Social Determinants of Healthy Ageing

—Evidence-based Approach in the Western Pacific Region—

WHO Western Pacific
Kyoto University
JAGES (Japan Agency for Gerontological Evaluation Study)

Contents

Foreword

Pandemics, frequent natural disasters and conflicts --- crises are occurring unceasingly around the world. The rapid ageing of the world's population is also sometimes referred to as a "silent crisis". The past hundred-plus decades have seen dramatic improvements in the physical health of humanity, and aging is a natural consequence of the improvement and evidence of the success of public health.

Is what lies ahead a crisis or a new opportunity for a better future? Health should be physical, mental, and social wellbeing. Nothing would be more ironic if the attainment of physical health could only be achieved at the expense of mental and social wellbeing. How can we reform our society so that each individual can achieve truly well-balanced health and dignified life in older ages?

This book was compiled to contribute to the promotion of policies toward healthy ageing in each country by presenting theoretical and empirical evidence from around the world on the social determinants of healthy aging and concrete policy options based on this evidence.

Although the situation in each country is extremely diverse in terms of people, national institutions, and environment, the policy options presented are all based on simple, fundamental theories and principles about the social determinants of health, and we sincerely believe that readers can find useful options that can be applied to the readers' country.

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List of Abbreviations

ACEs	Adverse Childhood Experiences
ADL	Activities of Daily Living
CBIC	Community-Based Integrated Care
CCTs	Conditional Cash Transfers
COVID-19	Coronavirus disease 2019
CSDH	Commission on Social Determinants of Health
CSI'D'	Community Screening Interview for Dementia
HIA	Health Impact Assessment
IADL	Instrumental Activities of Daily Living
ICOPE	Integrated Care For Older People
ICT	Internet and Communication Technology
MMSE	Mini-Mental State Examination
NFP	Nurse Family Partnership
NRPS	New Rural Pension Scheme
PCIT	Parent Child Interaction Therapy
RCTs	Randomised Controlled Trials
ROSCAs	Rotating Savings and Credit Associations
SCD-Q9	Subjective Cognitive Decline Questionnaire 9
SDH	Social Determinants of Health
SES	Socioeconomic Status
UCTs	Unconditional Cash Transfers
UHC	Universal Health Coverage
Urban HEART	Urban Health Equity Assessment and Response Tool
WPR	Western Pacific Region

Executive summary

As the global population is ageing rapidly, the environment surrounding the social determinants of health of older adults is also changing. Considering the recent social changes, such as the expansion of Internet and Communication Technology (ICT) use, this report summarises the evidence related to healthy ageing in line with the World Health Organization's (WHO) list of social determinants of health and provides specific practical theories and case studies to achieve healthy ageing society.

Evidence: Social Determinants of Healthy Ageing and Evidence-based Approach by Topic

1) Socioeconomic status (SES):
EVIDENCE: Socioeconomic status, including education, work environment and income/wealth, significantly impacts mental and physical functions in old age. SES is often difficult to improve through individual efforts and even more difficult in old age.
SOLUTION: Establishing systems and services in the community and society with which older people can optimise their SES. Because access to medical services sometimes leads to catastrophic payments, establishing universal health coverage (UHC) and/or reforming existing UHC systems to align current and future population ageing should be achieved. The valuable policy options include cash transfer programmes which can be either conditional or non-conditional. Microfinance is another scheme of protecting financial security.

2) Life Course:
EVIDENCE: Lack of early life education and adverse childhood experiences are negatively associated with healthy ageing in later life.
SOLUTION: Interventions to ensure early educational opportunities and prevent adverse childhood experiences (ACEs) are essential and effective in maintaining functions in old age.

3) Social relationships (Social isolation, Loneliness):
EVIDENCE: Isolation and loneliness were identified as substantial health risks for older people.
SOLUTION: Regarding a solution, individual- and relationship-level interventions,

either face-to-face or digitally, as well as community-level strategies to improve infrastructure and age- friendly communities are expected. For example, the promotion of exchange activities in the community (e.g. Japanese 'place-to-go' projects) that foster rich social relationships among older adults is effective.

4) Community Social Capital:
EVIDENCE: Community social capital affect older adults health regardless of their individual socioeconomic and psychosocial statuses.
SOLUTION: Fostering community social capital by strengthening the trustful partnerships across organizations (community organizing) can bottom up the wellbeing of older adults in the community.

5) Physical (built) environment (In-house environment/Outside built environment):
EVIDENCE: The built environment of the home and community has a strong impact on healthy ageing.
SOLUTION: Policies to ensure safe houses and measures to promote improved heating and insulation are effective. Although further evidence is required, it has been shown that in communities, promoting attractive urban designs that increase walkability and make people want to socialise and go out can improve the lifestyle and raises the health of people, including older adults.

6) ICT access and use:
EVIDENCE: Large inequalities in access to and use of the Internet (digital divide) are evident among older adults.
SOLUTION: The use of new ICT-based communication methods can maintain and improve physical and mental functions, social connections, and health behaviours, even during restrictions to in-person interactions.

7) Discrimination and Stigma:
EVIDENCE: Ageism (including age-based institutional discrimination) is particularly significant in lower-income countries and increases the risk of loneliness and cardiovascular disease. Its effects are more likely to be felt by those who are socially disadvantaged.
SOLUTION: Measures have been taken to reduce legal discrimination (eliminating discriminatory rules), raise awareness (increasing understanding of ageism), and promote mutual understanding by increasing intergenerational exchanges.

Policy Options and Tools based on the three WHO- Commission on Social Determinants of Health (CSDH) recommendations

The WHO Commission on Social Determinants of Health (CSDH) (World Health Organization, 2008) has three recommendations.

1. Improve Daily Living Condition aims to create a comprehensive social environment beyond the health framework. Then communities and societies will be organised and people and organisations will be empowered. Such actions can be achieved by the coordinated efforts based on the concepts of Health in All Policies (HiAP).
POLICY EXAMPLE: Age-friendly cities initiative –design and adapt natural and built environments for residents of all ages and different capacities
USEFUL TOOL: "Checklist of Essential Features of Age-friendly Cities" for a city's self-assessment and a chart for progress.

2. Tackle the Inequitable Distribution of Money, Power, and Resources by establishing a system to strengthen governance from the community to national level-vertical collaboration (interactions among at least two sectors operating at different levels within a city, a government, etc) and horizontal collaboration (intersectoral collaboration in a community).
POLICY EXAMPLE: Achieving UHC, poverty reduction measures (eg.,microfinance, conditional and unconditional cash transfer programmes)
Creating and sustaining intersectoral collaboration in a community (eg., community-based integrated care system, developing inclusive community in Japan)
USEFUL TOOL: Organizational Coordination Checklists (e.g. Japan's Regional Comprehensive Care System is an effective approach).

3. Measure and Understand the Problem and Assess the Impact of Action by utilizing existing tools.
USEFUL TOOL: WHO's Health equity surveillance items encompass social determinants of health as well as the causal pathways leading from daily living conditions to structural drivers of health inequalities. Integrated Care For Older People (ICOPE) covers practical care pathways for addressing priority conditions associated with a decline in capacities. Urban Health Equity Assessment and Response Tool (HEART) make it possible effectively use regional diagnosis data and a health equity

perspective to enable policymakers from different sectors to cooperate in tackling health inequities.

Reference

World Health Organization. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. Geneva: World Health Organization.

Introduction

Following the Industrial Revolution, which began in the 18th century, the development of societies produced a number of extraordinary public health achievements, including sanitation, reproductive health/rights, food and nutrition, and access to health care, in addition to the accumulation of wealth. Humanity enjoyed unprecedented prosperity and simultaneously, for the first time, experienced 'longevity'. There are more than 700 million people aged 65 and older worldwide. Of these, more than 240 million currently reside in the World Health Organisation's Western Pacific region (WPR), and this number is expected to double by 2050. This region is estimated to experience the world's most dramatic rate of ageing in the coming years.

Transformation of all social systems is required to ensure that all population groups, not only older people, can live flourishingly as they age. In particular, the health care system must be transformed. In Japan, which currently has the world's oldest population, systemic reforms have been implemented to address population ageing, including the establishment of long-term care insurance in the 2000s. However, the road has not been an easy one. Furthermore, it has taken more than 20 years of learning and repeated failures to develop the system into a sustainable one.

The Regional Action Plan on Healthy Ageing in Western Pacific (2021), presented as the successor to the *Regional framework for action on ageing and health in the Western Pacific (2014-2019)*, states five important objectives to achieve healthy ageing. It suggests that a lifelong, multisectoral approach is required to prepare for population ageing. It recognises that health at an older age results from a lifetime accumulation of individual and environmental exposures. Various socioeconomic factors from birth to death can induce various ageing trajectories. Therefore, sectors working on all-age groups should work together to ensure that everyone achieves healthy ageing.

In the *Action Plan*, equity was repeatedly mentioned as an important point of view to align health systems to achieve healthy ageing. Therefore, specific measures based on an understanding of the social determinants of health (SDH), the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems that shape the conditions of daily life, are crucial (WHO, 2008). The *Action Plan* introduces major social determinants that affect the health of older adults within the Western Pacific Region

(WPR), and summarises the available and effective interventions to mitigate the impact of the SDH. In response, this report aims to support policy making in line with national realities by focusing on some SDHs that will be particularly important in the countries in the WPR, and by presenting relevant specific policy and intervention options.

Social determinants of healthy ageing include individual socioeconomic and psychosocial factors. In addition, they include further macro-societal contexts, including economic policies and systems, development agendas, social norms, and political systems. From the numerous social determinants, we selected topics that were covered in the report, '*Closing the gap in the generation*', the first ever evidence-based guide to address SDH in the global, national, and regional contexts, published in 2008 (World Health Organization, 2008). In addition, in this report we cover two specific topics for older people in this report. First, access to ICT, an emerging topic that was not covered in the 2008 WHO report. More than a decade later, ICTs have become an important social infrastructure and the COVID-19 pandemic dramatically accelerated their use. We recognise that ICT access has become an important social determinant of healthy ageing, which should provide both the threads and opportunities for health equity (Kondo et al. 2021). Second, ageism. This is because various forms of age-related discrimination are extremely important topics when considering measures to address SDH among older people (World Health Organization, 2020).

Reform takes time. With a comfortable start and strategic and continuous reforms, it is possible to transform this coming major demographic transformation into an opportunity rather than a crisis. When should we start creating healthy ageing societies in the WPR? The answer is now.

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References

CSDH (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization.

Decade of health ageing: baseline report. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO.

Kondo N, Koga.C., Nagamine Y editors. Ota A, Shobugawa Y, Cable N, Tajika A, Nakagomi A, Chishima I, Ide K, Ueno T, Fujihara S, Fujinami Y, Yasufuku Y, and Ando Y. (2021). Understanding the Role of Internet Access on Health and Health Equity toward Healthy Ageing in the Western Pacific Region.

EVIDENCE: Social Determinants of Healthy Ageing and Evidence-based Approach by Topic

Numerous studies revealed that socioeconomic factors were important determinants of healthy ageing. This chapter presents evidence on the association between representative social factors, such as income and employment, and the main outcomes related to healthy ageing: social, cognitive and mental, and physical functions. Education, also a classic SES factor, will be mentioned in the life-course section. These can be referred as evidence for the policy options in Chapter 1. Evidence for interventions will also be presented, if available.

I. Classic SES (Income and Employment)

Socioeconomic status (SES) is a fundamental determinant of health in society (Link and Phelan, 1995). Income, employment, education, and related factors have been repeatedly studied as factors of SES since the beginning of the SDH research in the 1970s. Therefore, these three factors are called 'classic' in the field. Lower SES has been correlated with increased risks of nearly every major cause of premature mortality (Smith et al., 1996). In addition, socioeconomic inequalities in health status are not just a threshold effect of poverty; there is a 'gradient' across the SES level. Fig.I.1 shows the functional limitations by levels of poverty. The message here is clear: the relation between SES level and health is graded, indicating that the odds of having a functional limitation decreased with distance above the poverty line. In other words, the higher class hasve better health than the middle class, who in turn, have better health than the poor. This is referred to as the social gradient in health (Marmot, 2004).

The age category of the greatest health inequalities is mid-adulthood (40–65 years). Furthermore, health inequalities tend to narrow as people enter old age (65 years and older). Universal social pension, an important element of a social protection system, becomes active at this age and improves living standards, which may account toward the narrowing to an extent. However, the gradient does not disappear. In fact, as shown in Fig.I.1, a social class gradient in functional limitations has been found in older

populations (Minkler et al., 2006).

In the following section, we describe two dimensions of SES (income and employment) as potential determinants of health in the Western Pacific Region and propose evidence-based social protection in case of specific shocks of older adults, such as lower income and loss of employment.

Figure I.1 Odds Ratios for Functional Limitation, According to Age Group, Sex, and Poverty Level

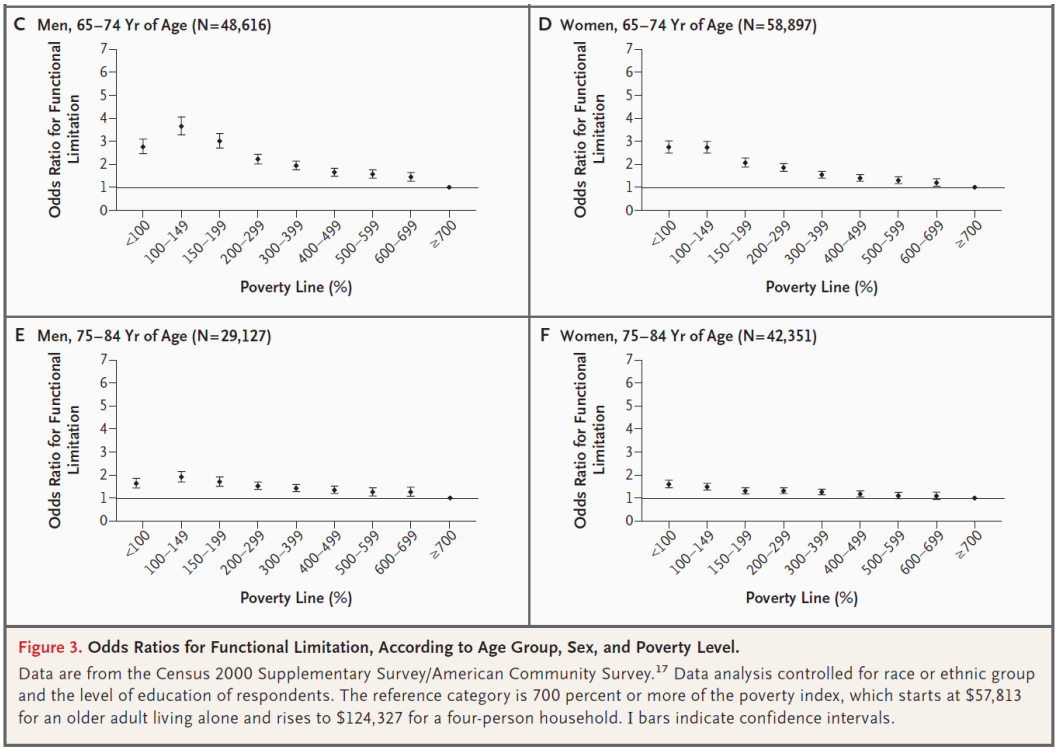
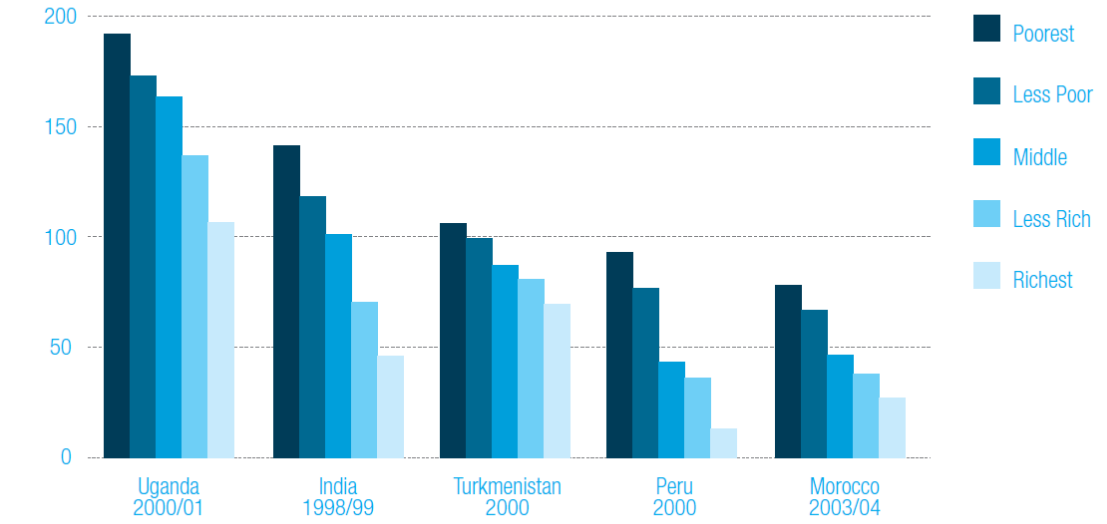


Figure 3. **Odds Ratios for Functional Limitation, According to Age Group, Sex, and Poverty Level.**
Data are from the Census 2000 Supplementary Survey/American Community Survey.[17] Data analysis controlled for race or ethnic group and the level of education of respondents. The reference category is 700 percent or more of the poverty index, which starts at $57,813 for an older adult living alone and rises to $124,327 for a four-person household. I bars indicate confidence intervals.

Source: Minkler et al., 2006

Figure I.2 Under-5 mortality rate per 1000 live births by level of household wealth



Source: Gwatkin et al. (2007), using DHS data.

Source: Gwatkin et al., (2007), using DHS (Department of Health and Social Care) data

Income, employment, and health

Some income-related conditions are associated with older adults' functional ability in countries in the WPR, including income and financial status, such as household income, adequacy of income, and home ownership (Fig. I.2). Evidence indicated that lower income levels were associated with a worse functional ability, assessed using the Activities of Daily Living (ADL) or Instrumental Activities of Daily Living (IADL) (Jatrana & Chan, 2007; Zhong et al., 2017; Yang et al., 2018; Park et al., 2010; Jiang et al., 2021), and worsened cognitive function, assessed using the Mini-Mental State Examination (MMSE) or Subjective Cognitive Decline Questionnaire-9 (SCD-Q9) (Kim, 2017; Kang et al., 2021; Lin et al., 2022; Kim & Cha, 2021).

Employment is considered as a source of financial benefits and opportunities to interact with others and play a role in social activities for older adults. Furthermore, some studies assessed the health effects of employment-related conditions in countries in the WPR. Unemployed older adults had a lower functional ability, assessed by long-term care insurance certification or self-reported difficulties in ADL (Ide et al., 2020; Le et al., 2020), and a lower cognitive function, assessed by the MMSE or Community Screening Interview for Dementia (CSI 'D') (Okamoto et al., 2018; Roystonn et al., 2020). In addition, the transition into retirement leads to poor self-reported physical health status. However, such effects were partially mediated by financial status (Lee and Kim, 2017).

Interventions for income and employment to improve health inequalities

Universal health coverage (UHC) means that everyone receives the health services they require without suffering financial hardship. People living in households with older people were more likely to experience financial hardship related to out-of-pocket healthcare expenditures (World Health Organization and World Bank, 2021). To reduce financial hardship, in addition to UHC, the implementation of health financing measures for older people should be considered. However, UHC is difficult for many countries to achieve due to multiple requirements, such as financial backup and primary health care and life course approaches (World Health Organization and World Bank, 2021).

As possible approaches toward financial protection for older people, we focus on microfinance and cash transfer programmes, which are widely accepted for various age groups globally. These two approaches were focused on since they could be a relatively easy first step for any income group. They aim to reduce poverty by providing money directly to low-income individuals and households. Furthermore, they aim to invest in human capital by providing employment and learning support.

Microfinance

Microfinance is the provision of financial services, such as small unsecured loans, savings, insurance, and remittances, for low-income people excluded from formal financial services.

Microfinance institutions help people increase their access to health care (Geissler et al., 2015) and alleviate the risks of health shocks (Reed et al., 2015) by providing health education and services as well as financial services (Leatherman et al., 2011). Although numerous studies show the effectiveness of microfinance and its impact on poverty, limited studies have focused on its effects on health. A systematic review of 33 articles showed that microfinance improved population health, such as maternal and child health, malaria and other infectious diseases, and domestic violence (Leatherman et al., 2012). However, no evidence has been reported on the health of older people.

Rotating savings and credit associations (ROSCAs)[1] is another form of a mutual

[1] In a ROSCA, members are required to deposit a fixed amount of money in regular meetings. An assigned member takes the aggregate deposit in each meeting. This process continues until all members take the deposit (Kondo and Shirai, 2013).

financial system that builds strong structural social capital (Bouman, 1995). Only few studies have examined the effects of ROSCAs on health in an older population. A cross-sectional study showed that active participation in *mujin* -a traditional Japanese ROSCA- was associated with strengthened social capital and better higher-level functional capacities among older adults (Kondo et al., 2007). Longitudinal studies on the effect of *mujin* on health outcome revealed that older people who intensively and enthusiastically participated in *mujin* were more prone to maintain functional capacity (Kondo et al., 2012). Furthermore, *mujin* helped older people maintain their independence in a higher-level functional capacity (Sato et al., 2019).

Cash transfer programmes

Cash transfer programmes are also social protection programmes to redistribute income to low-income households and provide them with financial assistance in cash. There are two types of cash transfer programmes: conditional (CCTs) and unconditional (UCTs) (Afzal et al., 2019).

Conditional cash transfer programmes (CCTs)

Conditional cash transfer programmes (CCTs) provide cash transfers, usually to mothers, on the condition that they send their children to school and regular health check-ups (Fiszbein et al., 2009: Gaarder et al., 2010). We introduced the idea and evidence of this approach as an intervention to mitigate the effect of SES.

CCTs usually target poor households with infants and school-aged children. Furthermore, abundant studies have reported the impacts of CCTs on their school enrolment and attendance and health check-ups visits (Fiszbein et al., 2009). Although previous research on the effects of CCTs on the health of older people is limited, some studies from Mexico reported a benefit. The Mexican PROGRESA/Oportunidades requires all adults who lived in a household receiving beneficiaries to have one preventative health check-up yearly and at least one family member to attend a regular health education training sessions (Adato et al., 2000). A study showed that the programme led a 4% decline in average, municipality-level mortality rate for people aged 65 and older in a beneficiary household. Furthermore, deaths due to infectious diseases, nutrition, and anaemia and diabetes related fatalities were reduced (Barham and Rowberry, 2013). Another study found that the programme increased health clinic attendance for people aged 50 and older. There were also improved health-related outcomes, such as reduced ill days and days where they could not perform their normal activities over the past four weeks, reduced

proportion of self-reported high blood pressure, and an increased proportion of the ability to carry out vigorous activities in older women (Behrman and Parker, 2013).

Unconditional cash transfer programmes (UCTs)

Unconditional cash transfer programmes (UCTs) provide cash for eligible individuals and households without any requirement. Social pension for older people is a UCT.

A few studies worldwide have investigated the effects of UCTs on health outcomes. Strupat (2021) reported through a literature review that old-age pension could improve the mental health and self-reported health of older adults (Strupat, 2021). A study from China showed that pension enrolment (New Rural Pension Scheme: NRPS) improved older pensioners' IADL as well as psychological well-being and cognitive function. Research on the well-being of older people in Brazil and South Africa suggested that non-contributory pension programmes could improve functioning and capabilities, which included life satisfaction and social participation (Armando, 2004).

References

Adato, M., Coady, D. and Ruel, M., (2000), An operations evaluation of PROGRESA from the perspective of beneficiaries, promotoras, school directors, and health staff, International food policy research institute, Washington, D.C., available at: https://www.ifpri.org/publication/operations-evaluation-progresa-perspective-beneficiaries-promotoras-school-directors-and(accessed 21 June 2022).

Afzal, A., Mirza, N. and Arshad, F., (2019), Conditional vs unconditional cash transfers: a study of poverty demographics in Pakistan, Econ Res Istraz, 32(1):3360–77.

Armando, B., (2004), Cash transfers for older people reduce poverty and inequality, World Development Report Background Papers,1–38, available at: https://openknowledge.worldbank.org/handle/10986/9059(accessed 21 June 2022).

Barham, T. and Rowberry, J., (2013), Living longer: the effect of the Mexican conditional cash transfer program on elderly mortality, J Dev Econ, 105:226–36.

Behrman, J.R.and Parker, S.W., (2013), Is health of the aging improved by conditional cash transfer programs? evidence from Mexico. Demography, 50(4):1363–86.

Bouman, F.J.A., (1995), Rotating and accumulating savings and credit associations: A development perspective. World Dev, 23(3):371–84.

Fiszbein andA. and Schady, N., (2009), "Conditional cash transfers: reducing present and future poverty", A World Bank policy research report,World Bank, Washington, D.C..

Gaarder, M.M., Glassman, A. and Todd, J.E., (2010), Conditional cash transfers and health:unpacking the causal chain, J Dev Eff., 2:6–50.

Geissler, K.H., Leatherman,S., (2015), Providing primary health care through integrated microfinance and health services in Latin America, Soc Sci Med, 132:30–7.

