmonised with the Health and Retirement Study (HRS) of the USA and its sister studies in 47 countries around the world to enable cross-national and cross-cultural comparisons. The International Institute for Population Sciences (IIPS)[3] undertook the LASI in collaboration with the Harvard T. H. Chan School of Public Health and the University of Southern California, and is funded by the Ministry of Health and Family Welfare, Govt. of India, the National Institute of Health (USA) and UNFPA-India. The LASI Wave 1 survey was conducted from April 2017 to December 2018. The Wave 2 survey will be undertaken in 2023 and the panel survey will continue for the next 25 years.

Some of the important findings from LASI, presented here, will be of interest to those who work for the welfare of older persons and also to the senior citizens of the country.

Chronic health conditions

The assessment of the burden of chronic health conditions such as cardiovascular diseases (CVDs), diabetes, chronic respiratory diseases, bone diseases and cancers, as well as their risk factors is important for promoting appropriate and effective healthcare policies for the prevention and control of non-communicable diseases (NCDs)[4]. There is a lack of population-based estimates for India and its states, based on internationally comparable designs

2. Bloom DE, Sekher TV, Lee J. Longitudinal Aging Study in India (LASI): new data resources for addressing aging in India. *Nat Aging*. 2021;1(12):1070-1072. doi:10.1038/s43587-021-00155-y
3. International Institute for Population Sciences (IIPS), NPHCE, MoHFW, Harvard TH. Chan School of Public Health (HSPH) and the University of Southern California (USC), *Longitudinal Ageing Study in India (LASI) Wave 1, 2017–18, India Report*, Mumbai. https://www.iipsindia.ac.in/sites/default/files/LASI_India_Report_2020_compressed.pdf
4. Sekher, TV, Kumar K, Shijith VP. Catastrophic health expenditure, health insurance coverage and Poor in India: New evidence on health care costs leading to impoverishment. In: A Karan and G Sodhi (Eds.) *Protecting the Health of the Poor: Social Movements in the South*. London, CROP and Zed Books; 2015:80-101.

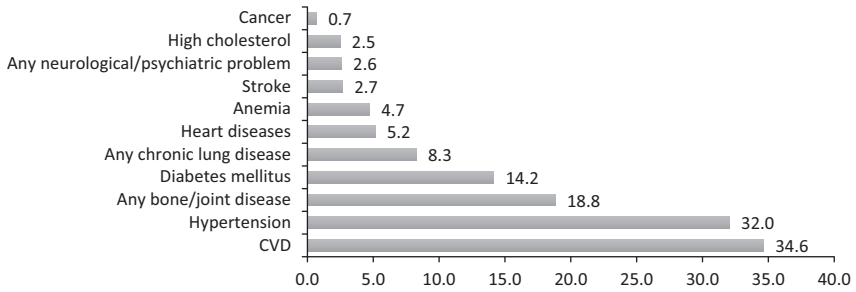

Figure 17.1 Self-reported prevalence (%) of diagnosed chronic health conditions among older persons in India [Source: LASI Wave 1, 2017-2018, Executive Summary of India Report (IIPS et al., 2020)]

and tools. One of the main objectives of the LASI is to assess the prevalence rates of chronic health conditions in the older population.

Overall, in India, the self-reported prevalence of diagnosed CVDs increases with age from 34% among those in age 60–74, to 37% among those aged 75 and above. About a third (32%) of older persons have been diagnosed with hypertension, 5.2% were diagnosed with chronic heart disease and 2.7% with stroke.

In India, the self-reported prevalence of diabetes mellitus among older persons is 14%. The prevalence of asthma, bronchitis and chronic obstructive pulmonary disease (COPD) among older persons is 5.9, 1.6 and 2.8%, respectively. Eight percent of older persons reported chronic lung diseases (Figure 17.1).

Treatment rates for chronic health conditions

In India, around three-quarters of older persons who were diagnosed with chronic conditions have been treated for hypertension (77%), chronic heart diseases (74%), diabetes mellitus (83%), chronic lung diseases (72%) and cancer (75%); more than half of the older adults have been treated for stroke (58%) and bone/joint diseases (56%), whereas the treatment rate for neurological and psychiatric diseases among older persons is the lowest (41%). The treatment rate for all chronic health conditions is higher among older persons in urban areas, those with higher education and those belonging to the richest wealth quintile households as compared to their counterparts.

The age-associated rise in the prevalence of chronic health conditions is steady and consistent and more pronounced for cardiovascular and lung diseases. Ageing is associated with an increased risk of experiencing more than one chronic health condition (multi-morbidity) at the same time. According to LASI, around a quarter of older persons have multi-morbidities (23%) in India.