Ide, K., Tsuji, T., Kanamori, S., Jeong, S., Nagamine, Y., Kondo, K., 2020. Social Participation and Functional Decline: A Comparative Study of Rural and Urban Older People, Using Japan Gerontological Evaluation Study Longitudinal Data. Int J Environ Res Public Health, 17, 617. https://doi.org/10.3390/ijerph17020617

Jatrana, S., Chan, A., 2007. Do Socioeconomic Effects on Health Diminish with Age? A Singapore Case Study. J Cross Cult Gerontol, 22, 287–301. https://doi.org/10.1007/s10823-006-9000-8

Jiang, H., Burström, B., Chen, J., Burström, K., 2021. Rural–Urban Inequalities in Poor Self-Rated Health, Self-Reported Functional Disabilities, and Depression among Chinese Older Adults: Evidence from the China Health and Retirement Longitudinal Study 2011 and 2015. Int J Environ Res Public Health, 18, 6557. https://doi.org/10.3390/ijerph18126557

Kang, M., Lee, I., Hong, H., Kim, J., Kang, H., 2021. Predictors of Changes in Cognitive Function in Older Korean Adults: The 2006–2018 Korean Longitudinal Study of Aging. Int J Environ Res Public Health, 18, 6345. https://doi.org/10.3390/ijerph18126345

Kim, G.H., Lee, H.A., Park, H., Lee, D.Y., Jo, I., Choi, S.H., Choi, K.-G., Jeong, J.H., 2017. Effect of Individual and District-level Socioeconomic Disparities on Cognitive Decline in Community-dwelling Elderly in Seoul. J Korean Med Sci, 32, 1508. https://doi.org/10.3346/jkms.2017.32.9.1508

Kim, J., Cha, E., 2021. Predictors of Cognitive Function in Community-Dwelling Older Adults by Age Group: Based on the 2017 National Survey of Older Korean Adults. Int J Environ Res Public Health, 18, 9600. https://doi.org/10.3390/ijerph18189600

Kondo, N. and Shirai, K., (2013), Chapter 10 "Microfinance and health",in Kawachi, I., Takao, S. and Subramanian, S.V., Global perspectives on social capital and health. Springer New York, NY, pp. 239–275.

Kondo, N., Suzuki, K., Minai, J., et al., (2012), Positive and negative effects of finance-based social capital on incident functional disability and mortality: an 8-year prospective study of elderly Japanese, J Epidemiol, 22(6):543–50.

Kondo, N., Minai, J., Imai, H., et al., (2007), Engagement in a cohesive group and higher-level functional capacity in older adults in Japan: a case of the Mujin, Soc Sci Med, 64(11):2311–23.

Le, D.D., Leon-Gonzalez, R., Giang, L.T., 2020. Decomposing gender inequality in functional disability among older people in Vietnam. Arch Gerontol Geriatr, 87, 103989. https://doi.org/10.1016/j.archger.2019.103989

Lee, J., Kim, M.H., 2017. The effect of employment transitions on physical health among the elderly in South Korea: A longitudinal analysis of the Korean Retirement and Income Study. Soc Sci Med, 181, 122–130. https://doi.org/10.1016/j.socscimed.2017.04.002

Leatherman, S., Metcalfe,M., Geissler, K., et al., (2012), Integrating microfinance and health strategies: examining the evidence to inform policy and practice, Health Policy Plan, 27(2):85–101.

Leatherman, S., Dunford, C., Metcalfe, M., et al., (2011), Integrating microfinance and health;benefits, challenges and reflections for moving forward, available at: https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-paper-integrating-microfinance-and-health-benefits-challenges-and-reflections-for-moving-forward-2011.pdf (accessed 21 June 2022).

Lin, L.H., Wang, S.B., Xu, W.Q., Hu, Q., Zhang, P., Ke, Y.F., Huang, J.H., Ding, K.R., Li, X.L., Hou, C.L., Jia, F.J., 2022. Subjective cognitive decline symptoms and its association with socio-demographic characteristics and common chronic diseases in the southern Chinese older adults. BMC Public Health, 22, 127. https://doi.org/10.1186/s12889-022-12522-4

Link, B.G., Phelan, J., 1995. Social conditions as fundamental causes of disease. J Health Soc Behav Spec, No, 80–94.

Marmot, M., 2004. The status syndrome: how your social standing affects your health and life expectancy. London, Bloomsbury.

Minkler, M., Fuller-Thomson, E., Guralnik, J.M., 2006. Gradient of Disability across the Socioeconomic Spectrum in the United States. N Engl J Med, 355, 695–703. https://doi.org/10.1056/NEJMsa044316

Okamoto, S., Okamura, T., Komamura, K., 2018. Employment and health after retirement in Japanese men. Bull World Health Organ 96, 826–833. https://doi.org/10.2471/BLT.18.215764

Park, S.M., Jang, S.N., Kim, D.H., 2010. Gender differences as factors in successful ageing: a focus on socioeconomic status. J Biosoc Sci, 42, 99–111. https://doi.org/10.1017/S0021932009990204

Reed,L.R., (2015), Mapping pathways out of poverty: the state of themicrocredit summit campaign report 2015, available at: https://www.results.org/wp-content/uploads/SOCR2015_English_Web.pdf(accessed 21 June 2022).

Roystonn, K., Abdin, E., Shahwan, S., Zhang, Y., Sambasivam, R., Vaingankar, J.A., Mahendran, R., Chua, H.C., Chong, S.A., Subramaniam, M., 2020. Living arrangements and cognitive abilities of community-dwelling older adults in Singapore. Psychogeriatrics 20, 625–635. https://doi.org/10.1111/psyg.12532

Sato, K., Kondo, N. and Kondo, K., (2019), Rotating savings and credit association, its members' diversity, and higher-level functional capacity: a 3-year prospective study from the

Japan Gerontological Evaluation Study, Geriatr Gerontol Int, 19(12):1268–74.

Smith, G.D., Neaton, J.D., Wentworth, D., Stamler, R., Stamler, J., 1996. Socioeconomic differentials in mortality risk among men screened for the Multiple Risk Factor Intervention Trial: I. White men. Am J Public Health, 86, 486–496. https://doi.org/10.2105/AJPH.86.4.486

Strupat, C., (2021), Effects of social protection on health, Handb Soc Prot Syst, 608–20.

World Health Organization and World Bank, (2021), Tracking universal health coverage. 2021 Global monitoring report, available at:https://openknowledge.worldbank.org/handle/10986/36724(accessed 21 June 2022).

Yang, L., Konttinen, H., Martikainen, P., Silventoinen, K., 2018. Socioeconomic Status and Physical Functioning: A Longitudinal Study of Older Chinese People. J Gerontol B Psychol Sci Soc Sci, 73, 1315–1329. https://doi.org/10.1093/geronb/gbx010

Zhong, Y., Wang, J., Nicholas, S., 2017. Gender, childhood and adult socioeconomic inequalities in functional disability among Chinese older adults. Int J Equity Health, 16, 165. https://doi.org/10.1186/s12939-017-0662-3

II. Life course

Factors that contribute to healthy aging do not emerge only in old age; these are formed during the ageing process. Therefore, a life course concept is crucial, and later life is influenced by various life courses, starting with the surrounding environment when an individual is born and early life education. It is necessary to focus on factors positively or negatively related to healthy aging in older age from a life course perspective and examine the possibility of earlier intervention. This section discusses early life education and adverse childhood experiences (ACEs), which have a particularly strong impact on health outcomes in older age.

Early life education

Numerous studies revealed that those with higher education had a longer life expectancy than those with lower education among various populations (Bijwaard et al., 2015; Chetty et al., 2016). Educational attainment was associated with life expectancy and various healthy ageing related outcomes directly and indirectly, such as risk of cognitive functional decline (Livingston et al., 2020), exercise habits (Liu et al., 2015), smoking habits (Lin and Gebel, 2021), and compliance with chronic disease medications (Nagamine et al., 2022).

Referring to Glymour et al. (Social Epidemiology 2nd ed.), three hypotheses could be considered as mechanisms of the association between educational attainment and healthy ageing related outcomes. First, higher educational attainment was associated with higher income in adulthood. Thus, education was related to changes in physical and cognitive functions via income. Second, education could provide the power to judge what was healthy and what was not. Third, social networks acquired through schooling had a significant impact on later work and life itself, which may be related to healthy ageing through occupation and income.

Although they have not been tracked over a long period of time into old age, approaches that guarantee education no matter the family environment a child is born into have been adopted in several countries. In addition, some results have been reported. The Head Start programme launched by the US government in 1964 is an example. This programme aims to improve learning and social skills and the health status of poor children so that they can start their schooling as more advantaged peers. The

government implemented early childhood education, health support, and other services for poor children aged 3-5 years and their family. In 2012, the US government invested approximately 80 million dollars to expand the programme to support a million children. In a study that examined the 14-year effect of the programme, the participants showed better educational outcomes and self-reported health compared to non-participant siblings (Deming, 2009). Another study showed that participants were 19% less likely to smoke than non-participant siblings (Anderson, 2010).

An accumulation of factors, starting from education or schooling, will affect an individual's health in later life through their life course. Hence, as an intervention, it is necessary to guarantee that children can achieve self-fulfilment with their motivation and ability, regardless of their family environment. The presence or absence of such national interventions can be a determining factor toward children's health and healthy ageing. To provide more specific intervention ideas, the following paragraphs will focus on the impact of childhood adversity experiences, such as a poor family environment, on the child's future.

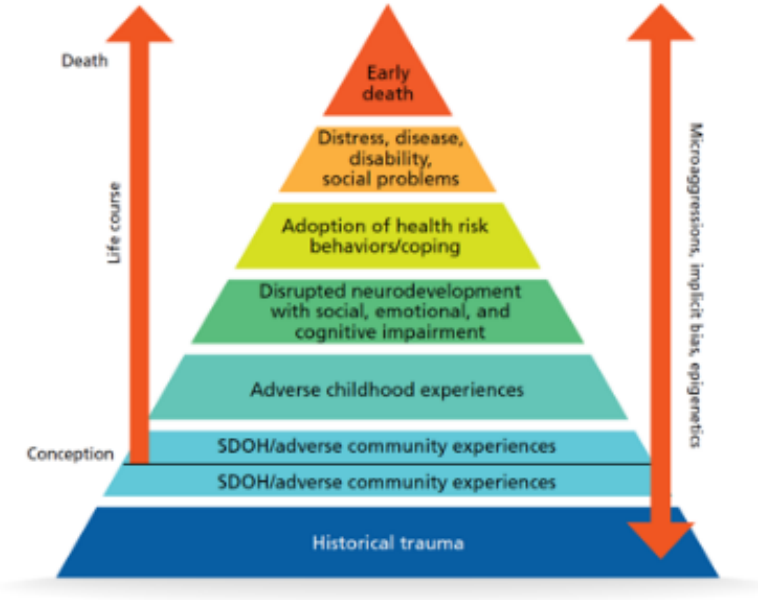
Adverse childhood experiences and outcomes throughout life course

ACEs have been widely recognised for their long-term negative effects on health and wellbeing throughout life course over a few decades. The original landmark CDC-Kaiser ACE study, reported in the 1990s, targeted 13,494 adults who lived in the Southern California (mean age: 56.1 years) and enquired regarding seven types of ACEs and risky behaviours and diseases (Felitti et al., 1998). The results were striking; more than half of the participants had experienced a type of adversity in their childhood. Furthermore, the number of ACEs showed a dose-response relationship to the presence of various risky behaviours and diseases in adulthood, which included suicide attempt, substance abuse, ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease, etc. Although ACEs measurements varied among studies (Bethell et al., 2017), an increasing number of studies revealed the harmful effects of ACEs on numerous outcomes later in life (Hughes et al., 2017), such as dementia (Tani et al., 2020), functional limitation (Amemiya et al., 2018), fewer remaining teeth (Matsuyama et al., 2016), and even additional medical costs (Isumi et al., 2020) among older adults.

ACEs cause chronic and accumulated toxic stress and change neuroendocrine stress responses, the immune system, and brain development (Johnson et al., 2013). In

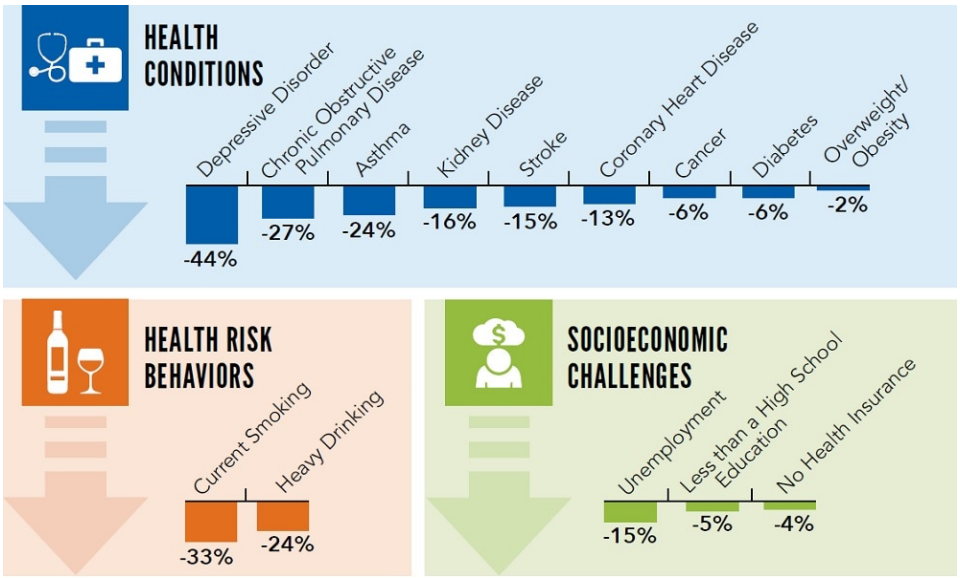
addition, these experiences lead to disrupted development, undertaking of risky behaviours, and development of diseases, disabilities, and even early death (Figure II.1) (Shonkoff and Garner, 2012). If ACEs could be prevented, the potential reduction of negative outcomes in adulthood was estimated to be 1.7%, 23.9%, 27.0%, and 44.1% for overweight or obesity, heavy drinking, chronic obstructive pulmonary disease, and depression in the United States, respectively (Figure II.2) (Merrick et al., 2019). Therefore, the ACEs study highlighted the importance of addressing various stressors that occurred in children's lives and life-course approaches to prevent its negative effects and promote better health outcomes throughout the life span.

Figure II.1. The pathway from ACEs to illness across a life span



Source: Stillerman, 2018

Figure II.2. Potential reduction of negative outcomes in adulthood



Source: Merrick et al., 2019

Approaches to mitigate the negative effects of ACEs

Although even children face adversities, some demonstrate 'resilience', a capacity to show positive, adoptive responses and healthy development. Resilience is built with the presence of supportive caregiving, development of coping skills and self-regulation, and positive experiences (National Scientific Council on the Developing Child., 2015). Since the nature of ACEs is complex and multidimensional, no single preventive programme can target them all at once. Instead, there are several programmes to approach populations identified as high risk of specific or multiple ACEs in the setting of parenting programmes, early childhood interventions, and trauma-informed community-based initiatives.

1) Parenting programmes

Creating a safe, stable, and nurturing parent-child relationship is an essential protective factor to promote child development and enhance resilience. (Centers for Disease Control and Prevention, 2014) An evidence-based parenting programme, *Positive Parenting Program (Triple P),* is delivered in layers to approach universal parents (group-based sessions) to parents with high needs (home-visit sessions) (Sanders et al., 2014). Over 100 studies on Triple P showed favourable social, emotional, and behavioural outcomes in the children and improved parenting practices (Sanders et al., 2014). *Parent Child Interaction Therapy (PCIT)* is a behavioural parent training programme via coaching parent-child interactions during group-based sessions (Hakman et al., 2009). RCTs studies with PCIT found that it decreased child behavioural problems and parenting stress and reduced child abuse recidivism (Thomas et al., 2017; Thomas and Zimmer-Gembeck,

2011). Home visiting programme is another promising intervention to reduce child maltreatment and adversity (Avellar and Supplee, 2013). *Nurse Family Partnership (NFP)* targets low-income first-time mothers and continues home visits by nurses from pregnancy till the child is aged 2 years to improve birth outcome, child development, and parental life-course. Numerus studies, which included RCT with a two-decade follow-up, reported favourable outcomes, such as fewer child death, injuries, and maltreatment, reduced intimate partner violence, fewer youth crimes, and reduced food stamp payment (Miller, 2015; Olds et al., 2014; Olds et al., 2010).

2) Early childhood intervention

Early childhood education programme is another intervention to promote better development in children, which will help them achieve success during their life course. *Perry Preschool Program* provided a high-quality education programme to promote intellectual and social development in African American children from low-income families in the 1960s (Heckman et al., 2010). The benefits of early intervention continued through the mid-50s (Heckman and Karapakula, 2019b; Schweinhart et al., 2005), and spread to the siblings and even the next generation (Figure II.3) (Heckman and Karapakula, 2019a). Early childhood interventions have been implemented and confirmed similar better outcomes in developing countries, such as Jamaica. A two-year home-based intervention was implemented to provide nutritional supplements and psycho-social stimulation among children with stunted growth, and both had independent and additive effects on their mental development (Grantham-McGregor et al., 1991). In addition, participants showed increased earnings by 25% after 20 years (Gertler et al., 2014).

Figure II.3. Long term and intergenerational effects of the Perry Preschool Program

Source: Heckman and Karapakula, 2019a

3) Trauma-informed community-based initiatives

Resilience can be promoted at the individual level as well as community levels through *trauma-informed practices* (Tebes et al., 2019). The '*Trauma-informed*' approach is represented in 4Rs: 1) *realise* the impact of the trauma, 2) *recognise* the signs and symptoms of a trauma, 3) *respond* with comprehensive and integrated practices, and 4) minimise *re-traumatisation* (Huang et al., 2014). Community-based trauma-informed practices have emerged to provide training in a trauma-informed approach among community stakeholders to foster collaboration and networks across services and sectors, which will be a 'social scaffolding' for children and families (Ellis and Dietz, 2017; Hargreaves et al., 2017; Matlin et al., 2019). Some positive changes have been reported through building awareness of ACEs, such as increasing family support, reducing of risky behaviours of youth, a positive school climate, and student success and community development (Verbitsky-Savitz et al., 2016). Enhancing community capacity to provide a seamless continuum of trauma-informed practices is beneficial to support children and families to promote their wellbeing in later life.

References

Amemiya, A., Fujiwara, T., Murayama, H., Tani, Y., & Kondo, K. (2018). Adverse Childhood Experiences and Higher-Level Functional Limitations Among Older Japanese People: Results From the JAGES Study. *J Gerontol A Biol Sci Med Sci,* 73, 261-266.

Avellar, S.A., & Supplee, L.H. (2013). Effectiveness of home visiting in improving child health and reducing child maltreatment. *Pediatrics,* 132 Suppl 2, S90-99.

Barbosa Neves, B., Franz, R., Judges, R., Beermann, C., & Baecker, R. (2019). Can Digital Technology Enhance Social Connectedness Among Older Adults? A Feasibility Study. *J Appl Gerontol,* 38, 49-72.

Benda, N.C., Veinot, T.C., Sieck, C.J., & Ancker, J.S. (2020). Broadband Internet Access Is a Social Determinant of Health! *Am J Public Health,* 110, 1123-1125.

Berner, J., Comijs, H., Elmståhl, S., Welmer, A., Berglund, J., Anderberg, P., et al. (2019). Maintaining cognitive function with internet use: a two-country, six-year longitudinal study. *International Psychogeriatrics,* 31, 929-936.

Bethell, C.D., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., et al. (2017). Methods to Assess Adverse Childhood Experiences of Children and Families: Toward Approaches to Promote Child Well-being in Policy and Practice. *Acad Pediatr,* 17, S51-s69.

Bijwaard, G.E., van Poppel, F., Ekamper, P., & Lumey, L.H. (2015). Gains in Life Expectancy Associated with Higher Education in Men. *PLoS One,* 10, e0141200.

Centers for Disease Control and Prevention. (2014). Essentials for Childhood: Steps to create safe,

stable, nurturing relationships and environments for all children.

Chetty, R., Stepner, M., Abraham, S., Lin, S., Scuderi, B., Turner, N., et al. (2016). The Association Between Income and Life Expectancy in the United States, 2001-2014. *Jama,* 315, 1750-1766.

Early, J., & Hernandez, A. (2021). Digital Disenfranchisement and COVID-19: Broadband Internet Access as a Social Determinant of Health. *Health Promot Pract,* 15248399211014490.

Ellis, W.R., & Dietz, W.H. (2017). A New Framework for Addressing Adverse Childhood and Community Experiences: The Building Community Resilience Model. *Academic Pediatrics,* 17, S86-S93.

Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med,* 14, 245-258.

Gertler, P., Heckman, J., Pinto, R., Zanolini, A., Vermeersch, C., Walker, S., et al. (2014). Labor market returns to an early childhood stimulation intervention in Jamaica. *Science,* 344, 998-1001.

Grantham-McGregor, S.M., Powell, C.A., Walker, S.P., & Himes, J.H. (1991). Nutritional supplementation, psychosocial stimulation, and mental development of stunted children: the Jamaican Study. *Lancet,* 338, 1-5.

Haga, K. (2015). Innovation and entrepreneurship in aging societies: theorical reflection and a case study from kamikatsu, Japan. *Journal of Innovation Economics & Management,* 18, 119-141.

Hakman, M., Chaffin, M., Funderburk, B., & Silovsky, J.F. (2009). Change trajectories for parent-child interaction sequences during parent-child interaction therapy for child physical abuse. *Child Abuse Negl,* 33, 461-470.

Hargreaves, M.B., Pecora, P.J., & Williamson, G. (2017). Aligning Community Capacity, Networks, and Solutions to Address Adverse Childhood Experiences and Increase Resilience. *Acad Pediatr,* 17, S7-s8.

Hashimoto, K. (2012). Agri-business for elderly people through the Internet. The example of the Irodori leaf business. *Netcom. Réseaux, communication et territoires,* 26, 235-250.

Heckman, J.J., & Karapakula, G. (2019a). Intergenerational and intragenerational externalities of the Perry Preschool Project. National Bureau of Economic Research.

Heckman, J.J., & Karapakula, G. (2019b). The Perry Preschoolers at late midlife: A study in design-specific inference. National Bureau of Economic Research.

Heckman, J.J., Moon, S.H., Pinto, R., Savelyev, P.A., & Yavitz, A. (2010). The Rate of Return to

the High/Scope Perry Preschool Program. *J Public Econ,* 94, 114-128.

Heo, J., Chun, S., Lee, S., Lee, K.H., & Kim, J. (2015). Internet use and well-being in older adults. *Cyberpsychol Behav Soc Netw,* 18, 268-272.

Huang, L.N., Flatow, R., Biggs, T., Afayee, S., Smith, K., Clark, T., et al. (2014). SAMHSA's Concept of Truama and Guidance for a Trauma-Informed Approach.

Hughes, K., Bellis, M.A., Hardcastle, K.A., Sethi, D., Butchart, A., Mikton, C., et al. (2017). The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health,* 2, e356-e366.

Ihle, A., Bavelier, D., Maurer, J., Oris, M., & Kliegel, M. (2020). Internet use in old age predicts smaller cognitive decline only in men. *Sci Rep,* 10, 8969.

Isumi, A., Fujiwara, T., Kato, H., Tsuji, T., Takagi, D., Kondo, N., et al. (2020). Assessment of Additional Medical Costs Among Older Adults in Japan With a History of Childhood Maltreatment. *JAMA Netw Open,* 3, e1918681.

Johnson, S.B., Riley, A.W., Granger, D.A., & Riis, J. (2013). The science of early life toxic stress for pediatric practice and advocacy. *Pediatrics,* 131, 319-327.

Kamin, S.T., & Lang, F.R. (2020). Internet Use and Cognitive Functioning in Late Adulthood: Longitudinal Findings from the Survey of Health, Ageing and Retirement in Europe (SHARE). *J Gerontol B Psychol Sci Soc Sci,* 75, 534-539.

Lam, S.S.M., Jivraj, S., & Scholes, S. (2020). Exploring the Relationship Between Internet Use and Mental Health Among Older Adults in England: Longitudinal Observational Study. *J Med Internet Res,* 22, e15683.

Liapis, J., & Harding, K.E. (2017). Meaningful use of computers has a potential therapeutic and preventative role in dementia care: A systematic review. *Australas J Ageing,* 36, 299-307.

Lifshitz, R., Nimrod, G., & Bachner, Y.G. (2018). Internet use and well-being in later life: a functional approach. *Aging Ment Health,* 22, 85-91.

Lin, W.H., & Gebel, M. (2021). Education tracking and adolescent smoking: a counterfactual and prospective cohort study. *Addiction,* 116, 1871-1881.

Liu, Y.B., Liu, L., Li, Y.F., & Chen, Y.L. (2015). Relationship between Health Literacy, Health-Related Behaviors and Health Status: A Survey of Elderly Chinese. *Int J Environ Res Public Health,* 12, 9714-9725.

Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., et al. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *Lancet,* 396, 413-446.

Lu, H., & Kandilov, I.T. (2021). Does Mobile Internet Use Affect the Subjective Well-being of Older Chinese Adults? An Instrumental Variable Quantile Analysis. *Journal of Happiness Studies,* 22, 3137-3156.

Matlin, S.L., Champine, R.B., Strambler, M.J., O'Brien, C., Hoffman, E., Whitson, M., et al. (2019). A Community's Response to Adverse Childhood Experiences: Building a Resilient, Trauma-Informed Community. *Am J Community Psychol,* 64, 451-466.

Matsuyama, Y., Fujiwara, T., Aida, J., Watt, R.G., Kondo, N., Yamamoto, T., et al. (2016). Experience of childhood abuse and later number of remaining teeth in older Japanese: a life-course study from Japan Gerontological Evaluation Study project. *Community Dent Oral Epidemiol,* 44, 531-539.

Measuring digital development Facts and Figures 2021. International Telecommunication Union Development Sector.

Mellor, D., Firth, L., & Moore, K. (2008). Can the Internet Improve the Well-being of the Elderly? *Ageing International,* 32, 25-42.

Merrick, M.T., Ford, D.C., Ports, K.A., Guinn, A.S., Chen, J., Klevens, J., et al. (2019). Vital Signs: Estimated Proportion of Adult Health Problems Attributable to Adverse Childhood Experiences and Implications for Prevention - 25 States, 2015-2017. *MMWR Morb Mortal Wkly Rep,* 68, 999-1005.

Miller, T.R. (2015). Projected Outcomes of Nurse-Family Partnership Home Visitation During 1996-2013, USA. *Prev Sci,* 16, 765-777.

Ministry, M.o.I.A.a.C. (2021). the Communications Usage Trend Survey (p. https://www.soumu.go.jp/johotsusintokei/statistics/statistics05b01.html). https://www.soumu.go.jp/johotsusintokei/statistics/statistics05b1.html.

Nakagomi, A., Shiba, K., Kawachi, I., Ide, K., Nagamine, Y., Kondo, N., et al. (2022). Internet use and subsequent health and well-being in older adults: An outcome-wide analysis. *Computers in Human Behavior,* 130, 107156.

Nakagomi, A., Shiba, K., Kondo, K., & Kawachi, I. (2020). Can Online Communication Prevent Depression Among Older People? A Longitudinal Analysis. *J Appl Gerontol,* 733464820982147.

Nagamine, Y., Shobugawa, Y., Sasaki, Y., Takagi, D., Fujiwara, t., dt al. (2022). Associations between socioeconomic status and adherence to hypertension treatment among older adults in urban and rural areas in Myanmar: a cross-sectional study using baseline data from JAGES in Myanmar prospective cohort study. *BMJ Open*, doi: http://dx.doi.org/10.1136/bmjopen-2022-065370

National Scientific Council on the Developing Child. (2015). Supportive Relationships and Active Skill-Building Strengthen the Foundations of Resilience: Working Paper 13.

Olds, D.L., Kitzman, H., Knudtson, M.D., Anson, E., Smith, J.A., & Cole, R. (2014). Effect of home visiting by nurses on maternal and child mortality: results of a 2-decade follow-up of a randomized clinical trial. *JAMA Pediatr,* 168, 800-806.

Olds, D.L., Kitzman, H.J., Cole, R.E., Hanks, C.A., Arcoleo, K.J., Anson, E.A., et al. (2010). Enduring effects of prenatal and infancy home visiting by nurses on maternal life course and government spending: follow-up of a randomized trial among children at age 12 years. *Archives of Pediatrics & Adolescent Medicine,* 164, 419-424.

Quintana, D., Cervantes, A., Sáez, Y., & Isasi, P. (2018). Internet Use and Psychological Well-Being at Advanced Age: Evidence from the English Longitudinal Study of Aging. *International journal of environmental research and public health,* 15, 480.

Sanders, M.R., Kirby, J.N., Tellegen, C.L., & Day, J.J. (2014). The Triple P-Positive Parenting Program: a systematic review and meta-analysis of a multi-level system of parenting support. *Clin Psychol Rev,* 34, 337-357.

Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). Lifetime effects: The High/Scope Perry Preschool Study through age 40.

Shapira, N., Barak, A., & Gal, I. (2007). Promoting older adults' well-being through Internet training and use. *Aging & Mental Health,* 11, 477-484.

Shonkoff, J.P., & Garner, A.S. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics,* 129, e232-246.

Stillerman, A. (2018). Childhood adversity and lifelong health: From research to action. *J Fam Pract,* 67, 690-699.

Szabo, A., Allen, J., Stephens, C., & Alpass, F. (2019). Longitudinal Analysis of the Relationship Between Purposes of Internet Use and Well-being Among Older Adults. *Gerontologist,* 59, 58-68.

Tani, Y., Fujiwara, T., & Kondo, K. (2020). Association Between Adverse Childhood Experiences and Dementia in Older Japanese Adults. *JAMA Network Open,* 3, e1920740-e1920740.

Tebes, J.K., Champine, R.B., Matlin, S.L., & Strambler, M.J. (2019). Population Health and Trauma-Informed Practice: Implications for Programs, Systems, and Policies. *American journal of community psychology,* 64, 494-508.

Thomas, R., Abell, B., Webb, H.J., Avdagic, E., & Zimmer-Gembeck, M.J. (2017). Parent-Child Interaction Therapy: A Meta-analysis. *Pediatrics,* 140.

Thomas, R., & Zimmer-Gembeck, M.J. (2011). Accumulating evidence for parent-child interaction therapy in the prevention of child maltreatment. *Child Dev,* 82, 177-192.

Verbitsky-Savitz, N., Hargreaves, M., Penoyer, S., Morales, N., Coffee-Borden, B., & Whitesell, E. (2016). Preventing and Mitigating the Effects of ACEs by Building Community Capacity and Resilience: APPI Cross-Site Evaluation Findings (Final Report). Washington, DC: Mathematica Policy Research.

Winstead, V., Anderson, W.A., Yost, E.A., Cotten, S.R., Warr, A., & Berkowsky, R.W. (2013). You Can Teach an Old Dog New Tricks:A Qualitative Analysis of How Residents of Senior

Living Communities May Use the Web to Overcome Spatial and Social Barriers. *Journal of Applied Gerontology,* 32, 540-560.

III. Social relationships (Social isolation and Loneliness)

Social relationships were already mentioned as important social determinants of health in the 2008 WHO report. Recently, increasing research has focused on the association between isolation/loneliness and health. Responses to the defects of social relationships have become increasingly important, and some countries have even established ministers to combat isolation and loneliness. Several studies have investigated the relationship between isolation/loneliness and healthy ageing related outcomes. In this section, we present the relationship between individual-level social relationships and healthy ageing outcomes, and evidence for interventions.

Definitions of social isolation and loneliness

Social isolation is defined as 'the objective absence or paucity of contacts and interactions between a person and a social network' (Gardner et al., 1999) or 'an objective lack of meaningful and sustained communication' (Poscia et al., 2018). Briefly, it refers to a state of a lack of objective contact or communication. In contrast, loneliness is described as 'a subjective feeling state of being alone, separated or apart from others, and has been conceptualised as an imbalance between desired social contacts and actual social contacts' (Weiss, 1973; Ernst and Cacioppo, 1999).

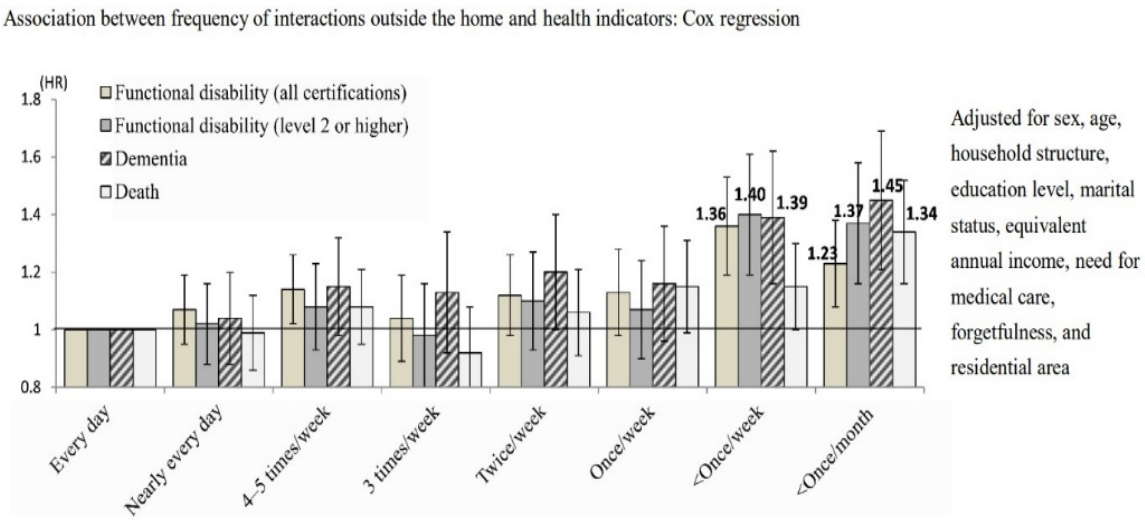
Current social isolation and loneliness among older adults

In the United Kingdom, the government is actively working to tackle social isolation and loneliness, including the appointment of a Minister for Loneliness. Hence, social isolation among older adults has remained low. By comparison, in Japan, the leading country in Asia as well as the world in longevity, older adults' social isolation scores are higher than in the United Kingdom. Moreover, the difference is even wider (Tsuji et al., 2020). Reports of the prevalence of loneliness are consistently lower in northern European countries, although age differences are not well established (Surkalim et al., 2022). The COVID-19 pandemic exacerbated the problem of social isolation and loneliness among older adults. According to a report that tracked 583 people aged 60 years or older from primary care clinics in Hong Kong, 8.8% reported severe loneliness before the pandemic (April 2018 to March 2019). Meanwhile, 27.7% reported loneliness during the pandemic (March to April 2020) (Wong et al., 2020).

Negative consequences of social isolation and loneliness on health

Individuals with adequate social relationships have a 50% greater likelihood of survival compared to those with poor or insufficient social relationships. The magnitude of this effect is comparable with that of quitting smoking (Holt-Lunstad et al., 2010). An overview from 40 systematic reviews, largely from developed countries, highlighted that there was consistent evidence that linked social isolation and loneliness to worsened cardiovascular and mental health outcomes (Leigh-Hunt, 2017). How often should older adults interact with others? The answer is 'at least once a week', since the risk of functional decline and dementia increases when interactions are less than once a week (Figure III.1) (Saito et al., 2015). In contrast, loneliness, rather than social isolation, has been consistently associated with a higher risk for frailty among older adults (Mehrabi and Béland, 2020). Therefore, both social isolation and loneliness need to be addressed.

Figure III.1: Association between frequency of interactions outside the home and health indicators



Source: Saito et al., 2015

Approaches to reducing social isolation and loneliness

The principal approach toward healthy ageing is to improve the living environment. From a primary healthcare perspective, the ultimate goal is to create a community and social environment resistant to isolation and loneliness. Interventions based on a population approach are covered in the next section on the association between community level relationships and healthy ageing related outcomes. In contrast, there are several high-risk approaches to secondary prevention for those already in isolation and loneliness, as described below.

Several systematic reviews have summarised specific examples of interventions that address social isolation and loneliness in older adults and their effects (Fakoya et al., 2020; Gardiner et al., 2018; Poscia et al. 2018). Although there is no established method to assess social isolation, the Lubben Social Network scale has been frequently used. To assess loneliness, the UCLA and De Jong Gierveld Loneliness scales have been used. For intervention programmes, the following categories can be identified (Gardiner et al., 2018).

- Social facilitation interventions: the most prominent category that described interventions with the primary purpose of facilitating social interaction with peers or others who may be lonely.
- Psychological therapies: therapeutic approaches delivered by trained therapists or health professionals.
- Health and social care provision: interventions to support older adults that involve health, allied health, and/or social care professionals.
- Animal interventions: canine or feline animal interventions that focused mainly on animal-assisted therapy.
- Befriending interventions: a form of social facilitation aimed to formulate new friendships.
- Leisure/skill development interventions: activities were varied and included gardening programmes, computer/internet use, voluntary work, holidays, and sports.

Strategies with a comparatively higher potential for success might be a community development approach, where service users are involved in the design and implementation of the interventions and programme or activities that support productive engagement (Gardiner et al., 2018). However, the effectiveness of the programmes has not been consistent. In addition, no conclusions were made regarding which was expected to have reliable effects. Furthermore, we began to realise the benefits of online social interaction after the COVID-19 pandemic. In the future, it will be important to take advantage of ICT access. More information on ICT access and usage is provided in the 'ICT access/usage' section.

References

Ernst, JM, Cacioppo JT. Lonely hearts: psychological perspectives on loneliness. Appl Prev Psychol. 1999;8(1):1–22. doi: 10.1016/S0962-1849(99)80008-0.

Fakoya OA, McCorry NK, Donnelly M. Loneliness and social isolation interventions for older adults: a scoping review of reviews. BMC Public Health. 2020 Feb 14;20(1):129. doi: 10.1186/s12889-020-8251-6. PMID: 32054474; PMCID: PMC7020371.

Gardiner C, Geldenhuys G, Gott M. Interventions to reduce social isolation and loneliness among older people: an integrative review. Health Soc Care Community. 2018 Mar;26(2):147-157. doi: 10.1111/hsc.12367. Epub 2016 Jul 13. PMID: 27413007.

Gardner I, Brooke E, Ozanne E, et al. Improving social networks, a research report: Improving health and social isolation in the Australian veteran community. Lincoln Gerontology Centre, La Trobe University, Melbourne. 1999.

Holt-Lunstad J, Smith TB, Layton JB. Social relationships and mortality risk: a meta-analytic review. PLoS Med. 2010 Jul 27;7(7):e1000316. doi: 10.1371/journal.pmed.1000316. PMID: 20668659; PMCID: PMC2910600.

Leigh-Hunt N, Bagguley D, Bash K, Turner V, Turnbull S, Valtorta N, Caan W. An overview of systematic reviews on the public health consequences of social isolation and loneliness. Public Health. 2017 Nov;152:157-171. doi: 10.1016/j.puhe.2017.07.035. Epub 2017 Sep 12. PMID: 28915435.

Mehrabi F, Béland F. Effects of social isolation, loneliness and frailty on health outcomes and their possible mediators and moderators in community-dwelling older adults: A scoping review. Arch Gerontol Geriatr. 2020 Sep-Oct;90:104119. doi: 10.1016/j.archger.2020.104119. Epub 2020 Jun 6. PMID: 32562956.

Poscia A, Stojanovic J, La Milia DI, et al. Interventions targeting loneliness and social isolation among the older people: An update systematic review. Exp Gerontol. 2018 Feb;102:133–44. doi: 10.1016/j.exger.2017.11.017. PMID: 29199121.

Saito M, Kondo K, Ojima T, Hirai H; JAGES group. [Criteria for social isolation based on associations with health indicators among older people. A 10-year follow-up of the Aichi Gerontological Evaluation Study]. Nihon Koshu Eisei Zasshi. 2015;62(3):95-105. Japanese. doi: 10.11236/jph.62.3_95. PMID: 26073925.

Tsuji T, Saito M, Ikeda T, Aida J, Cable N, Koyama S, Noguchi T, Osaka K, Kondo K. Change in the prevalence of social isolation among the older population from 2010 to 2016: A repeated cross-sectional comparative study of Japan and England. Arch Gerontol Geriatr. 2020 Aug 22;91:104237. doi: 10.1016/j.archger.2020.104237. Epub ahead of print. PMID: 32861955.

Weiss RS. Loneliness: The Experience of Emotional and Social Isolation. Cambridge, MA: MIT Press; 1973.

Wong SYS, Zhang D, Sit RWS, Yip BHK, Chung RY, Wong CKM, Chan DCC, Sun W, Kwok KO, Mercer SW. Impact of COVID-19 on loneliness, mental health, and health service utilisation: a prospective cohort study of older adults with multimorbidity in primary care. Br J Gen Pract.

2020 Oct 29;70(700):e817-e824. doi: 10.3399/bjgp20X713021. PMID: 32988955; PMCID: PMC7523921.

IV. Community Social Capital

This section discusses the association between community social capital, the resource aspects of social relationships in the community and their roles in maintaining older adults' health.

Community social capital and health

An association has been reported between community social capital, such as the levels of social participation, reciprocity and mutual trust in the community, and individual health outcomes of older adults. Previous studies in Japan, China, and Korea showed that older adults who lived in communities with rich social capital had a lower incidence of IADL decline (Fujihara et al., 2019) and frailty (Noguchi et al., 2022) and higher levels of cognitive function (Luo et al., 2019) and well-being (Park and Lee, 2017; Yu et al., 2019; Zhang et al., 2020). Furthermore, areas with a higher percentage of participation in volunteer associations, which were expected to be a way of social participation in an aging society, also had a lower incidence of depression, a risk factor for functional decline and dementia (Tamura et al., 2021). Possible mechanisms, (Berkman and Kawachi, 2014) as those who live in communities rich in social capital are healthier, are as follows.

(1) Social contagion: Action and consciousness is propagated by the network of people. Previous studies reported that obesity (Christakis and Fowler, 2007) and well-being (Fowler and Christakis, 2008) were transmitted through peers.

(2) Informal social control: in communities rich in social capital, norms are observed, and security is maintained.

(3) Collective efficacy: It shows how united a community can be to take collective action. Increasing the community-level social capital could lead to better health among older adults.

Intervention example 1: Approach to improve social capital: Adopting intergenerational exchange to leverage senior citizen volunteers

Intergenerational interaction is suggested an effective way to foster social capital in the community. A community intervention study, named the Experience Corps, was conducted in state of Maryland, United States, in which retired community-dwelling older adults served as teacher assistants in a public elementary school (Glass et al., 2004). The programme attempted to foster connections between the older adults and elementary school students, teachers, and volunteer staff. The standard interventions were as follows. After two weeks of basic training, volunteer staff engaged with students for at least 15 hours per week, usually 3-4 times per week, at the elementary school to build rapport. The programme's main content at the school was literacy support, which was provided to one child or a small group selected by the teacher. Volunteers who implemented these programmes reported significant short-term improvements in children's academic performance in reading tests compared to the control group (Rebok et al., 2004) and better physical activity levels and social activity among participating older adults compared to the control group (Fried et al., 2004).

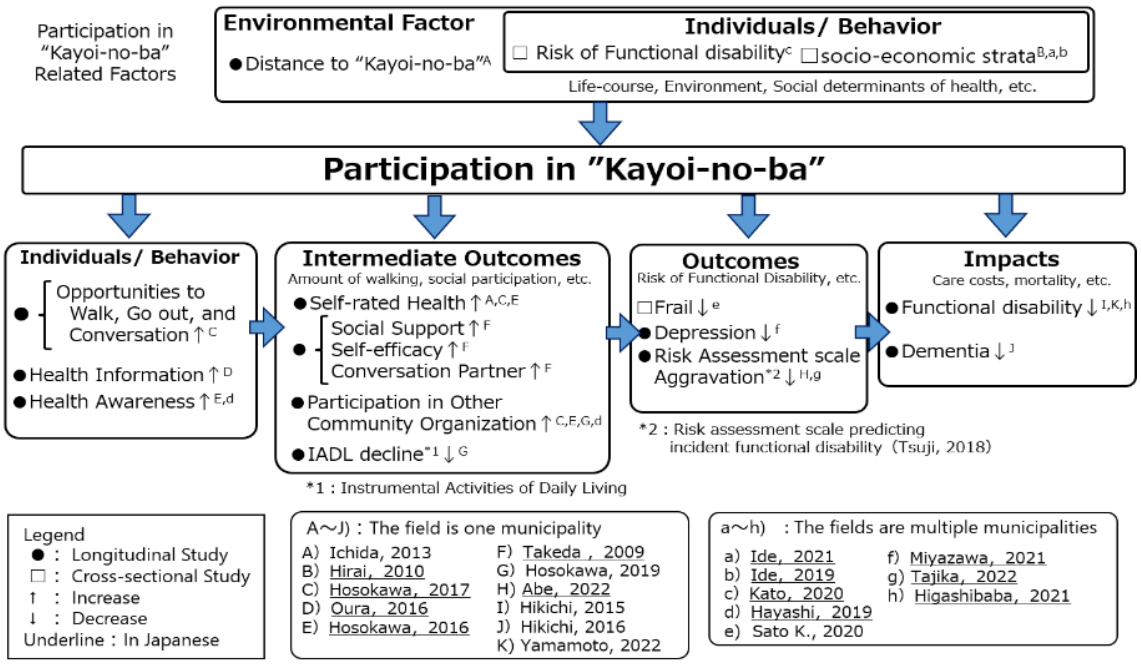
In Japan, a **'**REPRINTS**'** programme, modeled after the Experience Corps, has been implemented in which older volunteers who have taken a three-month course read picture books to children in local elementary schools and kindergartens. Children's speech improved (Suzuki et al., 2015), older adults' physical function improved (Sakurai et al., 2016), and hippocampal atrophy was better compared to in the areas where this programme was not implemented (Sakurai et al., 2018).

Intervention example 2: Community gathering place '*Kayoi-no-ba*'

Attempting to foster social capital especially for older adults after retirement, the Japanese government made an effort to create and spread community gathering places nationwide. Taketoyo town, Japan, the establishment of *Kayoi-no-ba*, a community intervention study, fostered social capital and improved health indicators. The term '*Kayoi-no-ba*' broadly refers to resident-centred prevention activities through physical exercise, hobbies, or other activities, and places where older adults can interact with their neighbours (Saito et al., 2019). In Taketoyo, *Kayoi-no-ba*, held once or twice a month with each meeting lasting 2-5 hours, is operated mainly by volunteer leaders. The municipality provides public facilities, financial support, and operational assistance. In the intervention area, *Kayoi-no-ba* opened three locations in 2007, two in 2008, two in 2009, among others, bringing the total to 13. As *Kayoi-no-ba* grew, the number of volunteers and participants increased, and five years after its opening, more than 10% of the local older adult population was participating.

Participation in the *Kayoi-no-ba* at Taketoyo increased social support and led to new participation in other organisations. In addition, participants had a lower incidence of disability (Hikichi et al., 2015) and lower risk of developing dementia (Hikichi et al., 2017a) compared to non-participants. This case was a rationale for *Kayoi-no-ba* expansion nationwide. As of 2019, 1,670 of Japan's 1,741 municipalities (95.9%) have implemented *Kayoi-no-ba*, with 6.7% of the population aged 65 years and older participating (Welfare, 2020). Research has accumulated on the relationship between *Kayoi-no-ba* participation and health indicators, as shown in Figure IV.1.

Figure IV.1. Association between participation in *Kayoi-no-ba* and health indicators.



Source: Created by Kazushige Ide

Intervention example 3: Social prescribing

Social prescribing is a concept that originally arose from the United Kingdom, which 'enables health care professionals to refer patients to a link worker, to co-design a nonclinical social prescription to improve their health and wellbeing' (Report of the annual social prescribing network conference, 2016). It is a good way to integrate the health sector with community resources and connect older people with these resources (WHO WPRO, 2020) (See Column 1: Social prescribing).

Community social capital as a factor in mitigating the negative impact of disasters

Community social capital was reportedly effective in alleviating health risks associated with disasters. During the Great East Japan Earthquake, many victims lost their homes and were forced to move into temporary housing. There were two ways to move into temporary housing: group allocation, which maintains some existing social ties, or lottery allocation, which emphasises fairness. A comparison of social ties between the two groups one to two years later revealed that social ties were higher in the group relocation group (Hikichi et al., 2017b; Koyama et al., 2014). During a disaster, it may be important to implement measures that consider original connections. Furthermore, rich community social capital before a disaster may reduce the risk of developing post-traumatic stress disorder (Hikichi et al., 2016) and dementia (Hikichi et al., 2020) after the disaster.

Another study investigated the relationship between community social capital and depression before and after the Kumamoto earthquake in Japan (Sato et al., 2020). There was a higher risk of depression among residents in areas with high social capital indicators of trust before the earthquake disaster and areas where trust deteriorated after the disaster. In contrast, the risk of depression was lower in areas where the social capital, which indicated social participation, was low before the earthquake and areas where the indices decreased after the earthquake. While creating communities where residents can trust each other is necessary, care must be taken to not create a sense of isolation when implementing measures to encourage social participation after a disaster.

Key point to foster social capital in the community: community organising

Previous studies have examined the subsequent changes in social capital in areas where researchers actively supported the government in community organising and areas where they only provided data (Haseda et al., 2019; Haseda et al., 2022). The researcher provided support for the use of data accumulated by the government and organisational collaboration to promote community organising. To achieve these, a community gathering space (such as *kayoi-no-ba*) and other activities were promoted. As a result, the increase in the percentage of men participating in society, a social capital indicator, was higher in the intervention areas, 7.9 and 10.4% in the data-only and active support areas, respectively (Haseda et al., 2019). Furthermore, the cumulative mortality rate for men was lower in the intervention areas compared to the areas that only provided data (Haseda et al., 2022). Hence, the importance of having outside agencies that assist in administration was demonstrated.

Note on fostering community social capital

There is no consensus regarding the common ways to foster social capital effectively in each community (Villalonga-Olives et al., 2018). However, some hints have been proposed in several studies. For example, the percentage of participation was higher for those who lived near the locations (Ichida et al., 2013), which suggested that easier access to the opportunities for social participation was important to foster social capital.

Several points should be kept in mind when trying to foster community social capital (Berkman and Kawachi, 2014).

(1) Do not try only to encourage community members to cooperate with each other.
(2) There is no uniform prescription for enhancing social capital. The context and history of each community should be considered.
(3) Fostering community social capital cannot be achieved solely through citizens' unpaid services. Demand for unpaid service often places a burden on women.
(4) Promoting the creation of more socialising places (such as kayoi-no-ba) may contribute to fostering community social capital.

References

Berkman, L.F., & Kawachi, I.o. (2014). *Social epidemiology (2nd edition)*. New York: Oxford University Press.

Christakis, N.A., & Fowler, J.H. (2007). The spread of obesity in a large social network over 32 years. *N Engl J Med,* 357, 370-379.

Fowler, J.H., & Christakis, N.A. (2008). Dynamic spread of happiness in a large social network: longitudinal analysis over 20 years in the Framingham Heart Study. *BMJ,* 337, a2338.

Fried, L.P., Carlson, M.C., Freedman, M., Frick, K.D., Glass, T.A., Hill, J., et al. (2004). A social model for health promotion for an aging population: initial evidence on the Experience Corps model. *J Urban Health,* 81, 64-78.

Fujihara, S., Tsuji, T., Miyaguni, Y., Aida, J., Saito, M., Koyama, S., et al. (2019). Does Community-Level Social Capital Predict Decline in Instrumental Activities of Daily Living? A JAGES Prospective Cohort Study. *Int J Environ Res Public Health,* 16.

Glass, T.A., Freedman, M., Carlson, M.C., Hill, J., Frick, K.D., Ialongo, N., et al. (2004). Experience Corps: design of an intergenerational program to boost social capital and promote the health

of an aging society. *J Urban Health,* 81, 94-105.

Haseda, M., Takagi, D., Kondo, K., & Kondo, N. (2019). Effectiveness of community organizing interventions on social activities among older residents in Japan: A JAGES quasi-experimental study. *Soc Sci Med,* 240, 112527.

Haseda, M., Takagi, D., Stickley, A., Kondo, K., & Kondo, N. (2022). Effectiveness of a community organizing intervention on mortality and its equity among older residents in Japan: A JAGES quasi-experimental study. *Health Place,* 74, 102764.

Hikichi, H., Aida, J., Matsuyama, Y., Tsuboya, T., Kondo, K., & Kawachi, I. (2020). Community-level social capital and cognitive decline after a natural disaster: A natural experiment from the 2011 Great East Japan Earthquake and Tsunami. *Soc Sci Med,* 257, 111981.

Hikichi, H., Aida, J., Tsuboya, T., Kondo, K., & Kawachi, I. (2016). Can Community Social Cohesion Prevent Posttraumatic Stress Disorder in the Aftermath of a Disaster? A Natural Experiment From the 2011 Tohoku Earthquake and Tsunami. *Am J Epidemiol,* 183, 902-910.

Hikichi, H., Kondo, K., Takeda, T., & Kawachi, I. (2017a). Social interaction and cognitive decline: Results of a 7-year community intervention. *Alzheimers Dement (N Y),* 3, 23-32.