Direct health examinations: Biomarkers

The inclusion of biomarkers is an important innovation in the LASI, which is particularly important for India due to the low education levels, and limited awareness and access to healthcare services. Studies have reported lower prevalence rates of self-reported diseases and inadequate disease diagnosis. Biomarker data allow for a more accurate assessment of the chronic disease burden than self-reported health data. In the LASI, the biomarkers, based on direct health examinations, provide the prevalence of chronic health conditions including hypertension, visual impairment, overweight/obesity or under-nutrition and chronic respiratory diseases.

High blood pressure

Blood pressure was measured using an Omron HEM 7121 B.P. monitor, following internationally comparable protocols. In India, the prevalence of high blood pressure is 36% among older persons. The prevalence of undiagnosed hypertension among older persons is higher in rural (23%) than in urban areas (19%). Among older persons who reported that they have been diagnosed with hypertension, 42% are adequately treated for hypertension; however, more than a third of older persons are undertreated for hypertension (36%) and one in ten (10%) older persons remain untreated for hypertension.

Lung function

Age is closely associated with the decline in respiratory health, as the respiratory system undergoes various anatomical, physiological and immunological changes with older age. In the LASI, the lung function test (also called pulmonary function test) was conducted using a handheld device called "Thor" spirometer, which measures the amount of air that the lungs can hold, to check how the lungs function and to screen for diseases that affect the airways, such as COPD. It may be noted that LASI is the first nationwide population-based survey which conducted spirometry in a field setting. The prevalence of restrictive lung disease is 40% among older adults in India.

Visual impairments

In the LASI, for all consenting survey respondents, both near and distance vision was measured for both eyes with the best correction available using the CAPI-based tumbling E log MAR chart. Near vision was measured at 40 centimetres while distance vision was measured at 3 metres. Overall in India, more than a third of older adults (37%) have low vision. The prevalence of low near and low distance vision among older persons is 32% and 15%, respectively. The prevalence of blindness among older persons is 3.8%.

Nutritional status and metabolic risk

Anthropometric measurements were conducted for height, weight, waist and hip circumferences of all LASI participants. In India, more than a quarter (27%) of older adults are underweight and a fifth (22%) of older adults are overweight/obese, indicating the dual burden of undernutrition as well as over-nutrition among older persons. The prevalence of being underweight among older persons is almost threefold (32%) higher in rural areas than in urban areas (12%). In contrast, the prevalence of overweight and obesity is more common among older adults living in urban areas (27% and 12%, respectively), and among women (18% and 8%, respectively).

Mental health: Cognition and depression

Mental health is an integral part of the health and well-being of older persons. Along with physical decline, the decline in cognitive functioning is a hallmark of ageing and a predictor of mortality. Understanding the cognitive ability of older adults in India will be beneficial in the context of population ageing. Depression, an important component of mental health, is also a leading cause of disability, dementia and mortality.

Cognition

In the LASI, participants' cognitive abilities were assessed in five cognitive domains. The range for each domain score of cognition is Memory 0–20, Orientation 0–8, Arithmetic function 0–9, Executive function 0–4 and Object Naming 0–2. A summary composite cognitive score was generated by combining the scores from all five cognitive domains, which range from 0 to 43, with higher scores indicating better cognitive ability. The mean score for each cognitive domain, memory, orientation, arithmetic and executive function and fluid intelligence, decreases with advancing age.

In India, 15% of older persons are in the lowest 10th percentile of the composite cognition score. Gender differences in the cognitive score are more pronounced among older persons; 7% of older men are found in the lowest 10th percentile of composite cognition scores compared with 22% of older women. In India, the cognitive ability scores of older persons are closely related to educational attainment across all ages. The mean composite cognition score decreases with lower levels of education and with advancing age, and this decrease is more pronounced in older persons aged 75 and above. The mean composite cognition score declines from 30.9 for those with ten or more years of schooling to 19.5 for those older adults with no education.

Depression

In the LASI, two internationally validated and comparable tools are used to assess depressive symptoms and episodes: The Centre for Epidemiological Studies Depression (CES-D) scale was used to identify the presence of depressive symptoms and the Composite International Diagnostic Interview-Short Form (CIDI-SF) scale, a structured interview scale, was used for diagnosing probable major depression; 30% of older persons have depressive symptoms, according to LASI.