Hikichi, H., Kondo, N., Kondo, K., Aida, J., Takeda, T., & Kawachi, I. (2015). Effect of a community intervention programme promoting social interactions on functional disability prevention for older adults: propensity score matching and instrumental variable analyses, JAGES Taketoyo study. *J Epidemiol Community Health,* 69, 905-910.

Hikichi, H., Sawada, Y., Tsuboya, T., Aida, J., Kondo, K., Koyama, S., et al. (2017b). Residential relocation and change in social capital: A natural experiment from the 2011 Great East Japan Earthquake and Tsunami. *Sci Adv,* 3, e1700426.

Ichida, Y., Hirai, H., Kondo, K., Kawachi, I., Takeda, T., & Endo, H. (2013). Does social participation improve self-rated health in the older population? A quasi-experimental intervention study. *Soc Sci Med,* 94, 83-90.

Koyama, S., Aida, J., Kawachi, I., Kondo, N., Subramanian, S.V., Ito, K., et al. (2014). Social support improves mental health among the victims relocated to temporary housing following the Great East Japan Earthquake and Tsunami. *Tohoku J Exp Med,* 234, 241-247.

Luo, Y., Zhang, L., & Pan, X. (2019). Neighborhood Environments and Cognitive Decline Among Middle-Aged and Older People in China. *J Gerontol B Psychol Sci Soc Sci,* 74, e60-e71.

Ministry of Health; Labour and Welfare. (2020). Comprehensive projects for care prevention and daily life support, etc. Results of Survey on Implementation Status (in Japanese). [WWW Document]. URL https://www.mhlw.go.jp/content/12300000/000886963.pdf (accessed 6.30.22).

Noguchi, T., Murata, C., Hayashi, T., Watanabe, R., Saito, M., Kojima, M., et al. (2022). Association

between community-level social capital and frailty onset among older adults: a multilevel longitudinal study from the Japan Gerontological Evaluation Study (JAGES). *J Epidemiol Community Health,* 76, 182-189.

Park, S., & Lee, S. (2017). Age-friendly environments and life satisfaction among South Korean elders: person-environment fit perspective. *Aging Ment Health,* 21, 693-702.

Putnam, R.D., Leonardi, R., & Nanetti, R. (1993). *Making democracy work : civic traditions in modern Italy*. Princeton, N.J.: Princeton University Press.

Rebok, G.W., Carlson, M.C., Glass, T.A., McGill, S., Hill, J., Wasik, B.A., et al. (2004). Short-term impact of Experience Corps participation on children and schools: results from a pilot randomized trial. *J Urban Health,* 81, 79-93.

Report of the annual social prescribing network conference. (2016). London: University of Westminster, Wellcome Trust, & College of Medicine.

Saito, J., Haseda, M., Amemiya, A., Takagi, D., Kondo, K., & Kondo, N. (2019). Community-based care for healthy ageing: lessons from Japan. *Bull World Health Organ,* 97, 570-574.

Sakurai, R., Ishii, K., Sakuma, N., Yasunaga, M., Suzuki, H., Murayama, Y., et al. (2018). Preventive effects of an intergenerational program on age-related hippocampal atrophy in older adults: The REPRINTS study. *Int J Geriatr Psychiatry,* 33, e264-e272.

Sakurai, R., Yasunaga, M., Murayama, Y., Ohba, H., Nonaka, K., Suzuki, H., et al. (2016). Long-term effects of an intergenerational program on functional capacity in older adults: Results from a seven-year follow-up of the REPRINTS study. *Arch Gerontol Geriatr,* 64, 13-20.

Sato, K., Amemiya, A., Haseda, M., Takagi, D., Kanamori, M., Kondo, K., et al. (2020). Postdisaster Changes in Social Capital and Mental Health: A Natural Experiment From the 2016 Kumamoto Earthquake. *Am J Epidemiol,* 189, 910-921.

Suzuki, H., Ooba, H., & Yasunaga, M. (2015). The effectiveness of an intergenerational relational program "Koryu-Jugyo" for elementary school children's communication skills. *Journal of Japan Society for Intergenerational Studies,* 5, 21-28.

Tamura, M., Hattori, S., Tsuji, T., Kondo, K., Hanazato, M., Tsuno, K., et al. (2021). Community-Level Participation in Volunteer Groups and Individual Depressive Symptoms in Japanese Older People: A Three-Year Longitudinal Multilevel Analysis Using JAGES Data. *Int J Environ Res Public Health,* 18.

Villalonga-Olives, E., Wind, T.R., & Kawachi, I. (2018). Social capital interventions in public health: A systematic review. *Soc Sci Med,* 212, 203-218.

WHO Regional Office for the Western Pacific. (2020). Regional action plan on healthy ageing in the Western Pacific..

Yu, R., Cheung, O., Leung, J., Tong, C., Lau, K., Cheung, J., et al. (2019). Is neighbourhood social

cohesion associated with subjective well-being for older Chinese people? The neighbourhood social cohesion study. *BMJ Open,* 9, e023332.

Zhang, W., Liu, S., Zhang, K., & Wu, B. (2020). Neighborhood Social Cohesion, Resilience, and Psychological Well-Being Among Chinese Older Adults in Hawai'i. *Gerontologist,* 60, 229-238.

Column 1: Social Prescribing

1. What is social prescribing?

Social prescribing is defined as 'a means of enabling GPs and other frontline health care professionals to refer patients to a link worker - to provide them with a face to face conversation during which they can learn about the possibilities and design their own personalised solutions, i.e. "co-produce" their "social prescription"- so that people with social, emotional or practical needs are empowered to find solutions which will improve their health and wellbeing, often using services provided by the voluntary and community sector'. (Social Prescribing Network Conference Report, 2016).

Keywords of this concept include person-centred, empowerment, and co-produce.

2. Why is social prescribing important in the context of the social determinants of healthy ageing?

The concept was proposed in the United Kingdom around 2000. The idea was that medical approaches, such as prescriptions, exercise, and dietary guidance in the doctor's office, alone would not work to control chronic diseases. A value-based response in line with the social determinants of health of each individual was necessary.

In Japan, care for older adults has improved since the implementation of the Long-Term Care Insurance Law in 2000. However, the issue that medical and welfare professionals often treated patients from a third-party perspective and with general knowledge has come to light. In contrast, the importance of providing treatment and care in line with the social determinants of health and values of each individual is being discussed regarding this 'social prescription'.

3. Summary of the evidence of social prescribing

Research is ongoing on social prescribing and its effects. Nishioka et al. (2019) and Pescheny et al. (2018) discussed that the evidence was mixed. Some studies found improvements in health and wellbeing, health-related behaviours, self-concept, emotions, social contact, and daily functioning after social prescribing, while others did not. An intervention study conducted by Maughan (2016) showed reduced frequency of medical visits and reduced social prescribing costs. Other studies reported predominant reductions in emergency room visits and improvements in depression measures (Dayson, 2014; Longwill, 2014). Several Japanese case studies also cited activities by local governments and non-profit organisations (NPOs) to introduce needy and older people living alone to

formal systems and informal salons and circles (Ito, 2010; Nishiyama; 2013; Fukuba, 2015).

4. Future opportunities in social prescribing

We believe that applying the concept of social prescribing to the context of healthy aging has two useful purposes (Nagamine, 2020). First, to bring a welfare perspective to the health care professionals. Second, to reconstruct person-centred services. When we create a framework for supporting older adults, there is a natural separation between those who provide support and those who are supported. Mainly, professionals may give priority to 'correctness' based on academic or their own experiences, and the individual's wishes may be left behind.

Therefore, it may be possible to consider the use of social prescribing as a way to create a system that allows anyone to live their own lives in the community, even if they have a disability (WHO, 2020).

References

Dayson, C., & Bashir, N. (2014). The social and economic impact of the Rotherham Social Prescribing Pilot. Sheffield Hallam University: Center for Regional Economic and Social Research.

Fukuba T., (2015). Selections and Practices of Health Promoting Hospitals. *Minireniryou*, 512: 25-29. (Japanese)

Ito M. (2010). Support for socially isolated people. JIM, 20 (5): 344-347. (Japanese)

Longwill, A. (2014). Independent Evaluation of the Hackney WellFamily Service.

Maughan, D.L., Patel, A., Parveen, T., Braithwaite, I., Cook, J., Lillywhite, R., et al. (2016). Primary-care-based social prescribing for mental health: an analysis of financial and environmental sustainability. Prim Health Care Res Dev, 17, 114-121.

Nagamine, Y. and S. Hotta (2020). The usefulness of "social prescribing" for the promotion of a inclusive society: Implications for the medical professionals (Japanese). Theory and Practice of Primary Care. Tokyo, Japan. 5044: 12-13.

Nishioka, D., & Kondo, N. (2019). A Literature Review of Social Prescribing: Implementation Challenges and Opportunities in Japan. J Health Care Soc, 29, 1-18.

Nishiyama T, (2013). Initiatives of "Community Health Center" at Chidoribashi Hospital. *Minireniryou*, 485: 18-19.

Pescheny, J.V., Pappas, Y., & Randhawa, G. (2018). Facilitators and barriers of implementing and delivering social prescribing services: a systematic review. BMC Health Serv Res, 18, 86.

Report of the annual social prescribing network conference. (2016). London: University of Westminster, Wellcome trust, College of medicine.

WHO. (2020) "Supporting healthy ageing through social prescribing." Retrieved 20th March, 2023, from https://www.who.int/westernpacific/activities/supporting-healthy-ageing-through-social-prescribing.

V. Physical environment (In-house environment / Outside built environment)

Beyond relationships between people and communities, 'hard' environment is also an important factor for improving healthy ageing outcomes. In the section, we introduce the evidence between in-house and outside build environments and healthy ageing-related outcomes.

In-house environment and healthy ageing

Housing has become an important social determinant of health as the population ages as older adults tend to spend more time at home. The WHO conducted systematic reviews to accumulate evidence on the association between housing and health and comprised the *Housing and health guidelines* (World Health Organization, 2018). Based on the review results, the guideline provided recommendations in the following five domains: (1) crowding, (2) indoor cold and insulation, (3) indoor heat, (4) home safety and injuries, and (5) accessibility.

Since the world's urban population is expected to double by 2050, crowding is becoming a crucial problem in the WPR countries. In particular, crowding is common in households with low income and can induce social disparities in health (Krieger and Higgins, 2002). It is also associated with respiratory diseases, including tuberculosis (Harling and Castro, 2014; Lienhardt et al., 2005; Wanyeki et al., 2006), diarrhoea, gastroenteritis (Perry et al., 2005), and other infectious diseases (Tosas Auguet et al., 2016; Vincenti-Gonzalez et al., 2017). A recent study suggested that crowding was associated with elevated mortality during the COVID-19 pandemic (Krieger et al., 2020). It may also be associated with mental problems (Regoeczi, 2008).

In the Western Pacific region, older adults may suffer both excessive indoor cold and heat, including diverse climatic characteristics (Benmarhnia et al., 2015). Hence, it is important to build housing that maintains an appropriate room temperature. The WHO guidelines recommend keeping the indoor temperature higher than 18℃ during winter in countries with temperate or colder climates (World Health Organization, 2018). A randomised trial in Japan showed that residents with lower room heating had higher blood pressure compared to those with intensive room heating (mean temperature: 13.9℃ vs. 24.2℃) (Saeki et al., 2013). A cohort study from China reported reduced chronic obstructive pulmonary disease (COPD) symptoms with an indoor temperature of 18.2℃ (Mu et al., 2017). In 2009, the government of New Zealand implemented a nationwide subsidy programme, named *the Warm Up New Zealand: Heat Smart,* to improve housing energy efficiency. The project saw reduced mortality among those aged 65 and older hospitalised for circulatory diseases and whose housing received insulation or heating retrofits (Barnard et al., 2011). In contrast, countries should also adopt measures to protect older adults from excess indoor heat. Evidence suggests an

association between high outdoor temperature and mortality (Benmarhnia et al., 2015; Gasparrini et al., 2015; Hajat et al., 2010). Outdoor temperature was directly correlated with indoor temperature where air conditioning was not available (Tamerius et al., 2013; Yoshino et al., 2006). Thus, heat-related mortality tends to be higher in lower socioeconomic groups (Basu, 2009).

In addition, older adults should have secure, safe, and accessible housing. A study in Vietnam reported that 23.7% of older adults experienced a fall within a year and 69.6% of falls occurred at home (Ha et al., 2021). In Fiji, falls were the leading cause of injury for hospital admissions among adults aged 45 years and older (Wainiqolo et al., 2012). Several countries also publicly assess the safety of homes and subsidise modifications. A randomised study in New Zealand demonstrated that a home safety modification programme for people aged 75 and older with low vision reduced falls. Furthermore, it was more cost effective than an exercise programme (Campbell et al., 2005). Although the evidence is mixed, several observational studies also suggested that home modifications improved older adults' ADLs, IADLs, and self-efficacy (Gitlin et al., 2006; Petersson et al., 2009; Tongsiri et al., 2017).

To provide affordable and appropriate housing for healthy living, policy-makers should implement subsidies and tax reductions. Improving housing standards is also essential to ensure residents' health and accessibility. If refurbishing entails moving individuals to another community, the possible detrimental effects by removing older adults from their familiar community should be considered. A study on the 2011 Great East Japan Earthquake and Tsunami showed that older adults relocated to temporary public housing through a lottery reallocation and surrounded by strangers had declined frequencies of meeting friends and social participation than those relocated with their community members (Hikichi et al., 2017). Therefore, an integrated policy is required to ensure healthy housing for older adults.

Outside built environment and healthy ageing

Healthy ageing includes developing and maintaining one's functional abilities that enable well-being in older age. Functional ability is determined by an individual's intrinsic capacity, the environment in which older adults live (including physical environments), and interactions among them (World Health Organization, 2020). Physical environments, both rural and urban, are important determinants of healthy ageing and have a powerful influence on the experience of ageing and the opportunities that ageing offers (World Health Organization, 2020).

Previous studies (Barnett et al., 2017; Dixon et al., 2021; Rachele et al., 2019) organised the physical environment into walkability, residential density/urbanization, street connectivity, access to/availability of destinations and services, infrastructure and streetscape, and safety. In addition, they related them to health behaviours and other factors in older adults. We present evidence from three systematic reviews (Barnett et al., 2017; Dixon et al., 2021; Rachele et al., 2019).

First, safe, walkable, and aesthetically pleasing neighbourhoods, with access to overall and specific destinations and services positively influenced older adults' physical

activity participation (Rachele et al., 2019). Second, positive correlations of pedestrian infrastructure and aesthetics with physical function were reported. Finally, mixed results were demonstrated in reviews that assessed the association between built environment features and dietary intake, physical activity, and weight status (Barnett et al., 2017). Dietary intake was most consistently influenced by the availability of grocery stores and supermarkets. A higher level of physical activity was most consistently associated with greater overall walkability, with additional support found for positive associations between physical activity and access to recreational facilities, availability of nearby shops and services (or other non-residential destinations), and access to parks and trails. Additionally, lower weight status was most consistently associated with greater diversity in the land-use mix (and less sprawl), with support also found for associations between lower weight status and more pleasing aesthetics, overall higher quality environment, and greater availability of parks and playgrounds.

Therefore, the development of a physical environment has the potential to contribute to the realisation of healthy ageing.

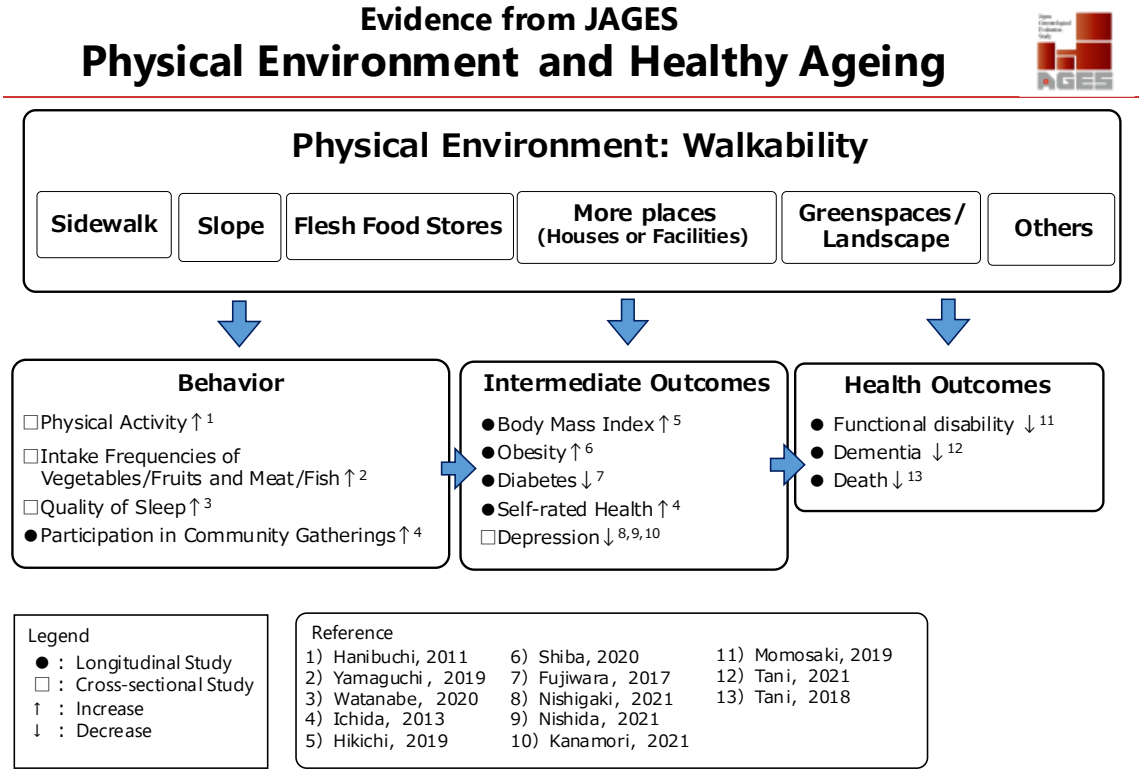
Examples of outside environment intervention

Policymakers could contribute to health ageing by creating physical environments. Approaches to physical environments are discussed (Chen et al., 2017; Jalaludin et al., 2012; Li et al., 2021). In China, efforts were underway to develop old downtown areas into green open spaces to improve older adults' health and well-being (Li et al., 2021). The community was being systematically built according to outdoor activities, connection with nature, and social interactions important for healthy ageing. Recently, a greenway, defined as 'linear open space established either along a natural corridor, such as a riverfront, stream valley, ridgeline, or overland along a railroad right-of-way that has been converted to recreational use, a canal, a scenic road, or another route,' has received increased attention. The Wutong Greenway in Shenzhen, China, promotes social equity and is an important free-to-use public asset accessible to all residents (Chen et al., 2017). In south-western Sydney, Australia, an urban renewal programme has targeted both the physical and social environments and aims to improve the neighbourhood social capital, social connections, sense of community, and economic conditions (Jalaludin et al., 2012).

The Japan Gerontological Evaluation Study also reported findings on the physical environment and healthy ageing. These findings showed that exposure to a physical environment changed health behaviours (sleep, physical activity, and nutrition) and health (diabetes, depression, care needs, dementia, death, etc.)

Hence, in the future, both the social implementation and evaluation of the effectiveness of the physical environment for heathy ageing should be promoted.

Fig. V.1 Evidence from the JAGES: Physical Environment and Health Ageing



Source: JAGES, Revised as prepared by Yuru-Chen

References

A, H., 2002. Integrating prevention of acute respiratory infections with micro-credit programme: experience of BRAC, Bangladesh. Public Health 116, 238–44.

A, H., 2001. Promoting health knowledge through micro-credit programmes: experience of BRAC in Bangladesh. Health Promotion International 16, 219–27.

Adato, M., Coady, D., Ruel, M., 2000. Final Report: An Operations Evaluation of PROGRESA From the Perspective of Beneficiaries, Promotoras, School Directors, and Health Staff.

Afzal, A., Mirza, N., Arshad, F., 2019. Conditional vs unconditional cash transfers: a study of poverty demographics in Pakistan. Economic Research-Ekonomska Istrazivanja 32, 3360–3377. https://doi.org/10.1080/1331677X.2019.1661006

Ahmed S, Petzold M, Kabir Z, T.G., 2006. Targeted intervention for the ultrapoor in rural Bangladesh: does it make any difference in their health-seeking behaviour? Social Science & Medicine 63, 2899–911.

Akashi City, 2022. Living together and fostering mutual support"Akashi Relief Plan" Akashi City 4th community welfare plan(in Japanese).

Armando, B., 2004. Cash transfers for older people reduce poverty and inequality. World Development

Report Background Papers 1–38.

Barham, T., Rowberry, J., 2013. Living longer: The effect of the Mexican conditional cash transfer program on elderly mortality. Journal of Development Economics 105, 226–236. https://doi.org/10.1016/j.jdeveco.2013.08.002

Barnett, D. W., Barnett, A., Nathan, A., Van Cauwenberg, J., Cerin, E., & Council on Environment and Physical Activity (CEPA) – Older Adults working group. (2017). Built environmental correlates of older adults' total physical activity and walking: a systematic review and meta-analysis. *The International Journal of Behavioral Nutrition and Physical Activity*, *14*(1), 103. https://doi.org/10.1186/s12966-017-0558-z

Basu, R., 2009. High ambient temperature and mortality: a review of epidemiologic studies from 2001 to 2008. Environmental Health 8, 40. https://doi.org/10.1186/1476-069X-8-40

Begum, Sharifa, W.D., 2012. Overview of the old age allowance programme in Bangladesh, in: Sri Wening Handayani, B.B. (Ed.), Social Protection for Older Persons:Social Pensions in Asia. Asian Development Bank, Mandaluyong City, Philippines, pp. 187–213.

Behrman, J.R., Parker, S.W., 2013. Is Health of the Aging Improved by Conditional Cash Transfer Programs? Evidence From Mexico. Demography 50, 1363–1386. https://doi.org/10.1007/s13524-013-0199-z

Benach, J., Malmusi, D., Yasui, Y., Martínez, J.M., 2013. A new typology of policies to tackle health inequalities and scenarios of impact based on Rose's population approach. J Epidemiol Community Health 67, 286–91. https://doi.org/10.1136/jech-2011-200363.

Benmarhnia, T., Deguen, S., Kaufman, J.S., Smargiassi, A., 2015. Review Article: Vulnerability to Heat-related Mortality: A Systematic Review, Meta-analysis, and Meta-regression Analysis. Epidemiology 26, 781–793. https://doi.org/10.1097/EDE.0000000000000375

Butterfoss, F.D., 2013. "Toward a Comprehensive Understanding of Community Coalitions: Moving from Practice to Theory" in Emerging theories in health promotion practice and research, 2nd ed. Jossey-Bass.

Cabinet office, 2016. Basic policy on economic and fiscal management and reform 2016(in Japanese).

Campbell, A.J., Robertson, M.C., La Grow, S.J., Kerse, N.M., Sanderson, G.F., Jacobs, R.J., Sharp, D.M., Hale, L.A., 2005. Randomised controlled trial of prevention of falls in people aged > or =75 with severe visual impairment: the VIP trial. BMJ 331, 817. https://doi.org/10.1136/bmj.38601.447731.55

Chan, A., 2021. An overview of Singapore's long-term care system: Towards a community model care, in: Komazawa O, S.Y. (Ed.), Coping with Rapid Population Ageing in Asia. ERIA, Jakarta, pp. 28–35.

Chen, Y., Gu, W., Liu, T., Yuan, L., & Zeng, M. (2017). Increasing the Use of Urban Greenways in Developing Countries: A Case Study on Wutong Greenway in Shenzhen, China. *International Journal of Environmental Research and Public Health*, *14*(6). https://doi.org/10.3390/ijerph14060554

Community integrated care study group, 2008. Report of community integrated care study group (in

Japanese).

Crédal, n.d. Crédal Homepage (in French) [WWW Document]. URL https://www.credal.be/

De Leeuw, E., Leeuw, E. De, 2022. Intersectorality and health: a glossary. J Epidemiol Community Health 76, 206–208. https://doi.org/10.1136/JECH-2021-217647

Department of Social Services, G. of the P.R. of B., n.d. Old Age Allowance [WWW Document]. URL http://www.dss.gov.bd/site/page/7314930b-3f4b-4f90-9605-886c36ff423a/Old-Age-Allowance

Dixon, B. N., Ugwoaba, U. A., Brockmann, A. N., & Ross, K. M. (2021). Associations between the built environment and dietary intake, physical activity, and obesity: A scoping review of reviews. *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity*, *22*(4), e13171. https://doi.org/10.1111/obr.13171

Fiszbein, A., Schady, N., 2009. Conditional Cash Transfers: Reducing Present and Future Poverty, A World Bank Policy Research Report, The World Bank.

F.J.A.Bouman, 1995. Rotating and accumulating savings and credit associations: A development perspective. World Development 23, 371–384.

Frohlich, K.L., Potvin, L., 2008. Transcending the known in public health practice: the inequality paradox: the population approach and vulnerable populations. American journal of public health 98, 216–21. https://doi.org/10.2105/AJPH.2007.114777

Gaarder, M.M., Glassman, A., Todd, J.E., 2010. Conditional cash transfers and health:unpacking the causal chain. J. Dev. Eff 2, 6–50.

Gasparrini, A., Guo, Y., Hashizume, M., Kinney, P.L., Petkova, E.P., Lavigne, E., Zanobetti, A., Schwartz, J.D., Tobias, A., Leone, M., Tong, S., Honda, Y., Kim, H., Armstrong, B.G., 2015. Temporal Variation in Heat-Mortality Associations: A Multicountry Study. Environ Health Perspect 123, 1200–1207. https://doi.org/10.1289/ehp.1409070

Geissler, K.H., Leatherman, S., 2015. Providing primary health care through integrated microfinance and health services in Latin America. Soc Sci Med 132, 30–7.

Gillespie, L.D., Robertson, M.C., Gillespie, W.J., Sherrington, C., Gates, S., Clemson, L.M., Lamb, S.E., 2012. Interventions for preventing falls in older people living in the community. Cochrane Database Syst Rev CD007146. https://doi.org/10.1002/14651858.CD007146.pub3

Gitlin, L.N., Hauck, W.W., Winter, L., Dennis, M.P., Schulz, R., 2006. Effect of an in-home occupational and physical therapy intervention on reducing mortality in functionally vulnerable older people: preliminary findings. J Am Geriatr Soc 54, 950–955. https://doi.org/10.1111/j.1532-5415.2006.00733.x

Global monitoring report on financial protection in health 2021, 2021. . WOrld Health Organization, The World Bank. https://doi.org/10.1596/36723

Ha, V.-A.T., Nguyen, T.N., Nguyen, T.X., Nguyen, H.T.T., Nguyen, T.T.H., Nguyen, A.T., Pham, T., Vu, H.T.T., 2021. Prevalence and Factors Associated with Falls among Older Outpatients. Int J Environ Res Public Health 18, 4041. https://doi.org/10.3390/ijerph18084041

Hajat, S., O'Connor, M., Kosatsky, T., 2010. Health effects of hot weather: from awareness of risk factors to effective health protection. Lancet 375, 856–863. https://doi.org/10.1016/S0140-6736(09)61711-6

Harling, G., Castro, M.C., 2014. A spatial analysis of social and economic determinants of tuberculosis in Brazil. Health Place 25, 56–67. https://doi.org/10.1016/j.healthplace.2013.10.008

Hikichi, H., Aida, J., Matsuyama, Y., Tsuboya, T., Kondo, K., Kawachi, I., 2018. Community-level social capital and cognitive decline after a natural disaster: A natural experiment from the 2011 Great East Japan Earthquake and Tsunami. Social Science and Medicine 0–1. https://doi.org/10.1016/j.socscimed.2018.09.057

Hikichi, H., Kondo, N., Kondo, K., Aida, J., Takeda, T., Kawachi, I., 2015. Effect of a community intervention programme promoting social interactions on functional disability prevention for older adults: propensity score matching and instrumental variable analyses, JAGES Taketoyo study. Journal of epidemiology and community health 69, 905–910. https://doi.org/10.1136/jech-2014-205345

Hikichi, H., Sawada, Y., Tsuboya, T., Aida, J., Kondo, K., Koyama, S., Kawachi, I., 2017. Residential relocation and change in social capital: A natural experiment from the 2011 Great East Japan Earthquake and Tsunami. Science Advances 3, e1700426. https://doi.org/10.1126/sciadv.1700426

Hirai, H., Kondo, K., 2010. Evaluating a care prevention program utilized community salon. (Japanese). Q Soc Secur Res 46, 249–263.

International Labour Organization, 2018. What about seniors?A quick analysis of the situation of older persons in the labour market.

International Labour Organization, 2014. Social protection for older persons:Key policy trends and statistics.

International Labour Organization, 2013. Women and Men in the Informal Economy: A Statistical Picture, ILO Geneva.

Jalaludin, B., Maxwell, M., Saddik, B., Lobb, E., Byun, R., Gutierrez, R., & Paszek, J. (2012). A pre-and-post study of an urban renewal program in a socially disadvantaged neighbourhood in Sydney, Australia. *BMC Public Health*, *12*, 521. https://doi.org/10.1186/1471-2458-12-521

Kenji, K., 2020. Community comprehensive support system today-community building promoted by health, medical care and welfare-(in Japanese). Minerva Shobo, Kyoto.

Kondo, N., Minai, J., Imai, H., Yamagata, Z., 2007. Engagement in a cohesive group and higher-level functional capacity in older adults in Japan: A case of the Mujin. Social Science and Medicine 64, 2311–2323. https://doi.org/10.1016/j.socscimed.2007.02.009

Kondo, N., Suzuki, K., Minai, J., Yamagata, Z., 2012. Positive and negative effects of finance-based social capital on incident functional disability and mortality: An 8-year prospective study of elderly Japanese. Journal of Epidemiology 22, 543–550.

https://doi.org/10.2188/jea.JE20120025

Krieger, J., Higgins, D.L., 2002. Housing and health: time again for public health action. Am J Public Health 92, 758–768. https://doi.org/10.2105/ajph.92.5.758

Krieger, N., Waterman, P.D., Chen, J.T., 2020. COVID-19 and Overall Mortality Inequities in the Surge in Death Rates by Zip Code Characteristics: Massachusetts, January 1 to May 19, 2020. Am J Public Health 110, 1850–1852. https://doi.org/10.2105/AJPH.2020.305913

Leatherman, S., Dunford, C., Metcalfe, M., Reinsch, M., Gash, M., Gray, B., 2011. Integrating Microfinance and Health Benefits , Challenges and Reflections for Moving Forward. Access.

Leatherman, S., Metcalfe, M., Geissler, K., Dunford, C., 2012. Integrating microfinance and health strategies: Examining the evidence to inform policy and practice. Health Policy and Planning 27, 85–101. https://doi.org/10.1093/heapol/czr014

Liberating Structures - Including and unleashing everyone [WWW Document], n.d. URL https://www.liberatingstructures.com/ (accessed 4.29.22).

Lienhardt, C., Fielding, K., Sillah, J.S., Bah, B., Gustafson, P., Warndorff, D., Palayew, M., Lisse, I., Donkor, S., Diallo, S., Manneh, K., Adegbola, R., Aaby, P., Bah-Sow, O., Bennett, S., McAdam, K., 2005. Investigation of the risk factors for tuberculosis: a case-control study in three countries in West Africa. Int J Epidemiol 34, 914–923. https://doi.org/10.1093/ije/dyi100

Lipmanowicz, H., McCandless, K., 2014. The surprising power of liberating structures : simple rules to unleash a culture of innovation. Liberating Structures Press.

Li, S.-J., Luo, Y.-F., Liu, Z.-C., Xiong, L., & Zhu, B.-W. (2021). Exploring strategies for improving green open spaces in old downtown residential communities from the perspective of public health to enhance the health and well-being of the aged. *Journal of Healthcare Engineering*, *2021*. https://www.hindawi.com/journals/jhe/2021/5547749/

Lucy Telfar Barnard, Nick Preval, Philippa Howden-Chapman, Richard Arnold, Chris Young, Arthur Grimes, Tim Denne, 2011. The impact of retrofitted insulation and new heaters on health services utilisation and costs, pharmaceutical costsand mortality: Evaluation of Warm Up New Zealand: Heat Smart (Report to the Ministry of Economic Development). Wellington.

Marmot, M., Allen, J., Goldblatt, P., 2010. Fair Society, Healthy Lives: Strategic Review of Health Inequalities in England post-2010. The Marmot Review. London.

McKinnon, R., 2007. Tax-financed old-age pensions in lower- income countries, in: Developments and Trends: Supporting Dynamic Social Security. World Social Security Forum, 29th ISSA General Assembly. International Social Security Association, Geneva, pp. 31–37.

Minkler, Meredith., 2012. Community organizing and community building for health and welfare. Rutgers University Press, New Jersey.

Morikawa, M., 2014. Towards community-based integrated care: trends and issues in Japan's long-term care policy. International Journal of Integrated Care 14. https://doi.org/10.5334/ijic.1066

Mu, Z., Chen, P.-L., Geng, F.-H., Ren, L., Gu, W.-C., Ma, J.-Y., Peng, L., Li, Q.-Y., 2017. Synergistic

effects of temperature and humidity on the symptoms of COPD patients. Int J Biometeorol 61, 1919–1925. https://doi.org/10.1007/s00484-017-1379-0

Myint, C.Y., Pavlova, M., Thein, K.N.N., Groot, W., 2019. A systematic review of the health-financing mechanisms in the association of southeast asian nations countries and the people's Republic of China: Lessons for the move towards universal health coverage. PLoS ONE 14, 1–18. https://doi.org/10.1371/journal.pone.0217278

Naidoo, J., Wills, J., 2016. Foundations for Health Promotion, 4th ed. Elsevier, London.

Naoki Kondo, K.S., 2013. Chapter 10 Microfinance an d Health, Global Perspectives on Social Capital and Health. https://doi.org/10.1007/978-1-4614-7464-7

Network, E. microfinance, 2012. Microfinance as a tool of active ageing.

Organization, I.L., 2021. Extending social health protection: Accelerating progress towards Universal Health Coverage in Asia nd the Pacific.

Perry, S., Sanchez, M. de la L., Hurst, P.K., Parsonnet, J., 2005. Household Transmission of Gastroenteritis. Emerg Infect Dis 11, 1093–1096. https://doi.org/10.3201/eid1107.040889

Petersson, I., Kottorp, A., Bergström, J., Lilja, M., 2009. Longitudinal changes in everyday life after home modifications for people aging with disabilities. Scand J Occup Ther 16, 78–87. https://doi.org/10.1080/11038120802409747

Public Health Agency of Canada, 2007. Crossing Sectors – Experiences in intersectoral action, public policy and health. Ottawa.

Rachele, J. N., Sugiyama, T., Davies, S., Loh, V. H. Y., Turrell, G., Carver, A., & Cerin, E. (2019). Neighbourhood built environment and physical function among mid-to-older aged adults: A systematic review. *Health & Place*, *58*, 102137. https://doi.org/10.1016/j.healthplace.2019.05.015

Rantala, R., Bortz, M., Armada, F., 2014. Intersectoral action: Local governments promoting health. Health Promotion International 29, i92–i102. https://doi.org/10.1093/heapro/dau047

Reed, L.R., Rao, D.S.K., Rogers, S., Rivera, C., ..., 2015. Mapping pathways out of poverty, The State of the ….

Regoeczi, W.C., 2008. Crowding in context: an examination of the differential responses of men and women to high-density living environments. J Health Soc Behav 49, 254–268. https://doi.org/10.1177/002214650804900302

Rose, G., 1985. Sick individuals and sick populations. International Journal of Epidemiology 14, 32–38.

Ruhul Amin, Maurice St. Pierre, Ashraf Ahmed, R.H., 2001. Integration of an Essential Services Package (ESP) in child and reproductive health and family planning with a micro-credit program for poor women: experience from a pilot project in rural Bangladesh. World Development 29, 1611–21.

Saeki, K., Obayashi, K., Iwamoto, J., Tanaka, Y., Tanaka, N., Takata, S., Kubo, H., Okamoto, N., Tomioka, K., Nezu, S., Kurumatani, N., 2013. Influence of room heating on ambulatory blood pressure in winter: a randomised controlled study. J Epidemiol Community Health 67, 484–490. https://doi.org/10.1136/jech-2012-201883

Saito, J., Haseda, M., Amemiya, A., Takagi, D., Kondo, K., Kondo, N., 2019. Community-based care for healthy ageing: lessons from Japan. Bulletin of the World Health Organization 97, 570–574. http://dx.doi.org/10.2471/BLT.18.223057

Semenza, J.C., 2010. Strategies to intervene on social determinants of infectious diseases. Eurosurveillance 15, pii=19611.

Social Isolation and Loneliness in Older Adults, 2020. , Social Isolation and Loneliness in Older Adults. The National Academies Press, Washington, DC. https://doi.org/10.17226/25663

Social Prescribing Network, 2016. Report of the annual social prescribing network conference 2016, University of Westminster.

Ståhl, T., Wismar, M., Ollila, E., Lahtinen, E., Leppo, K., 2006. Health in All Policies. Prospects and potentials. Brussels.

Steels, S., 2015. Key characteristics of age-friendly cities and communities: A review. Cities 47, 45–52. https://doi.org/10.1016/J.CITIES.2015.02.004

Strupat, C., 2021. Effects of social protection on health. Handbook on Social Protection Systems 608–620. https://doi.org/10.4337/9781839109119.00077

Tamerius, J., Perzanowski, M., Acosta, L., Jacobson, J., Goldstein, I., Quinn, J., Rundle, A., Shaman, J., 2013. Socioeconomic and Outdoor Meteorological Determinants of Indoor Temperature and Humidity in New York City Dwellings. Weather Clim Soc 5, 168–179. https://doi.org/10.1175/WCAS-D-12-00030.1

Tongsiri, S., Ploylearmsang, C., Hawsutisima, K., Riewpaiboon, W., Tangcharoensathien, V., 2017. Modifying homes for persons with physical disabilities in Thailand. Bull World Health Organ 95, 140–145. https://doi.org/10.2471/BLT.16.178434

Tosas Auguet, O., Betley, J.R., Stabler, R.A., Patel, A., Ioannou, A., Marbach, H., Hearn, P., Aryee, A., Goldenberg, S.D., Otter, J.A., Desai, N., Karadag, T., Grundy, C., Gaunt, M.W., Cooper, B.S., Edgeworth, J.D., Kypraios, T., 2016. Evidence for Community Transmission of Community-Associated but Not Health-Care-Associated Methicillin-Resistant Staphylococcus Aureus Strains Linked to Social and Material Deprivation: Spatial Analysis of Cross-sectional Data. PLoS Med 13, e1001944. https://doi.org/10.1371/journal.pmed.1001944

Vincenti-Gonzalez, M.F., Grillet, M.-E., Velasco-Salas, Z.I., Lizarazo, E.F., Amarista, M.A., Sierra, G.M., Comach, G., Tami, A., 2017. Spatial Analysis of Dengue Seroprevalence and Modeling of Transmission Risk Factors in a Dengue Hyperendemic City of Venezuela. PLoS Negl Trop Dis 11, e0005317. https://doi.org/10.1371/journal.pntd.0005317

Wainiqolo, I., Kafoa, B., Kool, B., Herman, J., McCaig, E., Ameratunga, S., 2012. A profile of injury in Fiji: findings from a population-based injury surveillance system (TRIP-10). BMC Public Health 12, 1074. https://doi.org/10.1186/1471-2458-12-1074

Wanyeki, I., Olson, S., Brassard, P., Menzies, D., Ross, N., Behr, M., Schwartzman, K., 2006. Dwellings, crowding, and tuberculosis in Montreal. Soc Sci Med 63, 501–511. https://doi.org/10.1016/j.socscimed.2005.12.015

WHO, 2020. Regional action plan on healthy ageing in the Western Pacific.

Wood, D.J., Gray, B., 2016. Toward a Comprehensive Theory of Collaboration: https://doi.org/10.1177/0021886391272001 27, 139–162. https://doi.org/10.1177/0021886391272001

World bank, n.d. CGAP phase III strategy 2003-2008. 2003.

World Health Organisation, The World Bank, 2021. Tracking universal health coverage. 2021 Global monitoring report.

World Health Organization, 2021. Social isolation and loneliness among older people:advocacy brief.

World Health Organization, 2020. *Decade of healthy ageing: baseline report*. apps.who.int. https://apps.who.int/iris/bitstream/handle/10665/338677/9789240017900-eng.pdf

World Health Organization, 2018. WHO Housing and health guidelines. World Health Organization, Geneva.

World Health Organization, 2015. Measuring the age-friendliness of cities: a guide to using core indicators.

World Health Organization, 2008. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva.

World Health Organization, 2007a. Global age-friendly cities: a guide. World Health Organization.

World Health Organization, 2007b. Checklist of Essential Features of Age-friendly Cities. World Health Organization.

World Health Organization, 2001. Health and ageing : a discussion paper.

World Health Organization, 1988. Healthy public policy : report on the Adelaide Conference : 2nd International Conference on Health Promotion. Adelaide.

World Health Organization, 1986. The Ottawa Charter for Health Promotion, WHO. World Health Organization, Ottawa.

World Health Organization, 1978. Declaration of Alma-Ata.

Yoshino, H., Yoshino, Y., Zhang, Q., Mochida, A., Li, N., Li, Z., Miyasaka, H., 2006. Indoor thermal environment and energy saving for urban residential buildings in China. Energy and Buildings, Energy and Environment of Residential Buildings in China 38, 1308–1319. https://doi.org/10.1016/j.enbuild.2006.04.006

VI. ICT access / use

With the recent development of Internet and Communication Technology (ICT) and increasing need for indirect communication through the COVID-19 era, ICT use is being recognised as an important factor in healthy ageing. In the past decade, evidence has emerged on the relationship between ICT utilisation and healthy ageing-related outcomes. This section introduces the evidence and interventions.

Accelerated digital inclusion and existing digital divide

Over the two past decades, the Internet has become widely available globally. The number of Internet users has increased to 4.9 billion (63% of the world population) in 2021 from 4.1 billion (54 per cent) in 2019 (Measuring digital development Facts and Figures, 2021). Similarly in the Asian and Pacific regions, 61% of the population were online in 2020. However, approximately 40% of those lived in developing countries still had no access to the Internet. In South Korea, 96.5% had access to the Internet, while only 33.8% of those in Laos did. Furthermore, older adults had the lowest level of Internet use. In Japan, despite being a society with high Internet penetration, only 25.6% of those in their 80s had access to the Internet in 2020, compared to more than 98% of those aged 20 to 59 years (Ministry, 2021).

Evidence on the Internet to promote health and well-being among older adults

The COVID-19 pandemic prompted the recognition of the Internet as a key social determinant of health. It provides users with access to health promoting resources, such as health care services, economic stability, education, and food security, and helps maintain social interactions while adhering to physical-distancing (Benda et al., 2020; Early and Hernandez, 2021). Particularly among older adults, evidence demonstrated the pro-health impacts of Internet use. Its potential to provide various opportunities for cognitive stimulation that prompted many researchers to examine the impacts of the Internet on maintaining cognitive function among older people with relatively consistent findings (Berner et al., 2019; Ihle et al., 2020; Kamin and Lang, 2020; Liapis and Harding, 2017). The Internet is expected to be helpful to perform instrumental activities of daily living (i.e. managing finances, handling transportation, shopping, etc.), which was supported by a recent longitudinal study (Nakagomi et al., 2022). Although the evidence was inconclusive, some studies showed positive associations of Internet use with hedonic (e.g. happiness) (Lu and Kandilov, 2021), evaluative (life satisfaction) (Heo et al., 2015; Lam et al., 2020; Lifshitz et al., 2018), and eudaimonic well-being (e.g. purpose/meaning in life) (Quintana et al., 2018).

Internet use is an effective way of maintaining and expanding offline social connection with others (Barbosa Neves et al., 2019; Mellor et al., 2008; Nakagomi et al., 2022; Shapira et al., 2007; Winstead et al., 2013). A potential mechanism is that information and/or social connections on the Internet promotes offline interaction with friends and/or engagement in activities of interest (Szabo et al., 2019). Online communication was also

reportedly associated with lower depression among older people (Lam et al., 2020; Nakagomi et al., 2020), which suggested a potential role of the Internet on health and well-being promotion via maintaining social interactions during the COVID-19 pandemic.

Action: Closing digital divide

Gaps in Internet access (digital divide) still exist in various settings. Remarkably, in rural areas in the least developed countries, only 13% of the population was online in 2021. Policy, legal, and regulatory supports are vital to bridge the digital divide as economic development, infrastructure, and, in a few cases, military dictatorship, generally contribute to digital connectivity. Although these are hard to overcome in a short period of time, current global trends are promising. Between 2019 and 2021, Internet use in the least developed countries increased by 20% compared to a lesser increase in developed countries, where it was already almost universal. Hence, this slightly narrowed the divide between the world's most and least-connected countries.

A case of successful agribusiness utilising the Internet in a remote area of Japan

Internet enables older people to spend active lives. In a small mountain village with a rapidly declining and aging population (52.3% aged 65 years and older in 2010) in Japan, a successful enterprise was achieved by connecting older people and local agricultural resources utilising the Internet (Hashimoto, 2012). The business overcame the distance between the peripheral region and consumer markets and difficulties/burdens that older people felt by developing specialised hardware (for example, large roller-ball mouses) and easy-to-use interfaces that older adults could navigate. Although causality cannot be drawn, older people who worked for the business had few diseases and felt happier than those who did not (Haga, 2015). Furthermore, the business increased opportunities for older people to interact with young trainees and visitors from other regions in Japan and abroad. Hence, Internet use for productive purposes might be an effective strategy to help older people use the Internet and keep actively using it.

References

Barbosa Neves, B., Franz, R., Judges, R., Beermann, C., & Baecker, R. (2019). Can Digital Technology Enhance Social Connectedness Among Older Adults? A Feasibility Study. J Appl Gerontol, 38, 49-72.

Benda, N.C., Veinot, T.C., Sieck, C.J., & Ancker, J.S. (2020). Broadband Internet Access Is a Social Determinant of Health! Am J Public Health, 110, 1123-1125.

Berner, J., Comijs, H., Elmståhl, S., Welmer, A., Berglund, J., Anderberg, P., et al. (2019). Maintaining cognitive function with internet use: a two-country, six-year longitudinal study. International Psychogeriatrics, 31, 929-936.

Early, J., & Hernandez, A. (2021). Digital Disenfranchisement and COVID-19: Broadband Internet Access as a Social Determinant of Health. Health Promot Pract, 15248399211014490.

Haga, K. (2015). Innovation and entrepreneurship in aging societies: theorical reflection and a case study from kamikatsu, Japan. Journal of Innovation Economics & Management, 18, 119-141.

Hashimoto, K. (2012). Agri-business for elderly people through the Internet. The example of the Irodori leaf business. Netcom. Réseaux, communication et territoires, 26, 235-250.

Heo, J., Chun, S., Lee, S., Lee, K.H., & Kim, J. (2015). Internet use and well-being in older adults. Cyberpsychol Behav Soc Netw, 18, 268-272.

Ihle, A., Bavelier, D., Maurer, J., Oris, M., & Kliegel, M. (2020). Internet use in old age predicts smaller cognitive decline only in men. Sci Rep, 10, 8969.

Kamin, S.T., & Lang, F.R. (2020). Internet Use and Cognitive Functioning in Late Adulthood: Longitudinal Findings from the Survey of Health, Ageing and Retirement in Europe (SHARE). J Gerontol B Psychol Sci Soc Sci, 75, 534-539.

Lam, S.S.M., Jivraj, S., & Scholes, S. (2020). Exploring the Relationship Between Internet Use and Mental Health Among Older Adults in England: Longitudinal Observational Study. J Med Internet Res, 22, e15683.

Liapis, J., & Harding, K.E. (2017). Meaningful use of computers has a potential therapeutic and preventative role in dementia care: A systematic review. Australas J Ageing, 36, 299-307.

Lifshitz, R., Nimrod, G., & Bachner, Y.G. (2018). Internet use and well-being in later life: a functional approach. Aging Ment Health, 22, 85-91.

Lu, H., & Kandilov, I.T. (2021). Does Mobile Internet Use Affect the Subjective Well-being of Older Chinese Adults? An Instrumental Variable Quantile Analysis. Journal of Happiness Studies, 22, 3137-3156.

Measuring digital development Facts and Figures 2021. International Telecommunication Union Development Sector.

Mellor, D., Firth, L., & Moore, K. (2008). Can the Internet Improve the Well-being of the Elderly? Ageing International, 32, 25-42.

Ministry of Internal Affairs and Communications (2021). The Communications Usage Trend Survey (p. https://www.soumu.go.jp/johotsusintokei/statistics/statistics05b01.html).

Nakagomi, A., Shiba, K., Kawachi, I., Ide, K., Nagamine, Y., Kondo, N., et al. (2022). Internet use and subsequent health and well-being in older adults: An outcome-wide analysis. Computers in Human Behavior, 130, 107156.

Nakagomi, A., Shiba, K., Kondo, K., & Kawachi, I. (2020). Can Online Communication Prevent Depression Among Older People? A Longitudinal Analysis. J Appl Gerontol, 733464820982147.

Quintana, D., Cervantes, A., Sáez, Y., & Isasi, P. (2018). Internet Use and Psychological Well-Being at Advanced Age: Evidence from the English Longitudinal Study of Aging. International journal of environmental research and public health, 15, 480.

Shapira, N., Barak, A., & Gal, I. (2007). Promoting older adults' well-being through Internet training and use. Aging & Mental Health, 11, 477-484.

Szabo, A., Allen, J., Stephens, C., & Alpass, F. (2019). Longitudinal Analysis of the Relationship Between Purposes of Internet Use and Well-being Among Older Adults. Gerontologist, 59, 58-68.

Winstead, V., Anderson, W.A., Yost, E.A., Cotten, S.R., Warr, A., & Berkowsky, R.W. (2013). You Can Teach an Old Dog New Tricks:A Qualitative Analysis of How Residents of Senior Living Communities May Use the Web to Overcome Spatial and Social Barriers. Journal of Applied Gerontology, 32, 540-560.

VII. Ageism: the discrimination and stigma for older people

Have you ever heard of the term ‘ageism’? To create a society that enables healthy ageing, discrimination on the basis of age must be eliminated as much as possible. Although there are different types of discriminations in modern society, this section focuses on ageism in particular as a discrimination and stigma particularly relevant to healthy ageing.

Ageism and age discrimination

Age discrimination entails the behavioural and structural aspects of the broader notion of ageism, which also includes unfavourable stereotypical attitudes and beliefs (prejudice; Butler, 1980) (Table VII.1). A global report on ageism, published by multiple international organisations, described it as when age was used to classify and divide people in ways that lead to harm, disadvantages, and injustice and undermined intergenerational solidarities (World Health Organization, United Nations Department of Economic and Social Affairs, United Nations Population Fund, 2021). In other words, ageism involves how we think (stereotypes), feel (prejudice), and act (discrimination) toward others and ourselves based on our age (Fig. VII.1).

A systematic review by Chang et al. reported that health effects of age discrimination were greater in low- and middle-income countries than in high-income countries. Furthermore, older adults with lower levels of education were particularly likely to experience adverse health effects from ageism. Their analysis also revealed that the detrimental effects of ageism on older adults’ health occurred simultaneously at the structural and individual levels in five continents (Chang et al., 2020).

Age discrimination is known to have a negative effect on health. Vogt Yuan reported that perceived age discrimination was associated with higher psychological distress and lower positive well-being (Vogt Yuan, 2007). Other studies reported that it was associated with lower self-esteem (Hassell and Perrewé, 1993) and reduced willingness and ambition to engage in activities, tasks (Bayl-Smith and Griffin, 2014), or social participation to improve themselves or take care of their own future (Schermuly et al., 2014). Furthermore, age discrimination could trigger social isolation and withdrawal to avoid further discrimination (Griffin et al., 2016). Experience with age discrimination was related to depressive mood and poor quality of life (Shin et al., 2019) and can lead to prejudices related to physical and mental health (Nicholson et al., 2012). Moreover, a similar study

showed that it also negatively affected various physiological outcomes, such as cardiovascular events (Levy et al., 2009), cognitive performance (Levy et al., 2012), and Alzheimer's disease biomarkers (Levy et al., 2016). A Korean study also reported that discrimination had an indirect effect on depression through stress (Lee and Kim, 2016) and increased the risk of suicidal ideation by 2.26 times compared to in those who did not experience age discrimination (Kim and Lee, 2020). Although future research requires longitudinal and experimental studies to establish causal relationships, many negative health effects of age discrimination are evident. The three currently recommended actions to reduce age discrimination are further described below.