The prevalence of probable major depression among older persons (8.3%) is ten times higher than the self-reported prevalence of diagnosed depression (0.8%), suggesting a markedly higher burden of undiagnosed depression. The comparison of CES-D and CIDI-SF outcomes suggests that in India, close to a third of older persons have had depressive symptoms, whereas one in every 12 older persons has had probable major depression. Among older persons, the prevalence of probable major depression is higher among women (9%) than men (7%), and those in rural (9%) than those in urban areas (6%), among the widowed (10%) and those living alone (13%).

Functional limitations

Healthy ageing is the process of developing and maintaining the functional ability that enables well-being in older age. Functional health measurement provides valid, reliable and comparable data on the level of functioning and disability. A person's level of functioning is a dynamic interaction between health conditions, environmental factors and personal factors. Functioning includes body function, body structures, activities and participation, whereas disability is an umbrella term for impairments, activity limitations and participation restrictions. Assessing functional health is a key objective of the LASI.

Physical and mental impairments

In India, about 11% of older persons reported having at least one form of impairment (locomotor, mental, visual and hearing impairment). Locomotor (5.9%) is the leading impairment followed by visual (4.1%) and mental impairments (3%). Impairment rates are especially higher among older persons in rural areas, older persons with less than primary education and older persons living alone. The prevalence of visual and hearing impairment is higher among older persons residing in rural areas than in urban areas.

Mobility refers to the physical ability to move, which is necessary for performing day-to-day activities, making use of neighbourhood facilities and

participating in meaningful social, cultural and physical activities. A higher proportion of older adults experienced difficulties in stooping, kneeling or crouching (58%), followed by difficulty in climbing upstairs without resting (57%) and pulling/pushing large objects (53%).

Activities of daily living and instrumental activities of daily living

Activities of Daily Living (ADL) is a term used to refer to normal daily self-care activities, such as movement in bed, changing position from sitting to standing, feeding, bathing, dressing, grooming, personal hygiene, etc. Instrumental Activities of Daily Living (IADL) allow an individual to live independently in a community, and they determine the level of independence and the need for supervision or assistance on a day-to-day basis. Older persons who performed their ADL on their own have a higher level of independence and overall well-being. A quarter (24%) of older persons reported having at least one ADL limitation; 14% had two or more ADL limitations. Close to half (48%) of older persons reported having at least one IADL limitation and more than a third (37%) having two or more IADL limitations. Difficulty in using the toilet facility is the most common ADL limitation faced by older persons, whereas among IADL limitations, getting around in unfamiliar places is the most common difficulty reported by older persons. Overall, a quarter (25%) of older persons needed a helper to perform ADL/IADL (Figure 17.2).

Use of aids or supportive devices

The use of supportive devices provides significant support and benefits for older adults in various ways as described in the previous chapters of this book: safety and prevention (i.e. prevention of falls), mobility and independence, social connectivity and ease of living, preservation of cognitive abilities, delay in depression, decline in functional loss and improved well-being and quality of life; 43% of older persons in India reported having used any aid or supportive device.

More than a third of older persons in India use spectacles/contact lenses. One in ten (10%) older persons use supportive devices for a physical disability such as walkers/walking sticks, wheelchairs, adjustable shower tools/commodes, back/neck collars and any orthosis and prosthesis. Three percent of older persons use dentures and around one percent use hearing devices. The use of spectacles, dentures and hearing aids is higher among the urban older adults, whereas the use of supportive devices for physical disabilities

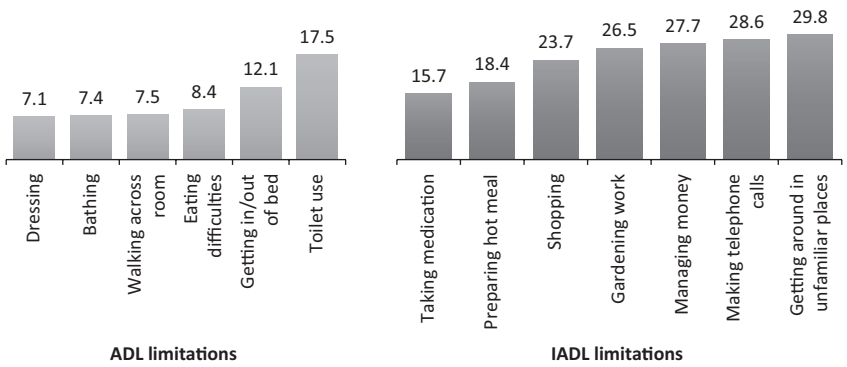

Figure 17.2 Percentage of older adults with types of ADL and IADL limitations [Source: LASI Wave 1, 2017-2018, Executive Summary of India Report (IIPS *et al.*, 2020)]

is higher in the rural older adults, suggesting greater access to aids/assisting devices in urban areas.