Table VII.1 A catalogue of stereotypes identified in different generations

INSTITUTION OR SECTOR	STEREOTYPES	
	YOUNGER PEOPLE ARE...	OLDER PEOPLE ARE...
Health and social care[a]		
POSITIVE	Healthy Physically active Strong and energetic	Warm Likeable
NEGATIVE	Risk-takers Drug-users Stressed and anxious	Rigid Irritable and frustrating Lonely and isolated Frail and weak Asexual Easily confused Depressed and depressing Needy Disabled
Work[b]		
POSITIVE	Energetic Ambitious Tech-savvy Hard-working (middle-aged)	Reliable Committed Experienced Hard-working Socially skilled Good mentors and leaders Able to deal with change
NEGATIVE	Narcissistic Disloyal Entitled Lazy Unmotivated Easily distracted	Incompetent and unproductive Unmotivated Resistant to change Harder to train and unable to learn Not flexible Not technologically competent
Media[c]		
POSITIVE	Attractive	Healthy Engaged Productive Self-reliant
NEGATIVE	Troublesome Violent criminals	Unattractive Unhappy Senile Badly dressed Inactive Dependent Unhealthy Disempowered and poor Vulnerable Diabolical

Source: World Health Organization, United Nations Department of Economic and Social Affairs, United Nations Population Fund, U. N. O. of the H. C. for H. R. (2021). Global report on ageism. Page 4. Table.1.1.

Three strategies to reduce age discrimination

(II) Policy and law (Change discriminatory institutional and societal practices and regulations)

There are ways to enact laws against age discrimination. Australia has an age discrimination legislation at the national (Age Discrimination Act, 2004), state, and territory levels (O'Loughlin et al., 2017)(Australian Human Rights Commission, 2015). The need for legislations and appointment of a public age discrimination commission illustrates the institutional nature of age discriminatory attitudes and behaviours and the depth of the problem.

Moreover, it may be important to question regulations, procedures, and habitual routines that create age discrimination by default (e.g. age restrictions in retirement, education, vocational training, employment, and human resource development). Establishing age discrimination and identifying the criteria to distinguish between legitimate and illegitimate forms of age discrimination has been a topic for litigation, intense debates, basic human rights, political agendas, and negotiating individual and corporate freedoms. A positive aging climate buffered the negative association between employee age and their occupational future time perspective, which in turn, positively related to job satisfaction, organisational commitment, and the motivation to continue working (Zacher and Yang, 2016).

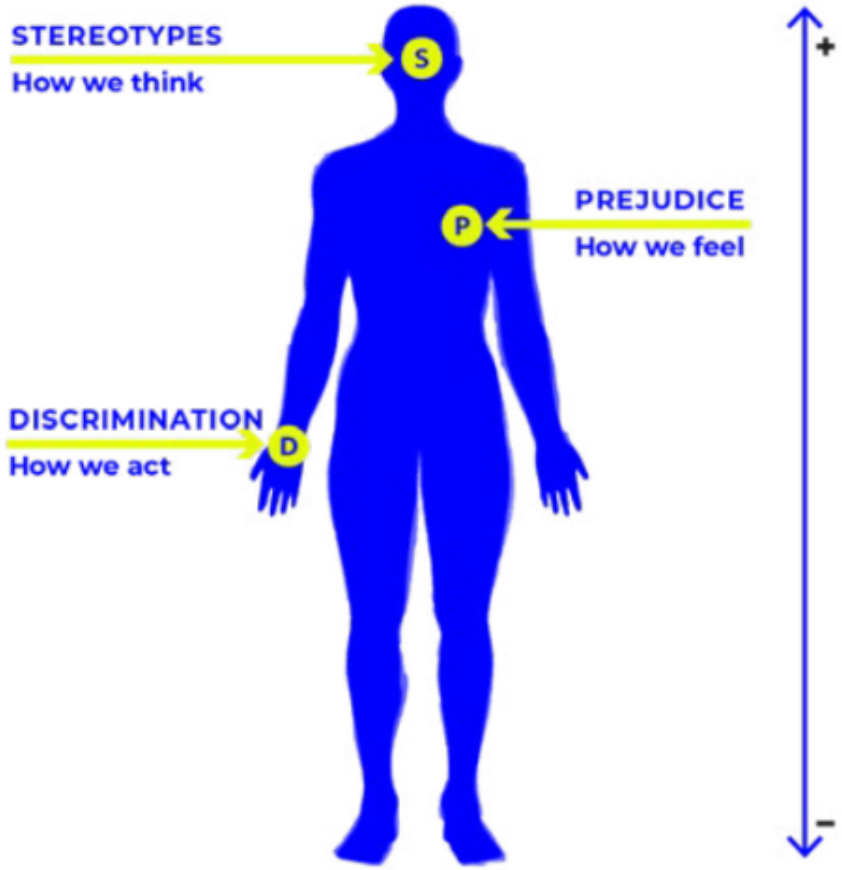
(2) Educational interventions (Increasing awareness of age discriminations)

Kornadt et al. reported that internalisation or embodiment of negative age stereotypes could result to age-based self-discrimination (Kornadt et al., 2020). Furthermore, Klusmann et al. suggested that age stereotypes and norms typically had a rather stable trait-like character (Klusmann et al., 2020).

Aging is about both losses and gains (e.g. experience and prosocial attitudes) and that there is a potential for change (plasticity) at any age (Staudinger, 2020). Providing information, arguments, and counter-examples may help falsify the stereotypes or demonstrate their inapplicability (Beyer et al., 2019). Indirect activations that create positive, age-related experiences of success, such as tailored physical activity

programmes, may be promising approaches to reduce ageist self-discriminations (Klusmann et al., 2012).

Fig. VII.1 The three dimensions of ageism include stereotypes, prejudice, and discrimination. These dimensions may be perceived as positive or negative.



Source: World Health Organization, United Nations Department of Economic and Social Affairs, United Nations Population Fund, U. N. O. of the H. C. for H. R. (2021). Global report on ageism. Page 6. Fig.1.1.

(3) Intergenerational contact intervention (Challenge discriminatory age norms and stereotype)

Social contact between different groups is a common strategy for overcoming intergroup conflict. In addition, special programmes to combat ageism and age discrimination are built on the idea of intergroup contact between generations (del Carmen Requena et al., 2018). Reversing the stereotype of incompetence (Cadieux et al., 2019) is the focus. Burns et al. showed that intervention with education and intergenerational contact had the largest

effect on attitude (Burnes et al., 2019). Hence, such contact could decrease intergroup prejudice and stereotypes toward ageing.

References

Australian Human Rights Commission. (2015). *National prevalence survey of age discrimination in the workplace*. https://www.humanrights.gov.au/sites/default/files/document/publication/AgePrevalenceReport2015.pdf

Bayl-Smith, P. H., & Griffin, B. (2014). Age discrimination in the workplace: Identifying as a late-career worker and its relationship with engagement and intended retirement age. *Journal of Applied Social Psychology*, *44*(9), 588–599. https://doi.org/10.1111/jasp.12251

Beyer, A. K., Wolff, J. K., Freiberger, E., & Wurm, S. (2019). Are self-perceptions of ageing modifiable? Examination of an exercise programme with vs. without a self-perceptions of ageing-intervention for older adults. *Psychology and Health*, *34*(6), 661–676. https://doi.org/10.1080/08870446.2018.1556273

Burnes, D., Sheppard, C., Henderson, C. R., Wassel, M., Cope, R., Barber, C., & Pillemer, K. (2019). Interventions to reduce ageism against older adults: A systematic review and meta-analysis. *American Journal of Public Health*, *109*(8), E1–E9. https://doi.org/10.2105/AJPH.2019.305123

Cadieux, J., Chasteen, A. L., & Packer, D. J. (2019). Intergenerational contact predicts attitudes toward older adults through inclusion of the outgroup in the self. *Journals of Gerontology – Series B Psychological Sciences and Social Sciences*, *74*(4), 575–584. https://doi.org/10.1093/geronb/gbx176

Chang, E. S., Kannoth, S., Levy, S., Wang, S. Y., Lee, J. E., & Levy, B. R. (2020). Global reach of ageism on older persons' health: A systematic review. *PloS ONE*, *15*(1), 1–24. https://doi.org/10.1371/journal.pone.0220857

del Carmen Requena, M., Swift, H. J., Naegele, L., Zwamborn, M., Metz, S., Bosems, W. P. H., & van Hoof, J. (2018). *Educational Methods Using Intergenerational Interaction to Fight Ageism* (pp. 383–402). https://doi.org/10.1007/978-3-319-73820-8_23

Griffin, B., Bayl-Smith, P., & Hesketh, B. (2016). The longitudinal effects of perceived age discrimination on the job satisfaction and work withdrawal of older employees. *Work, Aging and Retirement*, *2*(4), 415–427. https://doi.org/10.1093/workar/waw014

Hassell, B. L., & Perrewé, P. L. (1993). An examination of the relationship between older workers' perceptions of age discrimination and employee psychological states. *Journal of Managerial Issues*, *5*(1), 109–120.

Kim, G., & Lee, M. A. (2020). Age Discrimination and Suicidal Ideation Among Korean Older Adults.

American Journal of Geriatric Psychiatry, *28*(7), 748–754. https://doi.org/10.1016/j.jagp.2019.12.002

Klusmann, V., Evers, A., Schwarzer, R., & Heuser, I. (2012). Views on aging and emotional benefits of physical activity: Effects of an exercise intervention in older women. *Psychology of Sport and Exercise*, *13*(2), 236–242. https://doi.org/10.1016/j.psychsport.2011.11.001

Klusmann, V., Notthoff, N., Beyer, A. K., Blawert, A., & Gabrian, M. (2020). The assessment of views on ageing: a review of self-report measures and innovative extensions. In *European Journal of Ageing* (Vol. 17, Issue 4, pp. 403–433). Springer Science and Business Media B.V. https://doi.org/10.1007/s10433-020-00556-9

Kornadt, A. E., Kessler, E. M., Wurm, S., Bowen, C. E., Gabrian, M., & Klusmann, V. (2020). Views on ageing: a lifespan perspective. In *European Journal of Ageing* (Vol. 17, Issue 4, pp. 387–401). Springer Science and Business Media B.V. https://doi.org/10.1007/s10433-019-00535-9

Lee, H. S., & Kim, C. (2016). Structural Equation Modeling to Assess Discrimination, Stress, Social Support, and Depression among the Elderly Women in South Korea. *Asian Nursing Research*, *10*(3), 182–188. https://doi.org/10.1016/j.anr.2016.06.003

Levy, B. R., Ferrucci, L., Zonderman, A. B., Slade, M. D., Troncoso, J., & Resnick, S. M. (2016). A culture-brain link: Negative age stereotypes predict 71 eople 71 er's disease biomarkers. *Psychology and Aging*, *31*(1), 82–88. https://doi.org/10.1037/pag0000062

Levy, B. R., Zonderman, A. B., Slade, M. D., & Ferrucci, L. (2009). Age stereotypes held earlier in life predict cardiovascular events in later life. *Psychological Science*, *20*(3), 296–298. https://doi.org/10.1111/j.1467-9280.2009.02298.x

Levy, B. R., Zonderman, A. B., Slade, M. D., & Ferrucci, L. (2012). Memory shaped by age stereotypes over time. *Journals of Gerontology – Series B Psychological Sciences and Social Sciences*, *67 B*(4), 432–436. https://doi.org/10.1093/geronb/gbr120

Nicholson, C., Meyer, J., Flatley, M., Holman, C., & Lowton, K. (2012). Living on the margin: Understanding the experience of living and dying with frailty in old age. *Social Science and Medicine*, *75*(8), 1426–1432. https://doi.org/10.1016/j.socscimed.2012.06.011

O'Loughlin, K., Kendig, H., Hussain, R., & Cannon, L. (2017). Age discrimination in the workplace: The more things change …. *Australasian Journal on Ageing*, *36*(2), 98–101. https://doi.org/10.1111/ajag.12429

Schermuly, C. C., Deller, J., & Büsch, V. (2014). A Research Note on Age Discrimination and the Desire to Retire: The Mediating Effect of Psychological Empowerment. *Research on Aging*, *36*(3), 382–393. https://doi.org/10.1177/0164027513508288

Shin, D. W., Park, K., Jeong, A., Yang, H. K., Kim, S. Y., Cho, M., & Park, J. H. (2019). Experience with age discrimination and attitudes toward ageism in older patients with cancer and their caregivers: A nationwide Korean survey. *Journal of Geriatric Oncology*, *10*(3), 459–464.

https://doi.org/10.1016/j.jgo.2018.09.006

Staudinger, U. M. (2020). The positive plasticity of adult development: Potential for the 21st century. *American Psychologist*, *75*(4), 540–553. https://doi.org/10.1037/amp0000612

Vogt Yuan, A. S. (2007). Perceived age discrimination and mental health. *Social Forces*, *86*(1), 292–311. https://doi.org/10.1353/sof.2007.0113

World Health Organization, United Nations Department of Economic and Social Affairs, United Nations Population Fund, U. N. O. of the H. C. for H. R. (2021). *Global report on ageism*. http://www.who.int/about/licensing/copyright_form/index.html%0Ahttp://www.who.int/about/licensing/

Zacher, H., & Yang, J. (2016). Organizational climate for successful aging. *Frontiers in Psychology*, *7*(JUL). https://doi.org/10.3389/fpsyg.2016.01007

Column 2: Purpose in Life - *Ikigai*

1. Healthy aging and purpose in life

The main goal of healthy aging and functional ability is enabling well-being. Well-being consists of various aspects (WHO, 2020). An important aspect of well-being is purpose in life or so called ikigai recently (originally a Japanese word). Purpose in life is defined as 'what makes life worth living' (Mathews, 1996).

For older adults to live with purpose in life, it is necessary to build a system that can provide support that respects what they value and are important in their life.

In Japan, a Community-Based Integrated Care System has been established for older adults to live their lives in their own ways in familiar environments (Ministry of Health, 2016). It comprehensively ensures the provision of health and nursing care, prevention, housing, and livelihood support.

Respecting the individual's values, each service in the community works closely together to provide a support system that enables them to maintain their well-being and live their own life.

2. Association between health and purpose in life

Systematic review and meta-analysis revealed that purpose in life was associated with subjective and objective health (Czekierda et al., 2017). A study in Japan indicated that having purpose in life was associated with physical health, such as a lower risk of functional disability, lower risk of dementia, and social or subjective well-being (Okuzono et al., 2022).

3. New health and well-being concepts, including purpose in life

Previous studies evaluated only a single outcome related to the health or well-being of older adults and have not adequately assessed their multidimensional well-being. Recently, some comprehensive health concepts, including purpose in life, have been proposed.

A concept that captures the diverse aspects of 'flourishing' (VanderWeele, 2017), includes (i) happiness and life satisfaction, (ii) physical and mental health, (iii) meaning and purpose, (iv) character and virtue, (v) close social relationship, and (vi) financial and material stability.

The concept of ‘positive health’ views health as the ability to adapt and self-manage (Huber et al., 2011), assess functional status, and measure the quality of life and sense of well-being, including purpose in life.

Although quantitative measures of health using these concepts are not well established or do not lend themselves to evaluations in certain areas, they are an important perspective to achieve healthy aging.

References

Czekierda K, Banik A, Park C.L, Luszczynska A, 2017. Meaning in life and physical health: systematic review and meta-analysis. Health Psychol Rev. 11(4), 387–418. https://doi.org/10.1080/17437199.2017.1327325

Huber, M., Knottnerus, J. A., Green, L., van der Horst, H., Jadad, A. R., Kromhout, D., Leonard, B., Lorig, K., Loureiro, M. I., van der Meer, J. W., Schnabel, P., Smith, R., van Weel, C., Smid, H, 2011. How should we define health?. BMJ. 343, d4163. https://doi.org/10.1136/bmj.d4163

Mathews G, 1996. What Makes Life Worth Living?: how Japanese and Americans Make Sense of Their Worlds. University of California Press, Berkeley.

Ministry of Health, 2016. Labour and Welfare. Establishing ‘the Community-based Integrated Care System’. https://www.mhlw.go.jp/english/policy/care-welfare/care-welfare-elderly/dl/establish_e.pdf (accessed 22 June 2022)

Okuzono S.S, Shiba K, Kim E.S, Shirai K, Kondo N, Fujiwara T, Kondo K, Lomas T, Trudel-Fitzgerald C, Kawachi I, VanderWeele T.J, 2022. Ikigai and subsequent health and wellbeing among Japanese older adults: Longitudinal outcome-wide analysis. Lancet Reg Health West Pac. 21, 100391. https://doi.org/10.1016/j.lanwpc.2022.100391

VanderWeele T.J, 2017. On the promotion of human flourishing. Proc Natl Acad Sci U S A. 114(31), 8148–8156. https://doi.org/10.1073/pnas.1702996114

World Health Organization,2020.Healthy aging and functional ability. https://www.who.int/news-room/questions-and-answers/item/healthy-ageing-and-functional-ability#:~:text=WHO%20defines%20healthy%20ageing%20as%20%E2%80%9Cthe%20process%20of,to%20value.%20This%20includes%20a%20person%E2%80%99s%20ability%20to%3A (accessed 22 June 2022)

POLICY OPTIONS: How to Achieve Equitable Healthy Ageing in a Society? Theoretical Overview and Examples

Based on the evidence of social determinants of healthy ageing reviewed in the previous section, this section presents the theoretical overviews, examples of policy options, and useful tools to take actions based on the three primary recommendations of the WHO CSDH, namely, 1) Improve daily living conditions, 2) Tackle the inequitable distribution of Power, Money, and Resources, and 3) Measure and Understand the Problem and Assess the impact of action.

I. Improve Daily Living Conditions

The first CSDH recommendation is 'improving daily living conditions'. Daily living conditions are 'the circumstances in which people are born, grow, live, work, and age' (World Health Organization, 2008). In this section, we introduce practical examples and important concepts toward achieving this goal.

Theory and concepts

1) Strategies for addressing social determinants of healthy ageing through improvement of the social environment

The importance of health promotion, considered the promotion of healthy ageing among older adults, through improving the social environment has been emphasised in the Primary Health Care philosophy (World Health Organization, 1986, 1978). To promote healthy ageing, health policies and programmes should develop systems that emphasise health promotion, disease prevention, and provision of cost-effective, equitable, and dignified long-term care (World Health Organization, 2001).

II) Social change and empowerment: Two health promotion approaches targeting the social environment

The trend has called for effective interventions targeting the social environment to promote healthy ageing. Several essential approach strategies, such as social change and empowerment, have been proposed. According to the health promotion textbook written

by Naidoo and Wills, social change and empowerment are two different health promotion approaches that target the social environment (Naidoo and Wills, 2016).

Social change, a top-down approach, includes the implementation of healthy public policies or legislation by central governments. In the 1988 Adelaide recommendation, healthy public policy (HPP) was defined as 'placing health on the agenda of policymakers in all sectors and at all levels, directing them to be aware of the health consequences of their responsibilities for health' (World Health Organization, 1988). Since the 2000s, the Health in All Policies approach, based on the principle of guaranteeing the right to health for all people in an equitable manner, has expanded and further emphasises the importance of intersectoral collaboration (Ståhl et al., 2006).

In contrast, empowerment is a bottom-up strategy. It focuses on not just an individual, but the community and enhances the community's capacity and resilience, which is called community organising. Minkler defined community organising as 'the process by which community groups are helped to identify common problems or change targets, mobilise resources, and develop and implement strategies to reach their collective goals' (Minkler, 2012). Community organising is a main strategy in health promotion (World Health Organization, 1986).

II) New population approach considering SDH

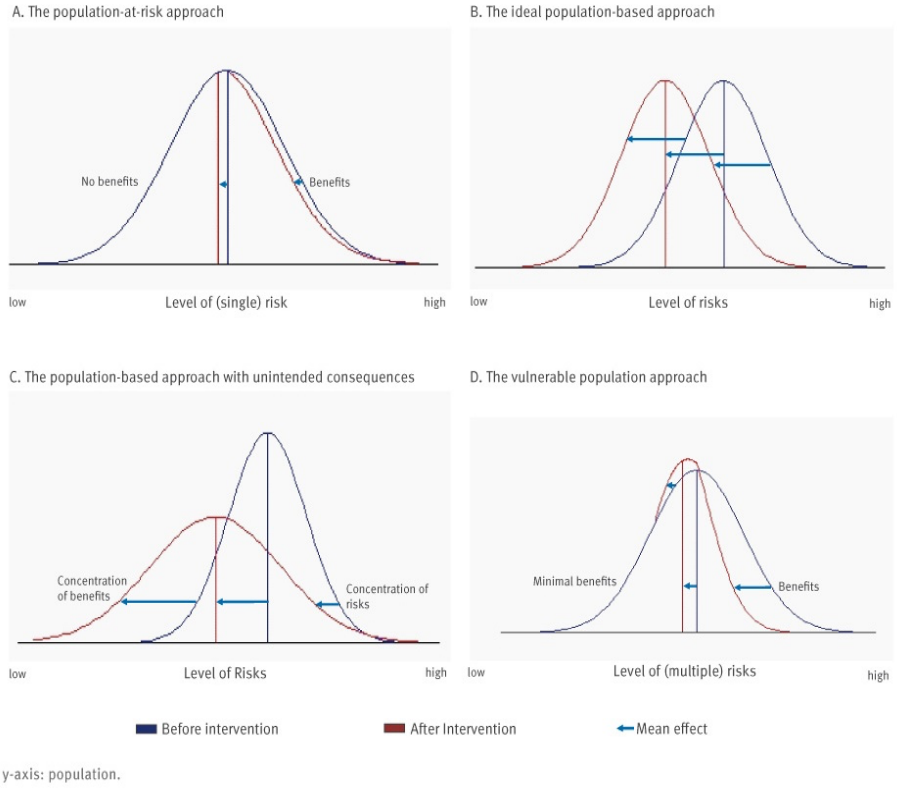
Given that a traditional 'knowledge-enlightening' populational approach may widen health inequality (Frohlich and Potvin, 2008), new population approaches that consider the SDH have been proposed. Of these new population approaches, two examples include the vulnerable population approach and proportionate universalism (Benach et al., 2013; Semenza, 2010)(Figure 2).

The vulnerable population approach[2] focuses on those socially excluded, disadvantaged, or marginalised based on their social characteristics (e.g. socioeconomic status or cultural characteristics). Its target would be to lower risk exposure among those with particular social characteristics through changes in the social conditions that cause groups to be at a higher risk. Since this could be a selective approach toward a specific group, it might lead to discrimination or stigmatisation of those targeted 'disadvantaged' people.

[2] Unlike the high-risk approach that targets individuals with biologically high risks for developing diseases (such as hypertension for cardiovascular diseases), this is an approach for populations with a social risk for health.

In contrast, proportionate universalism is a universal approach, while the intensity and scale are proportional to the social strata (Marmot et al., 2010). Creation of an opportunity for social participation, such as 'community salons' described above, could be considered as a proportionate universalism approach for older people. Hirai and Kondo reported that the proportion of salon participants was higher among those from low-income groups than high-income groups in a town. Furthermore, those who participated in the community salon tended to maintain their physical and cognitive function, regardless of their income levels (Hikichi et al., 2018, 2015; Hirai and Kondo, 2010). To evaluate the effectiveness of community organising measures, it is essential to monitor the population's health status over time by social strata based on their heterogeneity (See Section Policy options III). Based on the results and social conditions, a periodic review and updating of the measures are necessary.

Figure I.1: Hypothetical distribution of a disease risk in a population and impact of the selected interventions



Source: Benach et al., 2013; Semenza, 2010

Policy example

1) Successful shift from high-risk approach to empowerment-type population approach: Lessons from Japan

The two major types of health promotion strategies, i.e. the high-risk and population approaches, should be taken in parallel (Rose, 1985). Focusing solely on a high-risk approach is a high risk for failure. In Japan, measures to prevent older people from developing the need for long-term care were implemented in 2006 by screening to identify individuals who were frail. However, the percentage of those identified (at high risk of requiring long-term care) and subsequently enrolled in the prevention programme was small, i.e. 0.8% of the targeted population. In addition, as local governments used health check-ups for the screening process, they could not capture those actually at high risk (Saito et al., 2019).

Due to this 'failure', the government switched their primary strategy to measures based on a population approach in 2015. The Japanese government encouraged each local government to establish a Community-Based Integrated Care (CBIC) system, which comprehensively and seamlessly ensured the provision of care, prevention, and welfare for all individuals (see Section Policy options II). Regarding prevention, local governments have supported local citizens in starting 'community salons (place-to-go)', or '*kayoi-no-ba*' in Japanese, where everybody could go on foot and participate at a low cost. This bottom-up, empowerment measure was aimed to socially include older people in the community, watch over them in cooperation with various sectors, and connect them with necessary services when they required. The effectiveness such an intervention has been explained in Section Evidence III. There is empirical evidence on the causal impacts of *kayoi-no-ba* on reducing functional disability and potential reduction in health disparity (Hikichi et al, 2015). Based on this evidence, the Japanese government launched a financial incentive programme for local municipalities that encourages the support for activities. With the lessons learned from Japan, it is necessary to promote health promotion based on a population approach for older people and not only a high-risk approach (Saito et al., 2019).

2) Age-friendly cities initiative: strategic intervention to whole city environment

A residential community environment is especially important for older adults whose daily activities are often within walking distance. Local governments play a significant role in designing and managing the community. The WHO developed an Age-Friendly Cities framework and promoted actions to build such cities in its member states. Age-Friendly

Cities are defined as ‘an inclusive and accessible community environment that optimises opportunities for health, participation and security for all people, in order that quality of life and dignity are ensured as people age’ (World Health Organization, 2007a). Policies or structures in age-friendly cities support and enable older people to age actively by recognising a wide range of capacities and resources79eople:

- anticipating and responding flexibly to ageing-related needs and preferences,
- respecting their decisions and lifestyle choices,
- protecting those most vulnerable, and
- promoting their inclusion in and contribution to all areas of community life.