Family and social networks

Social support and social networks are connected to a variety of positive health outcomes and measures of well-being. Despite the profound benefits for ageing adults, social networks and social ties have often been neglected in large surveys. Especially in developing countries, social care and support begin with family, the primary social group that individuals relate to on a personal level. Therefore, detailed information on family and social connectedness, living arrangements, intimacy and relationships, and social support provided and received by older adults have been gathered in the LASI.

Living arrangements

The living arrangement is a reflection of an individual's social support system and is also an important determinant of overall life satisfaction and quality of life. In countries such as India, children and families have the primary responsibility of taking care of older adults. In recent decades, there has been a rise in older persons living alone or only with their spouse. The most common type of living arrangement among older persons is living with a spouse and children (41%), followed by living with children without a spouse (28%) and living with a spouse only (20%) (Figure 17.3). However, 6% of older persons are living alone and this is around 9% among older women in India. The

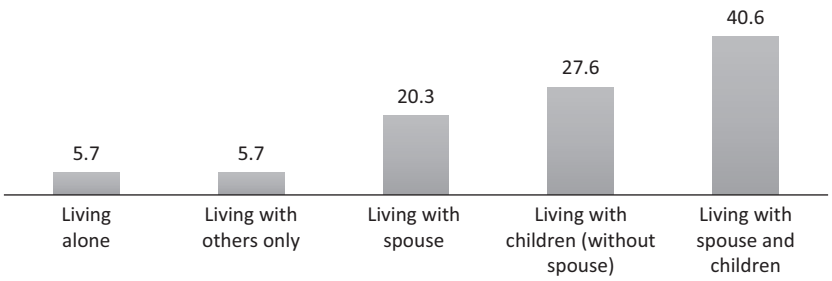

Figure 17.3 Percent distribution of older adults by type of living arrangement in India [Source: LASI Wave 1, 2017–2018, Executive Summary of India Report (IIPS *et al.*, 2020)]

majority of older respondents, irrespective of gender, are satisfied with their current living arrangements and just about 5% expressed their intention to change them in the future.

Instrumental care

A little more than 90% of the respondents have grandchildren and among them, almost one-fifth (18%) provided care to their grandchildren. Rural older women have an average of ten grandchildren and spend, on average, 20 hours per week taking care of them. The average time spent by older persons in providing care to their grandchildren is slightly lower for older men and urban respondents. Irrespective of gender and age variations, the most common reasons cited for looking after grandchildren are the following: grandparents are the preferred caregivers (73%), the child's parents are working (22%), the child is orphaned (9%) and the child's parents are away (5%). Two percent of older persons have family members who are unable to carry out basic daily activities such as eating, dressing, taking a bath and using the toilet. Among them, 64% of older persons reported taking care of these dependent members in their families.

Ill-treatment/abuse experienced by older persons

Older adult abuse and neglect are increasingly acknowledged as social problems across the world, and India is no exception. In LASI, 5% of older persons have reported that they experienced ill-treatment during the last one year. More older women than men experienced ill-treatment. Among those who were victims of ill-treatment, half (53%) experienced it occasionally (i.e. once in two months), a third (33%) experienced it only a few times (i.e.

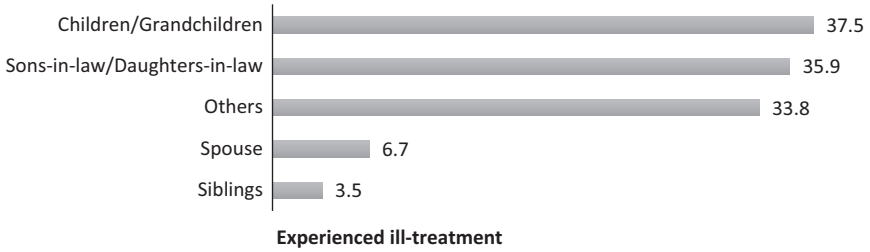

Figure 17.4 Percentage of older adults who experienced ill-treatment by type of perpetrator in India [Source: LASI Wave 1, 2017-2018, Executive Summary of India Report (IIPS *et al.*, 2020)]

at least once in a year) and 14% experienced it frequently (at least once in two weeks).

Among older persons who experienced ill-treatment in the last year, more than three-fourths (77%) experienced verbal/emotional ill-treatment, a fifth (24%) experienced physical abuse, slightly more than one-fourth (27%) experienced economic exploitation and more than half experienced neglect. Older adult abuse or ill-treatment is often perpetrated by those who are supposed to take care of older persons. The LASI confirmed that the main caregivers are often the primary abusers (Figure 17.4). Two-fifths of older persons who experienced abuse were ill-treated by their own sons or daughters (38%), sons-in-law or daughters-in-law (36%), and spouse (7%). These numbers are suspected to be underreported, as abuse at the hands of the person who provides ongoing care often leaves the victim less likely to report such incidents.

Social security schemes for older adults

In the LASI survey, information is collected on the awareness and outreach of various social security programmes targeted at older persons. Among the different social security schemes, the Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS) and the Annapurna scheme are the three most well-known schemes among older persons in India. Many older persons are aware of the IGNOAPS (55%) and IGNWPS (44%), while awareness of the Annapurna scheme is rather limited (12%). These findings indicate the need for better campaigns and awareness-generation strategies aimed at older persons (Figure 17.5).

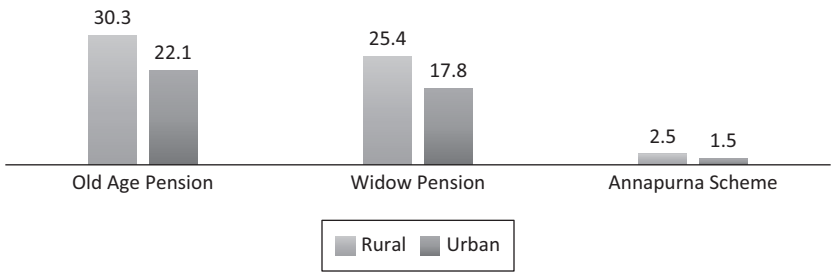

Figure 17.5 Percentage of older adults of BPL households who utilised various schemes by place of residence in India [Source: LASI Wave 1, 2017–2018, Executive Summary of India Report (IIPS *et al.*, 2020)]

About a third of the rural older adults (30%) from BPL households received benefits from IGNOAPS; therefore, there is a need for reaching out to more poor older adults. Among older widows belonging to BPL households, a quarter of them (25%) received widow pension. Older widows can either receive an old age pension or a widow pension, but they cannot be beneficiaries of both schemes simultaneously. The percentages of older persons receiving these benefits are lower in urban areas than in rural areas. Although the schemes are meant for older persons in BPL households who are destitute, 18% of older men belonging to non-BPL households received the benefits of an old age pension, and 16% of older women of non-BPL households received the benefits of the widow pension. 30% of the beneficiaries of the old age pension scheme stated that there was a delay in receiving the money, and 24% experienced problems in producing documents.

Surprisingly, only 12% of older persons in India are aware of the Maintenance and Welfare of Parents and Senior Citizens Act 2007, a major legislation to protect the welfare of older adults. This demonstrates that awareness campaigns in local languages on the provisions of the Act are necessary. Helplines for senior citizens should be used for spreading information about the Act, and Panchayats and NGOs must be involved in creating awareness in the rural areas.

To know more about LASI (India report, fact sheets, data, questionnaires, publications etc.), please visit our website: https://www.iipsindia.ac.in/lasi

This chapter largely draws upon the Longitudinal Ageing Study in India (LASI) Wave 1, 2017-18: India Report-Executive Summary (2020), with which the author is associated. The author is thankful for the support and cooperation of LASI colleagues.

ANNEXURE

This annexure is a compilation of national-level organisations and services, as well as useful government schemes, books, videos and helpline numbers for older persons.

The Vayah Vikas website will also include facilities that are available at the State level: https://vayah-vikas.org/directory

A.1 A selected list of services for older adults

	Theme	Name of the Organisation	Complete Address	Phone	Email	Website
1	Senior Care Services	Portea	69/B, 1st Cross Rd, Domlur I Stage, 1st Stage, Domlur, Bengaluru, Karnataka 560071	1800 121 2323	bookings@portea.com	https://www.portea.com
2	Senior Care Services	Bharath Home Medicare	2nd Floor, Office, Kareem Towers, 15/16, No 4, Cunningham Rd, Shivaji Nagar, Bengaluru, Karnataka 560051	094493 45887	info@bharathhomemedicare.com	https://www.bharathhomemedicare.com/contact-us
3	Senior Care Services	Life Circle	84-85, 4th Cross Rd, Hal, HAL 3rd Stage, Colony New 515, New Thippasandra, Bengaluru, Karnataka 560075	040 7132 6832	admin@lifecircle.in	https://www.lifecircle.in/