FigureI.2: Age-friendly city topic

The WHO released a guide to encourage cities to create age-friendly environments to enable residents to increase their functional ability (World Health Organization, 2007a). I guide covered eight interconnected domains that reflected the social determinants of active aging (Figure I.2):

- Outdoor spaces and buildings
- Transportation
- Housing
- Social participation
- Respect and social inclusion
- Civic participation and employment
- Communication and information
- Community support and health services

There is a checklist of features of age-friendly cities along with these topic areas (World Health Organization, 2007b). In addition, technical guidance is available on selecting and using concrete indicators to monitor and progress improvements in age-friendliness according to local governments (World Health Organization, 2015a). A review article published in 2015 reported that intersectoral collaboration (see Section: Policy options II) and government commitment were the key factors to create age-friendly cities and communities (Steels, 2015). Please see Section Evidence III for empirical evidence or

recommendations on each topic area.

References

Benach, J., Malmusi, D., Yasui, Y., Martínez, J.M., 2013. A new typology of policies to tackle health inequalities and scenarios of impact based on Rose's population approach. J Epidemiol Community Heal. 67, 286–91. https://doi.org/10.1136/jech-2011-200363.

Frohlich, K.L., Potvin, L., 2008. Transcending the known in public health practice: the inequality paradox: the population approach and vulnerable populations. Am. J. Public Health 98, 216–21. https://doi.org/10.2105/AJPH.2007.114777

Hikichi, H., Aida, J., Matsuyama, Y., Tsuboya, T., Kondo, K., Kawachi, I., 2018. Community-level social capital and cognitive decline after a natural disaster: A natural experiment from the 2011 Great East Japan Earthquake and Tsunami. Soc. Sci. Med. 0–1. https://doi.org/10.1016/j.socscimed.2018.09.057

Hikichi, H., Kondo, N., Kondo, K., Aida, J., Takeda, T., Kawachi, I., 2015. Effect of a community intervention programme promoting social interactions on functional disability prevention for older adults: propensity score matching and instrumental variable analyses, JAGES Taketoyo study. J. Epidemiol. Community Health 69, 905–910. https://doi.org/10.1136/jech-2014-205345

Hirai, H., Kondo, K., 2010. Evaluating a care prevention program utilized community salon. (Japanese). Q Soc Secur Res 46, 249–263.

Marmot, M., Allen, J., Goldblatt, P., 2010. Fair Society, Healthy Lives: Strategic Review of Health Inequalities in England post-2010. The Marmot Review. London.

Minkler, M., 2012. Community organizing and community building for health and welfare. Rutgers University Press, New Jersey.

Naidoo, J., Wills, J., 2016. Foundations for Health Promotio[n,] 4th ed. Elsevier, London.

Rose, G., 1985. Sick individuals and sick populations. Int. J. Epidemiol. 14, 32–38.

Saito, J., Haseda, M., Amemiya, A., Takagi, D., Kondo, K., Kondo, N., 2019. Community-based care for healthy ageing: lessons from Japan. Bull. World Health Organ. 97, 570–574. https://doi.org/http://dx.doi.org/10.2471/BLT.18.223057

Semenza, J.C., 2010. Strategies to intervene on social determinants of infectious diseases. Eurosurveillance 15, pii=19611.

Ståhl, T., Wismar, M., Ollila, E., Lahtinen, E., Leppo, K., 2006. Health in All Policies. Prospects and potentials. Brussels.

Steels, S., 2015. Key characteristics of age-friendly cities and communities: A review. Cities 47, 45–52. https://doi.org/10.1016/J.CITIES.2015.02.004

World Health Organization, 2008. Closing the gap in a generation: health equity through action on

the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva.
World Health Organization, 2007a. Global age-friendly cities: a guide. World Health Organization.
World Health Organization, 2007b. Checklist of Essential Features of Age-friendly Cities. World Health Organization.
World Health Organization, 2001. Health and ageing : a discussion paper.
World Health Organization, 1988. Healthy public policy : report on the Adelaide Conference : 2nd International Conference on Health Promotion. Adelaide.
World Health Organization, 1986. The Ottawa Charter for Health Promotion, WHO. World Health Organization, Ottawa.
World Health Organization, 1978. Declaration of Alma-Ata.

II. Tackle the Inequitable Distribution of Money, Power, and Resources

The second WHO CSDH recommendation is 'tackle the inequitable distribution of money, power, and resources'. Dealing with health inequities and inequitable daily living conditions requires strengthened governance from the community to national level (World Health Organization, 2008). In this section, we present the related theory and concepts, practical examples, and useful tools to accomplish this goal.

II-1. Money in older ages

Theory and concepts

The period of old age is commonly recognised as a crucial stage in a person's life that requires financial support. Becoming older is frequently associated with reduced opportunities of earning enough to maintain an adequate standard of living. The number of older people in the labour force has increased in the past few decades (International Labour Organization, 2018). However, older people tend to encounter disadvantages in the labour market, including finding jobs and their quality. They are likely to engage in informal and dangerous jobs; approximately 80% of older people are in informal employment globally (International Labour Organization, 2013). Hence, older people tend to receive low and unstable incomes (See Section Evidence I).

A retirement system at a specific age could jeopardize the financial security of older adults, depriving them of opportunities to earn income. Older adults' financial situation also depends on the level of state pension in a country (World Health Organization, 2021). Ageism occurs in the entire employment process, including recruitment, promotion, or training (Chang, 2020). This has led to the adoption of the Age Discrimination in Employment Act or delayed retirement being considered (Adams, 2004; Lain, 2011).

Expenditure, particularly on health care, increases as people grow older. Universal social pension, a social protection, is an effective way to provide older adults with income security. In low-income countries, even small cash benefits on a regular basis can have a large positive impact on well-being and help combat social exclusion (McKinnon, 2007). Another types of financial supports, such as cash transfer programmes (conditional and unconditional) or microfinance, enable poor older adults to meet their basic needs and have access to health care (Reed, 2015).

Social protections for older people also include in-kind benefits, such as health and long-term care services (International Labour Organization, 2014). Although increasing countries in the WPR have ensured universal health coverage (UHC) for older persons since 2000, the expansion of service coverage is not sufficient (World Health Organization and World Bank, 2021). In addition, since older people's health and social care needs are diverse and increasingly complex, a person-centred approach is vital by integrating primary health care services and also long-term and social care services.

Policy examples

1) Financial protection by universal health coverage

The aim of UHC is to ensure that everyone has access to the health services whenever required without financial hardship due to their utilisation (World Health Organization and World Bank, 2021). Financial protection is the most essential aspect of UHC and a final coverage goal of the health system. It is achieved when there is no financial barrier to health care access, and payments required to obtain health services do not force people to encounter financial difficulties (World Bank and World Health Organization, 2021).

There is a wide variation in the revenue collection for health care financing among counties in the WPR, taxation, non-tax revenues, financing from foreign resources, and out-of-pocket payments, including voluntary or private health insurance (Table II.1) (International Labour Organization, 2021; Myint et al., 2019).

Table II.1 Methods of revenue collection by country

Revenue collection	Country
Direct and Indirect taxes*	Cambodia, China, Indonesia, Lao People's Democratic Republic (PDR), Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam
Non-tax revenues: revenues from oil and other natural resources	Brunei
Financing from foreign sources through government	Cambodia, Lao PDR, and Myanmar
Out-of-pocket	Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam

Table based on (Myint et al., 2019) and modified by the author.
*Direct taxes include income taxes, pay roll taxes (social health insurance contributions), corporate income, or profits taxes. Indirect taxes include value-added tax (VAT), business tax, and import or export taxes.

2) Microfinance

Microfinance is the provision of financial services, such as small unsecured loans, savings, insurance, and remittances, for low-income people otherwise excluded from formal financial services. It aims to reduce poverty and improve social inclusion and empowerment by providing opportunities for financial inclusion to those excluded (World Bank Group, 2003).

Microfinance has grown significantly in low-income countries since it was first introduced by Grameen Bank in Bangladesh in the 1970s. Typically, microfinance is based on a 'group lending' system: individuals without collaterals are screened on their ability to conduct a small business and repay the loan. A group of several members is formed, and loans are provided in turn within the group. If the group's repayments succeed, members are provided bigger loans in the following loan cycle (Robinson, 2001). Though the group lending system has been successful due to its advantages, such as the ability to safely invest funds by leveraging social capital through collateralised connections with group members, there is movement toward individual clients. Its rationale is that loaners can have more flexible opportunities to choose the duration, repayment plan, scheduling, and other aspects of a loan product, compared to a group lending system (Dale et al., 2012).

The target groups vary according to countries and microfinance operators. However, they are usually women, ethnic minorities, or young people. Recently, older people are emerging as a target for microfinance lenders due to an increasing older population who require financial services to support their lives (European Microfinance Network, 2012).

A Case: Crédal in Belgium

Crédal is a cooperative established in Belgium in the 1980s. Crédal started a personal microfinance for low-income people aged 65 years and older in collaboration with the Walloon Region. Currently, they offer services to residents in the Walloon Region as well as Brussels. In 2020, it had 3,582 clients. Of these, 26% and 5% were aged between 56–74 years and over 75 years, respectively.

Crédal provides personal microfinance for people who have no access to traditional financial services and need to buy useful and necessary goods or services. The interest rate is fixed at 4–5% a year and the maximum repayment terms range between 500 (18 months) and 10,000 euro (48 months). Crédal finances products that facilitate older people to stay in their homes, such as walk-in showers, lifts, height-adjustable beds, and reader software for their computer. They also offer a loan to finance health care costs, such as glasses, dental care, etc. The partner associations work closely with older clients. Therefore, they have a deep understanding of their needs (Crédal, 2022; European Microfinance Network, 2012).

3) Conditional and unconditional cash transfers

Cash transfer programmes are a social protection programme to redistribute income to low-income households and provide them with financial assistance in cash. These programmes, as opposed to in-kind transfers, provide recipients with freedom to meet their individual needs instead of providing a predetermined item (Fiszbein and Schady 2009). There are two types of cash transfer programmes: conditional (CCTs) and unconditional (UCTs) (Afzal et al., 2019) (See the definition at Section Evidence I).
Both have benefits and pitfalls. Many studies reported the positive effects of CCTs: poverty alleviation, increased use of preventive services, better nutrition, and health status among young children, and increased school achievement in older children (Fiszbein and Schady 2009; Lagarde et al., 2007; Millán et al., 2019). In contrast, the use of cash incentives in CCT programmes could lead to a crowding effect of intrinsic motivation (Cameron et al., 2001): children who receive external rewards in learning will eventually have less internal motivation to study (Aber et al., 2011). CCT programmes can also be stigmatising by screening people for eligibility and adding conditions (Layton, 2020).

Meanwhile, UCTs are less costly than CCTs as they require less administrative cost for monitoring. I administrative costs of CCT programmes, such as Progresa in Mexico, are frequently increased by more than 20% than UCTs (Caldés et al., 2006). UCTs are less stigmatising for their recipients as they do not require attaching conditions to a cash transfer (Pega et al., 2022). However, it is unclear how much more effective and affordable UCTs are in improving the use of health care services and health outcomes, compared to CCTs (Pega et al., 2022). Furthermore, implementing UCT programmes would be less politically acceptable in middle-income nations as they are seen as just a financial giveaway to poor and disadvantaged people (Pega et al., 2022).

Social pension for older people is a UCT, which provides cash for eligible individuals without any requirement. It can improve their living standards, raise their social status within the household, promote social inclusion and empowerment, and improve their access to health service (McKinnon, 2007).

A Case: The old age allowance programme in Bangladesh

The Old-age Allowance Programme was introduced in Bangladesh in 1998. The government introduced the programme for poor older people and aimed to reduce their vulnerabilities and income insecurity. This means-tested programme has been funded from the governmental revenue budget. Selected older people receive an unconditional monthly allowance benefit.

Eligibility criteria are
(1) Age: Men and women aged 65 and 62 years, respectively
(2) Income: Average annual income must be 3,000 BDT (Bangladeshi Taka)
(3) Health condition:
  (i) Priority is given to those who are physically weak, and
  (ii) those who are physically, mentally, or both physically and mentally handicapped.
(4) Socioeconomic status:
  (i) Priority is given to freedom fighters (the military forces that led the civil Bangladeshi independence war against the Pakistan army in 1971),
  (ii) assetless, homeless, and landless (0.5 acre or less), and
  (iii) widowed, divorced, single and deserted from family, and

The monthly allowance per perIon is 500 BDT (5.79 USD), paid every three months.

Various studies indicated that the programme had multiple impacts, such as improved food security of the entire household, enhanced access to health care services, ensured mental satisfaction and happiness, and improved economic condition, among others (Begum, 2012; Department of Social Services, Government of the People's Republic of Bangladesh, 2022).

II-2. Strengthening governance/ collaboration between organisations

Theory and concepts

Strengthening governance and collective action among various stakeholders are

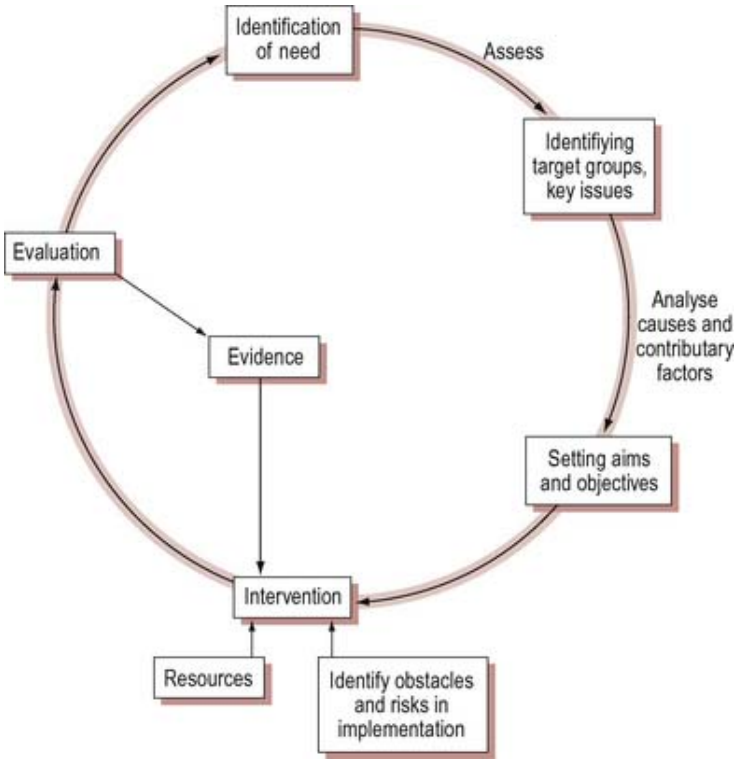
fundamental to achieving healthy ageing and reducing health inequalities among older people by supporting their lives from multiple aspects. Since the Ottawa Charter, the importance of intersectoral collaboration to promote health and tackle health inequalities has been asserted (World Health Organization, 1986). It is defined as 'occurring when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms and structures, to act or decide on issues related to that domain' (De Leeuw and Leeuw, 2022; Wood and Gray, 1991).

Engaging different levels of the government, that is, both vertical and horizontal collaboration, is essential for successful intersectoral actions (Rantala et al., 2014). Vertical collaboration refers to interactions among at least two sectors operating at different levels within a hierarchy, such as residents, cities, or higher levels of a government (Rubado, 2019).

Recently, the capacity to manage public-private cooperations and networks has become crucial for central governments (Goldsmith and Eggers, 2004). To address health inequalities and move toward healthy ageing, multi-layered measures are required to understand the changing characteristics and relationships among the national and local governments and communities (Kondo et al., 2014). Regarding horizontal collaboration in a community, intersectoral collaboration proceeds during the community organising approach (See Section Policy options I). This expands the social networks of individuals in a coalition and increases the resources they can access and contributes to improving their skills. Furthermore, this could lead to better health and/or social outcomes for the community (Butterfoss, 2013).

Methods for successful intersectoral collaboration

Intersectoral collaboration is fundamental for promoting healthy aging by turning a health promotion planning cycle in the community. This cycle includes the following steps (Naidoo and Wills, 2016).



FigureII.1. Health promotion planning cycle (Naidoo and Wills, 2016)

- **Identification of need, target the groups and key issues, and set aims and objectives**:

  First, surveys and data collection should be conducted to determine the region's actual conditions (i.e. perform a community assessment (See Section Policy options III). Next, intersectoral meetings should be held with various departments, including non-health departments and stakeholders in the community, to build face-to-face relationships and incorporate opinions from diverse perspectives. At the meetings, each department and organisation should provide topics on issues related to ageing (not limited to health-related issues). In addition, the information obtained and visualised through the community assessment can become a tool that serves as a 'catalyst' to promote intersectoral collaboration that allows multiple organisations to share the community's needs when collaborating to formulate policies (Public Health Agency of Canada, 2007). Based on the topics provided and objective community assessment data, community needs should be identified. Priority focus populations and districts to be selected and given special priority. Short, medium, and long-term goals for improvement should be set.

  Design and plan an intervention and execute it: Intervention measures for

priority target populations and districts will be designed and implemented through multi-sectoral discussions. Hence, obstacles and risks as well as resources in the implementation can be identified.

Evaluation: A preliminary evaluation plan should be developed, and an evaluation should be conducted. Issues should be assessed and solved by each group. Next, the needs should be identified again at the beginning of the cycle. Evaluation results can be used as evidence to modify the design of the subsequent intervention.

Tools

1) Checklist for Intersectoral Collaboration

The 'Action Checklist for Intersectoral Collaboration' is a method developed in Japan to check the initiatives implemented in a checklist format, promote stakeholders' awareness, engage in dialogue, and take action (Table II.2) (Fujino et al., 2016). The checklist can be used to examine various intersectoral collaboration means and opportunities. This may provide an opportunity to jointly utilise resources (facilities, organisations, etc.) under the jurisdiction of other departments and implement administrative plans and projects in multiple departments. It can also be a way to share opportunities for residents to get together and utilise data and information across various departments through meetings and informal information exchange.

Table II.2. Action checklist for intersectoral collaboration

Project name:

Items	No.	Checklist for collaboration	Propose	Prioritise	Related Departments/Memo
Business plan	**1**	Check to see if other budgets or grants are available to other departments to pursue this project.	☐	☐	
	2	Check other departments' projects (policies, plans, etc.) related to the project.	☐	☐	
	3	Consider the project's impact on other departments' projects (policies, plans, etc.).	☐	☐	

Information sharing	**4**	Set up opportunities to explain and share business details with other departments.	☐	☐
	5	Utilise information and data managed by other departments.	☐	☐
Subjects	**6**	Consider opportunities to collaborate with other departments to identify and publicise the subjects.	☐	☐
	7	Consider identification and consideration of groups that could be particularly affected by the project. (e.g. economic status, household status, community status, older people, disabled, foreign nationals, etc.)	☐	☐
Citizens' cooperation	**8**	Establish opportunities for residents to participate. (Planning, Implementation, and Evaluation phases)	☐	☐
	9	Consider opportunities to utilise volunteers.	☐	☐
Local resource	**10**	Consider the use of existing community resources, including other departments. (e.g. welfare commissioners, community promotion committee members, Council of Social Welfare, neighbourhood associations, NPOs, etc.)	☐	☐
Business entity	**11**	Consider the managerial impact on the businesses involved.	☐	☐
	12	Consider the impact on the employment situation of the businesses involved.	☐	☐
Education	**13**	Consider possibilities for	☐	☐

		collaboration with school sites and departments in-charge of education. (Awareness-raising, volunteer participation, contact opportunities with the target population, etc.)		
Built environment	**14**	Consider using parks, community centres, sports facilities, and other public facilities.	☐	☐
Transportation	**15**	Consider transportation for the participants of the project.	☐	☐
Economics	**16**	Consider financial issues for the participants of the project.	☐	☐

*Fujino et al., 2016; translated from Japanese to English

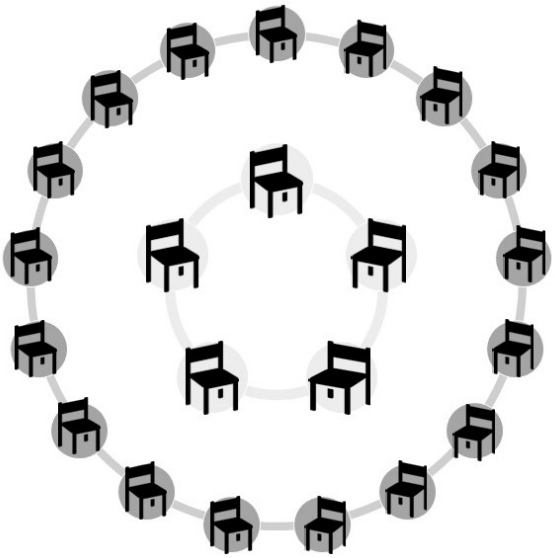
2) Liberating Structures

Intersectoral activities are supported and constrained by structures, such as buildings, organisational policies, and operating processes, as well as smaller structures that influence some interactions with other people. Regarding such small structures, it might be helpful to incorporate the 'Liberating Structures' technique to facilitate multisectoral meetings. Liberating Structures are expected to enhance relational coordination, trust, and lively participation in groups of any size, making it possible to include and unleash all the participants (Liberating Structures - Including and unleashing everyone, n.d.; Lipmanowicz and McCandless, 2014).

An example of this method is the 'User Experience Fishbowl'. In fishbowl sessions, a bigger outside circle surrounds a smaller inside circle of participants (Figure II.2). First, a facilitator asks those in the inner circle (fishbowl) to share their experience as if the audience were absent. The facilitator also invites others (outside the fishbowl) to listen in, observe nonverbal cues, and formulate questions. After the inner circles' conversations have finished, those in the outer circle can ask questions. The advantage of a fishbowl is that it offers a conversation format more manageable than a plenary discussion. Hence, people in the inner circle can easily explain their actions by talking to each other. The informality makes direct communication between the two groups easier and facilitates back-and-forth interaction. These small innovations can encourage dialogue among many

sectors, deepen common understanding, and promote better intersectoral relationships and collaboration. For other examples, please refer to the Liberating Structure website (Liberating Structures - Including and unleashing everyone, n.d.).

Figure II.2. Seat arrangement for the 'user experience fishbowl'

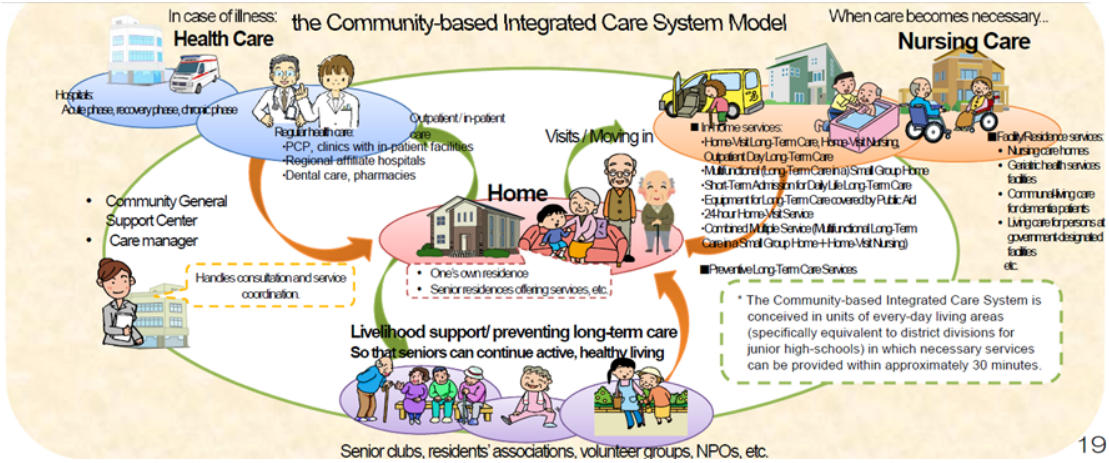


Policy examples

3) **Community-based integrated care (CBIC) system in Japan**

The CBIC system was first defined in a report of a community integrated care study group as 'based on the provision of housing that meets the needs of the residents, a system in the community where various life support services, including not only medical and nursing care but also welfare services, are appropriately provided in daily life in order to ensure safety, security, and health in daily life' (Community integrated care study Group, 2008) (Figure II.3). The system aims to support older people to continue living in the community familiar to them, even if they have illnesses or require long-term care. Thus, person-centred care is provided by utilising community resources and coordinating between: (1) health care, (2) long-term care, and (3) social activities and services (Morikawa, 2014). The government intended to establish a system that matched the situation and its characteristics in the local community.

Figure II.3. Conceptual figure of community-based integrated care system model in Japan



Source: Ministry of Health, Labour and Welfare, Japan

3) **Developing Inclusive Community in Japan**

There is another concept called inclusive community (*chiiki-kyosei-syakai*) in Japan. This concept was first mentioned in 2016 and was approved by the Cabinet OfficIthe government will work to realize cohesive communities where all residents work together in creating and improving the community, their livelihood and life's purpose. To achieve this, the government will promote the development of local communities where all residents play a role and support each other, rather than segregating them into supporters and recipients' (Cabinet Office, 2016). Thus, inclusive community represents a society where all people, such as those with disabilities, older people, and children, are included, and where they can play their own roles and support each other. Although the concept of CBIC systems started from older adult care, the Japanese government is trying to expand it to all generations and ultimately aims to achieve an Inclusive Community (Table II.3).

Table II.3. Community-based integrated care system and inclusive community in Japan

	Community-based integrated care system	Inclusive community
Year of first introduction	2003	2016
Target group	People aged 65 years and older	People of all generations
Purpose	To enable older people to live in the community as long as possible by focusing on the five components of medical care,	To create a community where all residents have a role to play and support each other, instead of becoming either supporters or

	long-term care, support in daily living, and housing.	prevention, recipients.

Source: Table was based on references (Kuroda, K., 2020; Cabinet Office, 2016; Community integrated care study Group, 2008) and modified by the author.