	Theme	Name of the Organisation	Complete Address	Phone	Email	Website
4	Senior Care Services	Anvaya	Unit 101, Level 2, Sufiya Elite, #18, Cunningham Rd., Vasanth Nagar, Bengaluru, Karnataka 560052	72888 18181/ 93926 82922	info@ anvayaa. com	https:// www. anvayaa. com/locations/ bangalore/
5	Senior Care Services	ElderAid Wellness Pvt Ltd	S.V. Towers, #99/1, Old No. 45, Parappana Agrahara Kasavanahalli, Hosa Rd, Bengaluru, Karnataka 560100	81234 00400	info@ elderaid. in	https:// www. elderaid. in/
6	Senior Care Services	Nightingales Home Health Services	2989, 1A, 12th Main Rd, HAL 2nd Stage, Indiranagar, Bengaluru, Karnataka 560038	1800 103 4530	feedback@ nightingales. in	https:// www. nightingales.in/
7	Senior Care Services	Apollo Home Care	Apollo Home Healthcare Limited, D. No. 8-2-293/ 82/L, Plot No. 253/A, 2nd & 3rd Floor, Venkateswara Colony, Road No. 12, Banjara Hills, Hyderabad 500034	1800 102 8586	reach@ apollo homecare. com	https:// apollo homecare. com/
8	Senior Care Services	HCAH Home Care Services	Health Care at Home India Pvt. Ltd. D-8, First Floor, Sector 3, Noida, Uttar Pradesh 201301	80719 68739	support@ hcah.in	https:// www. hcah.in/

	Theme	Name of the Organisation	Complete Address	Phone	Email	Website
9	Senior Care Services	Silver Talkies	2144, Sobha Forest View, 100 feet Vajrahalli Road, Thalagattapura, Bangalore 560062	99805 08000	connect@silvertalkies.com	https://silvertalkies.com/
10	Senior Care Services	Care4 Parents	G-46, Block F, Sector 3, Noida, Uttar Pradesh 201301	93114 55775	info@care4parents.in	https://www.care4parents.in/
11	Senior Care Services	Curodoc Healthcare	E-514, First Floor, Guru Nanak Plaza, Sector 7 Near Ramphal Chowk, Dwarka, New Delhi 110075	80103 80380	help@curodoc.com	https://curodoc.com/
12	Senior Care Services	HelpAge India	HelpAge India C-14 Qutab Institutional Area, New Delhi 110016	01141688955/56	headoffice@helpageindia.org	https://www.helpageindia.org/
13	Senior Care Services/ Retirement Homes	Antara Senior Care	Max House 1, Dr. Jha Marg, Okhla, New Delhi 110020	98114 41111	contactus@antaraseniorcare.com	https://www.antaraseniorcare.com/contact-us
14	Retirement Homes	Ashiana Housing	Ashiana Housing Limited, 304, Southern Park, Saket District Centre, Saket, New Delhi 110017	0114265 4265	sales@ashianahousing.com	https://www.ashianahousing.com/
15	Retirement Homes	Columbia Pacific Communities	2999, 12th A Main Road, HAL 2nd Stage, Indiranagar, Bengaluru 560008	88845 55554	support@columbiacommunities.in	https://www.columbiacommunities.in/

A.2 A list of government schemes for older adults

	Theme	Ministry	Name of the Scheme/ Policy	Year of Commencement	Website
1	Health	Ministry of Finance (Life Insurance Corporation)	Senior Citizens Saving Scheme (SCSS)	2004	https://dea.gov.in/sites/default/files/SeniorCSavingSch.pdf
2	Health	Ministry of Social Justice and Empowerment	Maintenance and Welfare of Senior Citizens Act (MWPSC), 2007	2007	https://grants-msje.gov.in/display-napsrc
3	Health	Ministry of Social Justice and Empowerment	Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill	2019	http://164.100.47.4/BillsTexts/LSBillTexts/asintroduced/374_2019_LS_Eng.pdf
4	Law & Policy	Ministry of Social Justice and Empowerment	The National Action Plan for Welfare of Senior Citizens	2020–2021	http://socialjustice.gov.in/writereaddata/UploadFile/NAPSrC.pdf
5	Law & Policy	Ministry of Social Justice and Empowerment	Rashtriya Vayoshri Yojana, 2017	2017	https://www.india.gov.in/spotlight/rashtriya-vayoshri-yojana
6	Law & Policy	Ministry of Finance (Life Insurance Corporation)	Varishtha Pension Bima Yojana	2015	https://pmayojana.in/varishtha-pension-bima-yojana/
7	Health	Ministry of Labour and Employment	Jeevan Pramaan	2015	https://www.jeevanpramaan.gov.in/
8	Law & Policy	Ministry of Culture	Artistes Pension Scheme and Welfare Fund	2014–2015	https://www.india.gov.in/scheme-pension-and-medical-aid-artistes
9	Law & Policy	Ministry of Rural Development	Indira Gandhi National Old Age Pension Scheme	2007	https://nsap.nic.in/guidelines.html

	Theme	Ministry	Name of the Scheme/ Policy	Year of Commencement	Website
10	Law & Policy	Ministry of Finance (Life Insurance Corporation)	Pradhan Mantri Vaya Vandana Yojana	2003	https://financialservices.gov.in/insurance-divisions/Government-Sponsored-Socially-Oriented-Insurance-Schemes/Pradhan-Mantri-Vaya-Vandana-Yojana%28PMVVY%29
11	Law & Policy	Ministry of Rural Development	Annapurna Scheme	2001	https://nsap.nic.in/guidelines.html

A.3 A list of books on planning for the different aspects of ageing

	Theme	Title of the Book	Author Name	Publisher	Year of Publication	Digital Link
1	Retirement	*Retirement Planning*	R. K. Mohapatra	Blue Rose Publishers	2016	https://www.amazon.in/Retirement-Planning-R-K-Mohapatra/dp/819321899X
2	Mental Health	*Mental Health in Ageing Current Perspectives*	Susmita Halder and Akash Kumar Mahato	Prints Publications Pvt Ltd	2022	https://www.flipkart.com/mental-health-ageing-current-perspectives/p/itm040216a331afd

	Theme	Title of the Book	Author Name	Publisher	Year of Publication	Digital Link
3	Yoga	*Yoga for Age 60+: A Guide to a New Journey of Safe Yoga Practice at Home*	Meena Vad	Om Capital Management Inc. D/B/A Austin Ashram	2011	https://amzn.eu/d/fVFyxO5
4	Seniorcare	*Aspirations for the Elderly*	Dr. Alexander Thomas	India Backbone Implementation Network	2018	https://ahpi.in/publication/Aspirations-for-the-Elderly-in-India.pdf
5	Seniorcare	*Insights for Healthy Ageing Volume I & II*	Vijaykumar Harbishettar & P. T. Sivakumar	NIMHANS	2022	https://vmsnimhans.in/books/
6	Seniorcare	*Rethink Ageing*	Reshmi Chakraborthy & Nidhi Chawla	Penguin Books	2022	https://amzn.eu/d/5WGsjsz
7	Seniorcare	*The Senior Citizens Handbook*	Dr. Dhananjay Chavan	Embassy Books	2018	https://amzn.eu/d/5WGsjsz
8	Seniorcare	*Senior Support*	Dr. Indira Jai Prakash	Federation of Senior Citizen Forums of Karnataka	2012	http://pop10.com/in/pdf/ageinginindia.pdf
9	Seniorcare	*360° Guide for Seniors*	CA V. B. Prabhu Verlekar	BlueRose	2022	https://amzn.eu/d/719RRfl
10	Digital Literacy	*Digital Literacy for Senior Citizens*	S. P. Manchanda	Gullybaba Publishing House Pvt Ltd	2021	https://amzn.eu/d/dkuCkr4
11	Rural Elderly	*Rural Elderly and Their Quest for Health*	Abhijeet Jadhav	Authors UpFront	2020	https://amzn.eu/d/eRkksRW
12	Legal Policies	*Elderly Care in India: Societal and State Responses*	S. Irudaya Rajan and Gayathri Balagopal	Springer	2018	https://amzn.eu/d/fNGq34Z
13	Legal Policies	*Elderly in India – Issues and Dimensions*	C. Venkatachalam	Sankalp Publication	2009	https://www.rawatbooks.com/ageing/Dimensions-of-ageing-indian-studies

	Theme	Title of the Book	Author Name	Publisher	Year of Publication	Digital Link
14	Legal Policies	*Senior Citizen of India: Issues and Challenges, First Edition*	Tapan Banerjee	Neha Publishers & Distributors	2002	https://www.flipkart.com/senior-citizen-india-issues-challenges-01/p/itmdyujhmdrftuxm
15	Legal Policies	*The Maintenance and Welfare of Parents and Senior Citizens Act, 2007*	Sonal Jain	Govt Legislative	Edition 2022	https://legislative.gov.in/actsofparliamentfromtheyear/maintenance-and-welfare-parents-and-senior-citizens-act-2007

A.4 A list of videos on planning for the different aspects of ageing

	Theme	Title of the Video	Guest Speaker	Link to Video
1	Laws for Senior Citizens	*Laws for Senior Citizens [Legal Framework for the Protection of Senior Citizens]*	Prof. Suresh Bada Math	https://www.youtube.com/watch?v=F0RCWH9EP-8
2	Rights of Senior Citizens	*5 Key Rights of Senior Citizens in India*	Lead India Law Associates	https://www.youtube.com/watch?v=HQhaEVcSbLU
3	Retirement	*The Four Phases of Retirement*	Dr. Riley Moynes	https://youtu.be/DMHMOQ_054U
4	Health	*Understanding Common Health Problems in Senior Citizens*	Dr. Vijay Arora	https://youtu.be/7x1J6OAJdFg
5	Health	*Can We Improve the Cognitive Health of Our Elderly?*	Banika Ahuja	https://www.youtube.com/watch?v=8UkWM6rKs7U
6	Health	*Fall Prevention in the Elderly*	Dr. Anitha Arockiasamy	https://www.youtube.com/watch?v=vQMjr65Y7-4
7	Health	*Health and Wellness in Advancing Age*	Dr. Devi Shetty	https://www.youtube.com/watch?v=T6C_4ok2BjI

	Theme	Title of the Video	Guest Speaker	Link to Video
8	Finance	*Financial Planning for Senior Citizens*	P. V. Subramanyam	https://www.youtube.com/watch?v=LZkd1J4I3JM
9	Technology	*Senior Citizen Suvidha – Tech Asaan Hai: How to Make Digital Payments via UPI*	ET NOW	https://youtu.be/FTNj40E1Yks
10	Technology	*Social Media for S eniors*	danpatnc	https://youtu.be/8-Bh1VKEqOE

A.5 Helpline numbers for older adults

	National Helplines	Helpline No.	Name of the Organisation
1	National Helpline for Seniors Citizens	14567	Ministry of Social Justice and Empowerment, Government of India
2	Helpline for Disadvantaged Elderly	1800 1801 253	HelpAge India
3	Helpline for Dementia Care	098461 98473 098461 98471 098461 98786	ARDSI (Alzheimer's and Related Disorders Society of India)
4	Vayomanasa Sanjeevani – Geriatric Clinic and Services, Helpline for Mental Health and Neurological Care for Elderly	80691 31500	NIMHANS (National Institute of Mental Health and Neurosciences)
5	NGO for the Welfare of Senior Citizens including Daycare Dementia Centres	1800 2678 780	Dignity Foundation

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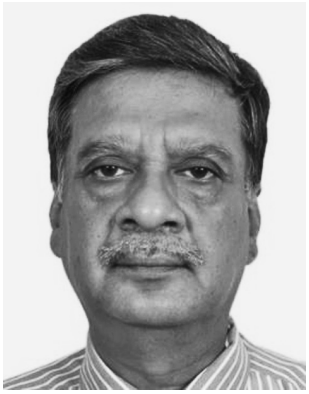

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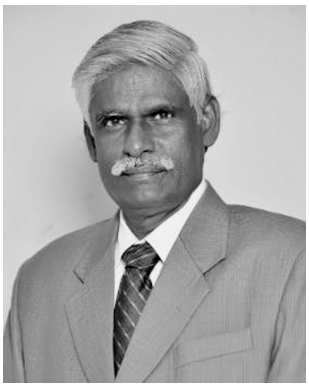

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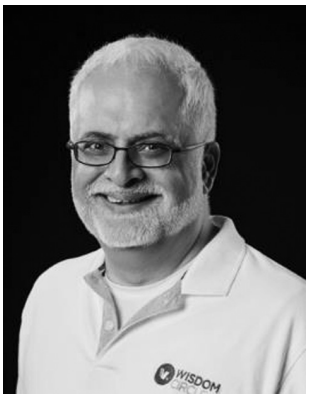

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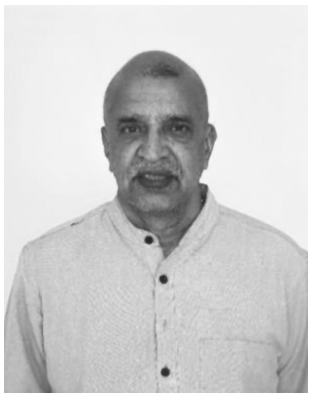

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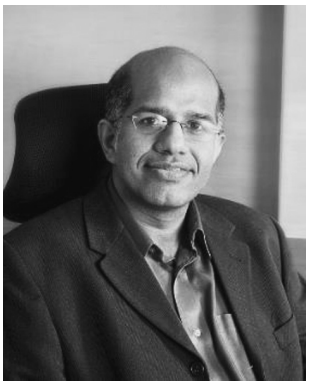

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