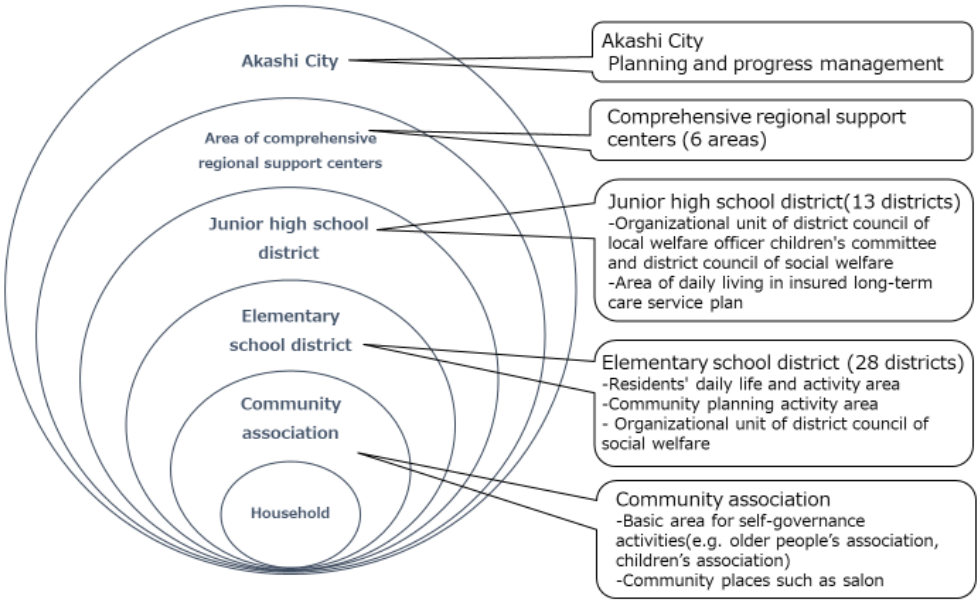
A Case: Akashi City, Japan

Akashi City, Hyogo Prefecture, is a municipality that has actively promoted citizen-oriented community development since declaring 'the first year of community' in 1975. It is located in the western part of Japan with a population of approximately 300,000 people. The aging rate is 26.2% (as of 2020). A community care system for people with dementia was implemented in the 1980s, mainly by the public health office.

A community comprehensive support system, centred on comprehensive regional support centres (*chiiki-sougou-sien-sentaa*), was launched in 2018 and envisions a multi-layered support system. Comprehensive regional support centres in the city and community support houses (*chiiki-sasaeai-no-ie*) at the junior high school district have been established to promote community building aimed at enhancing community welfare (Figure II.4). Comprehensive regional support centres provide consultation support in a cross-sectoral manner, regardless of t'e person's age, gender, or consultation. Community support houses are regional centres that provide consultation support and a place for residents to meet and support 'people's lives by utilising regional resources. The centre for supporting the rights of persons in need of assistance (*youengosha-kenriyougo-sien-sentaa*) in the city supervises the entire system.

The system in Akashi City is not limited to the older people. It also includes others, such as those with disabilities and children. It creates a consultation and support system that meets a wide range of community needs and integrally promotes the creation of a community support system on the initiative of local residents (Akashi City, 2022; Kuroda, 2020).

Figure II. 4. The multi-layered support system in Akashi City



Source: Akashity

A Case: Communities of Care model in Singapore

The Government of Singapore launched the Action Plan for Successful Ageing in 2015, which outlined 10 areas of focus, which included health and wellness and aged care services. The government has piloted several community-based and Hospital-to-Home (H2H) programmes since 2017 under the Communities of Care (CoC) model. The H2H programme links older adults with a wide network of primary care providers, social services, and community health partners, and assists them and their caregivers in managing medical conditions at home.

The CIC model is a framework commissioned by the AIency for Integrated Care (AIC) to build the local networks of health care providers, and provide both medical and social support services for older people in the community (Figure II.5). Nurses play a role as patient navigators by coordinating care transitions through the continuum of care in the community (Chan, 2021).

Figure II.5. Community-based care services provided in Communities of Care model in Singapore

Source: Agency for Integrated Care (AIC)

References

Aber, L. and Rawlings, L. B., 2011. North-south knowledge sharing on incentive-based conditional cash transfer programs. The World Bank. [WWW Document]. URL https://web.worldbank.org/archive/website01536/WEB/IMAGES/1101.PDF (accessed 6.26.22).

Adams SJ., 2004. Age discrimination legislation and the employment of older workers. Labour Econ. 11:219–41. https://doi.org/10.1016/j.labeco.2003.06.001 (accessed 6.26.22).

Afzal, A., Mirza, N., Arshad, F., 2019. Conditional vs unconditional cash transfers: a study of poverty demographics in Pakistan. Econ. Res. 32, 3360–3377. https://doi.org/10.1080/1331677X.2019.1661006

Akashi City, 2022. Living together and fostering mut”al support"Akashi ”elief Plan" Ak[as]hi City 4th community welfare plan(in Japanese) [WWW Document]. URL https://www.city.akashi.lg.jp/fukushi/fu_soumu_ka/tiikifukushikeikaku/documents/daiyojitiikifukusikeikakukakuteibann.pdf (accessed 6.26.22).

Begum, S., Wesumperuma, D., 2012. Overview of the old age allowance programme in Bangladesh, in: Handayani, S.W., Babajanian, B. V. (Eds.), Social Protection for Older Persons. Asian Development Bank, Mandaluyong City, Philippines, pp. 187–213.

Butterfoss, F.D., 2013. “Toward a Comprehensive Understanding of Community Coalitions: Moving from Practice to Theory” in Emerging theories in health promotion practice and [re]search, 2nd ed. Jossey-Bass.

Cabinet office, 2016. Basic policy on economic and fiscal management and reform 2016(in Japanese) [WWW Document]. URL https://www5.cao.go.jp/keizai-shimon/kaigi/cabinet/2016/2016_basicpolicies_en.pdf

Caldés, N., Coady, D., Maluccio, JA., 2006. The cost of poverty alleviation transfer programs: A comparative analysis of three programs in Latin America, World Development, 34(5); 813-837. https://doi.org/10.1016/j.worlddev.2005.10.003.

Cameron J., Banko K. M., Pierce D., 2001. Pervasive negative effects of rewards on intrinsic motivation: the myth continues. The Behavior Analyst.24(1), 1-44.Caldés N., Coady D., Maluccio JA., 2006. The cost of poverty alleviation transfer programs: a comparative analysis of three programs in Latin America. World Development. 34(5):818-837

Chan, A., 2021. An overview of Singapore’s long-term care system: Towards a community model care, in: Komazawa, O., Saito, Y. (Eds.), Coping with Rapid Population Ageing in Asia. Economic Research Institute for ASEAN and East Asia (ERIA), Jakarta, pp. 28–35.

Chang ES, Kannoth S, Levy S, Wang SY, Lee JE, Levy BR.,2020. Global reach of ageism on older persons’ health: a systematic review. PLOS ONE. 15(1):e0220857

Community integrated care study Group, 2008. Report of community integrated care study group (in Japanese) [WWW Document]. URL

https://www.murc.jp/sp/1509/houkatsu/%0Ahoukatsu_01_pdf01.pdf%0A (accessed 6.27.22).

Crédal, 2022. Crédal Homepage (in French) [WWW Document]. URL https://www.credal.be/ (accessed 6.27.22).

Dale, MC., Feng, F., Vaithianathan, R. 2012. Microfinance in developed economies: A case study of the NILS programme in Australia and New Zealand, New Zealand Economic Papers, 46:3, 303-313, DOI: 10.1080/00779954.2012.687543

De Leeuw, E., Leeuw, E. De, 2022. Intersectorality and health: a glossary. J Epidemiol Community Heal. 76, 206–208. https://doi.org/10.1136/JECH-2021-217647

Department of social services; Government of the People's Republic of Bangladesh, 2022. Old age allowance [WWW Document]. URL http://www.dss.gov.bd/site/page/7314930b-3f4b-4f90-9605-%0A886c36ff423a/Old-Age-Allowance

European Microfinance Network, 2012. Microfinance as a tool of active ageing [WWW Document]. URL https://www.europeanmicrofinance.org/sites/default/files/document/file/Research Working Group_Microfinance as a tool of Active Ageing.pdf

Fiszbein, A., Schady, N., Ferreira, F., Grosh, M., Keleher, N., Olinto, P., Skoufias, E. 2009. Conditional Cash Transfers: Reducing Present and Future Poverty. The World Bank Group.

Fujino, Y., Makishima, M., Tomioka, S., Kawamura, Y., Ichida, Y., Suketomo, Y., Kubo, T., Kondo, N., 2016. Action Checklist for Intersectoral Collaboration in Health and Long-Term Care Policies (in Japanese) [WWW Document]. 1st edition. URL https://www.jages.net/?action=common_download_main&upload_id=2455

Goldsmith, S., Eggers, W.D., 2004. Governing by Network: The New Shape of the Public Sector on JSTOR. Brookings Institution Press.

International Labour Organization, 2021. Extending social health protection: Accelerating progress towards Universal Health Coverage in Asia and the Pacific [WWW Document]. URL https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_831137.pdf (accessed 6.27.22).

International Labour Organization, 2018. What about seniors? A quick analysis of the situation of older persons in the labour market [WWW Document]. URL https://ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_629567.pdf (accessed 6.27.22).

International Labour Organization, 2014. Social protection for older persons: Key policy trends and statistics [WWW Document]. URL https://www.ilo.org/global/publications/WCMS_310211/lang--en/index.htm (accessed 6.27.22).

International Labour Organization, 2013. Women and men in the informal economy: A statistical

picture. Third edition [WWW Document]. URL https://www.ilo.org/global/publications/books/WCMS_626831/lang--en/index.htm (accessed 6.27.22).

Kondo, K., Ishikawa, Y., Inaba, Y., Ojima, T., Kanemitsu, J., Kondo, N., Murakami, S., 2014. National and International Research Trends on Social Determinants of Health: Seven Principles to Address Health Inequalities (in Japanese). Tokyo.

Kuroda, K., 2020. Community comprehensive support system today-community building promoted by health, medical care and welfare. Minerva Shobo, Kyoto.

Lain D.,2011. Helping the poorest help themselves? Encouraging employment past 65 in England and the USA. J Soc Policy. 40(3):493–512. https://doi.org/10.1017/S0047279410000942(accessed 6.27.22).

Lagarde, M., Haines, A., Palmer, N., 2007. Conditional cash transfers for improving uptake of health interventions in low-and middle-income countries : A systematic review. JAMA.298, 1900-1910.

Layton, M. L., 2020. Welfare stereotypes and conditional cash transfer programmes: evidence from Brazil's Bolsa Família. Journal of Politics in Latin America.12(1):53–76.

Liberating –tructures - Including and unleashing everyone [WWW Document], n.d. URL https://www.liberatingstructures.com/ (accessed 4.29.22).

Lipmanowicz, H., McCandless, K., 2014. The surprising power of liberating structures : simple rules to unleash a culture of innovation. Liberating Structures Press.

McKinnon, R., 2007. Tax-financed old-age pensions in lower-income countries, in: Developments and Trends: Supporting Dynamic Social Security World Social Securit^{y} Forum, 29th ISSA General Assembly. International Social Security Association, Moscow, pp. 31–37.

Millán, T., Barham,T., Macours, K., Maluccio, J., Stampini, M., 2019. Long-term impacts of conditional cash transfers: review of the evidence. The World Bank Research Observer. 34, 119-159.

Ministry of Health, Labour and Welfare. 2017. Establishing 'the Community-based Integrated Care System'. [WWW Document], URL http://www.mhlw.go.jp/english/policy/care-welfare/care-welfare-elderly/ dl/establish_e.pdf (accessed 1.6.23).

Morikawa, M., 2014. Towards community-based integrated care: Trends and issues in Japan's long-term care policy. Int. J. Integr. Care 14. https://doi.org/10.5334/IJIC.1066/METRICS/

Myint, C.Y., Pavlova, M., Thein, K.N.N., Groot, W., 2019. A systematic review of the health-financing mechanisms in the Association of Southeast Asian Nations countries and the People's Republic of China: Lessons for the move towards universal health coverage. PLoS One 14, e0217278. https://doi.org/10.1371/JOURNAL.PONE.0217278

Naidoo, J., Wills, J., 2016. Foundations for Health P^{ro}motion, 4th ed. Elsevier, London.

Pega F., Pabayo R., Benny C., Lee E. Y., Lhachimi SK., Liu SY., 2022. Unconditional cash transfers

for reducing poverty and vulnerabilities: effect on use of health services and health outcomes in low- and middle-income countries. Cochrane Database of Systematic Reviews, 2022(3). https://doi.org/10.1002/14651858.CD011135.pub3

Public Health Agency of Canada, 2007. Crossing Sectors – Experiences in intersectoral action, public policy and health. Ottawa.

Rantala, R., Bortz, M., Armada, F., 2014. Intersectoral action: Local governments promoting health. Health Promot. Int. 29, i92–i102. https://doi.org/10.1093/heapro/dau047

Reed, L.R., 2015. Mapping Pathways out of Poverty The State of the Microcredit Summit Campaign Report.

Robinson, M.S., 2001. The microfinance revolution: sustainable finance for the poor, The World Bank, Washington.

Rubado, M., 2019. The Role of Local Government Collaboration in Legacy Cities, in: Tighe, J.R., Ryberg-Webster, S. (Eds.), Legacy Cities: Continuity and Change amid Decline and Revival. University of Pittsburgh Press, pp. 21–36. https://doi.org/10.2307/J.CTVJ7WN0P.5

Wood, D.J., Gray, B., 1991. Toward a Comprehensive Theory of Collaboration. J. Appl. Behav. Sci. 27, 139–162. https://doi.org/10.1177/0021886391272001

World Bank Group, 2003. CGAP phase III strategy 2003-2008 [WWW Document]. URL https://documents.worldbank.org/en/publication/documents-reports/documentdetail/279871468140969868/cgap-phase-iii-strategy-2003-2008 (accessed 6.27.22).

World Bank, World Health Organization, 2021. Global Monitoring Report on Financial Protection in Health 2021. [WWW Document]. URL https://www.who.int/publications/i/item/9789240040953 (accessed 6.27.22).

World Health Organization, 2020. Regional action plan on healthy ageing in the Western Pacific.

World Health Organization, 2008. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva.

World Health Organization, 1986. The Ottawa Charter for Health Promotion, WHO. World Health Organization, Ottawa.

World Health Organization, The World Bank, 2021. Tracking Universal Health Coverage: 2021 Global monitoring report [WWW Document]. URL https://www.who.int/publications/i/item/9789240040618 (accessed 6.27.22).

World Health Organization, United Nations Department of Economic and Social Affairs, United Nations Population Fund, U. N. O. of the H. C. for H. R., 2021. Global report on ageism. http://www.who.int/about/licensing/copyright_form/index.html%0Ahttp://www.who.int/about/licensing/ (accessed 6.27.22).

III. Measure and Understand the Problem and Assess the Impact of Action

Action on equitable healthy ageing will be more effective if basic data systems, including routine monitoring of health inequality and its social determinants, are well established. This section introduces tools to support the sequence of steps in measuring and understanding the problem, planning and implementing the action, and assessing the impact of the action.

Theory and concepts

The determinants of health are generally divided into three levels: macro, meso, and micro. The macro-level includes social conditions and policies, such as economics, the culture, and environment. The meso-level contains working conditions, housing, and family relationships. The micro-level comprises individuals' behavioural and biological factors. These determinants interact in complex and dynamic ways and influence population's health. Thus, an adequate understanding of the state of the health determinants and action plans to improve them are required (Institute of Medicine, 2002).

Improving macro- and meso-level determinants is particularly important for healthy ageing. Alth'ugh people's physical and mental capacities decline with age, the speed of the decline can be slowed and their functions can be maintained if meso- and macro-level factors compensate for their reduced capacity (World Health Organization, 2015). Mobility can be ensured in 101eoplepeople with reduced capacity to walk with wheelchair purchase assistance schemes and wheelchair-accessible buses.

Interventions on meso- and macro-level factors need to be carefully evaluated as inappropriate interventions can lead to increased health inequalities (White et al., 2009). IThe wheelchair purchase assistance schemes may contribute to widening disparities if the information on the schemes is available only on the Internet. People with greater financial means who have access to the Internet will benefit more. Therefore, it is necessary to consider whether implemented policies would have the desired effect on the target population.

Regarding meso-level factors, as discussed in Section Policy options I, an age-friendly

environment within walking distance of their community is essential for older people. Therefore, it is vital to understand the status of each district (e.g. school district) within a local government, which is referred to as a community health assessment (Anderson and McFarlane, 2014). Local governments can conduct systematic community health assessments utilising objective and narrative data to identify the population's needs, health issues and disparities, and available resources (Institute of Medicine (US) Committee for the Study of the Future of Public Health, 1988). It can also help prioritise issues and groups that need to be addressed. In addition, community health assessment results shared with various sectors and organisations can act as a 'catalyst' to promote intersectoral collaboration (Public Health Agency of Canada, 2007). These processes can facilitate implementing policies in the local government and evaluate their effectiveness and fairness.

Thus, regarding measuring and understanding the problem, planning and implementing an action, and assessing the impact of the action, all three, not just one, should be implemented.

Tools

1) 1) Health equity surveillance items

The WHO's Commission on Social Determinants of Health (CSDH) recommends that all national governments create a comprehensive health equity surveillance system, including for social determinants of health along with the causal pathways from daily living conditions to structural drivers of health inequalities (World Health Organization, 2008). Below are the CSDH's examples of surveillance's items (Table III.1).

Table III.1. Comprehensive national health equity surveillance
Health inequalities
including information on: • health outcomes stratified by: - sex, - at least two socioeconomic stratifiers (education, income/wealth, or occupational class), - ethnic group/race/indigeneity, - other contextually relevant social stratifiers, and - place of residence (rural/urban and province or other relevant geographical unit) • distribution of the population across the sub-groups • a summary measure of the relative health inequity: including the rate ratio, relative index of

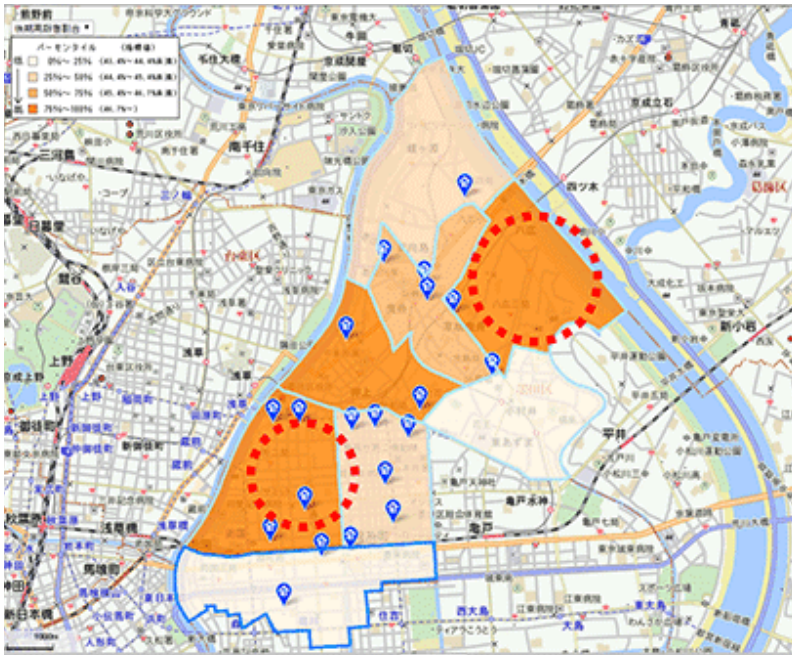
inequality, relative version of the population attributable risk, and concentration index • a summary measure of the absolute health inequity: including the rate difference, slope index of inequality, and population attributable risk.
Health outcomes
• mortality (all cause, cause specific, age specific), • early child development, • mental health, • morbidity and disability, • self-assessed physical and mental health, and • cause-specific outcomes
Determinants, where applicable including stratified data
Daily living conditions • health behaviours: - smoking, - alcohol, - physical activity, and - diet and nutrition • physical and social environment: - water and sanitation, - housing conditions, - infrastructure, transport, and urban design, - air quality, and - social capital, • working conditions: - material working hazards and - stress • health care: - coverage and - system infrastructure • social protection: - coverage and - generosity **Structural drivers of health inequity:** • gender: - norms and values, - economic participation, and

- sexual and reproductive health, • social inequities: - social exclusion, - income and wealth distribution, and - education • socio-political context: - civil rights, - employment conditions, - governance and public spending priorities, and - macroeconomic conditions
Consequences of ill health
• economic and • social consequences.

Source: BOX 16.3, WHO CSDH Report, 2008

When conducting a community health assessment, rather than simply using numerical values, using maps or graphs would be helpful in understanding the severity of the problem, communicating with other sectors and organisations, and selecting areas that local governments should prioritise for countermeasures (Figures III.1 and III.2). In the last part of this chapter, we introduce examples of data visualisation tools that local governments use in further detail.

Figure III.1. A map showing community health risks and resources. The shades of orange indicate the percentage of older people aged 75 or older per community in a city. Blue pins indicate available resource for caring older people in each community.



Source: Ministry of Health, Labour and Welfare, 2016

Figure III.2. Heatmap showing the direction of change in the health indicators within a town by localities over time.

Health indicators	Changes in three years by localities (green: improved ≥0.5% points, white: no change, red: worsened ≥0.5% points)									
% Feeling happiness	-2.3	3.0	3.9	1.9	0.7	5.1	-4.5	5.6	-3.4	-18.7
Mean score of Long-term care risk	14.9	16.8	13.9	8.2	16.8	22.1	20.1	27.5	19.3	20.5
% Frailty	5.0	4.9	1.9	1.5	1.5	6.1	5.5	-3.5	9.6	-3.1
% Motor function impairment	3.1	3.3	1.7	0.9	3.4	3.3	8.0	0.8	5.3	-0.7
% Experiencing fall within one year	5.9	5.6	1.5	2.8	8.0	4.2	-4.1	1.4	6.0	-12.2
% Dementia Risk	1.9	2.0	1.2	-0.3	1.4	5.4	4.2	3.8	5.8	-5.1
% Forgetfulness	-0.2	1.1	3.9	-1.5	-0.1	4.3	7.9	-4.4	9.9	-10.6
% Oral function impairment	-0.2	1.9	-0.9	3.4	4.3	-0.2	3.4	-2.6	1.2	-5.7
% Tooth loss	1.4	6.9	0.6	3.6	4.6	5.0	5.1	-2.2	-9.5	-0.3
% Depression	3.7	4.0	2.7	-0.4	-2.7	1.6	6.5	-2.5	-5.0	-8.9
% Homebound	0.2	1.5	1.5	1.3	2.8	-3.0	1.3	4.0	2.6	10.8

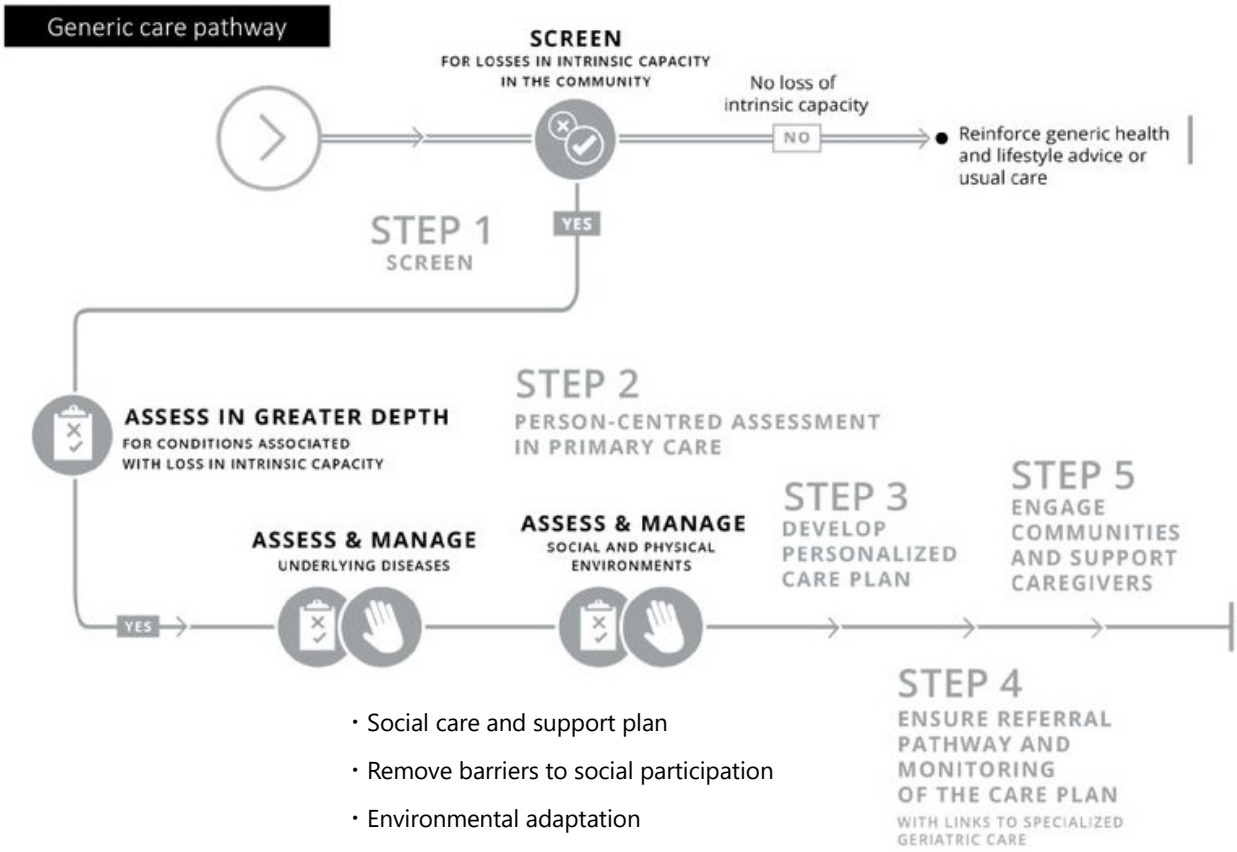
Source?

2) **Integrated Care For Older People (ICOPE) handbook**

In the context of healthy ageing, primary health conditions associated with reduced intrinsic capacity can be added to the ‘health outcomes’ in the health equity surveillance items. Furthermore, five domains of functional ability can be included in the ‘consequences of ill-health’. The UN decade of healthy ageing also recommends that national governments monitor the achievement of healthy ageing by regularly measuring intrinsic capacity and functional ability (World Health Organization, 2020).

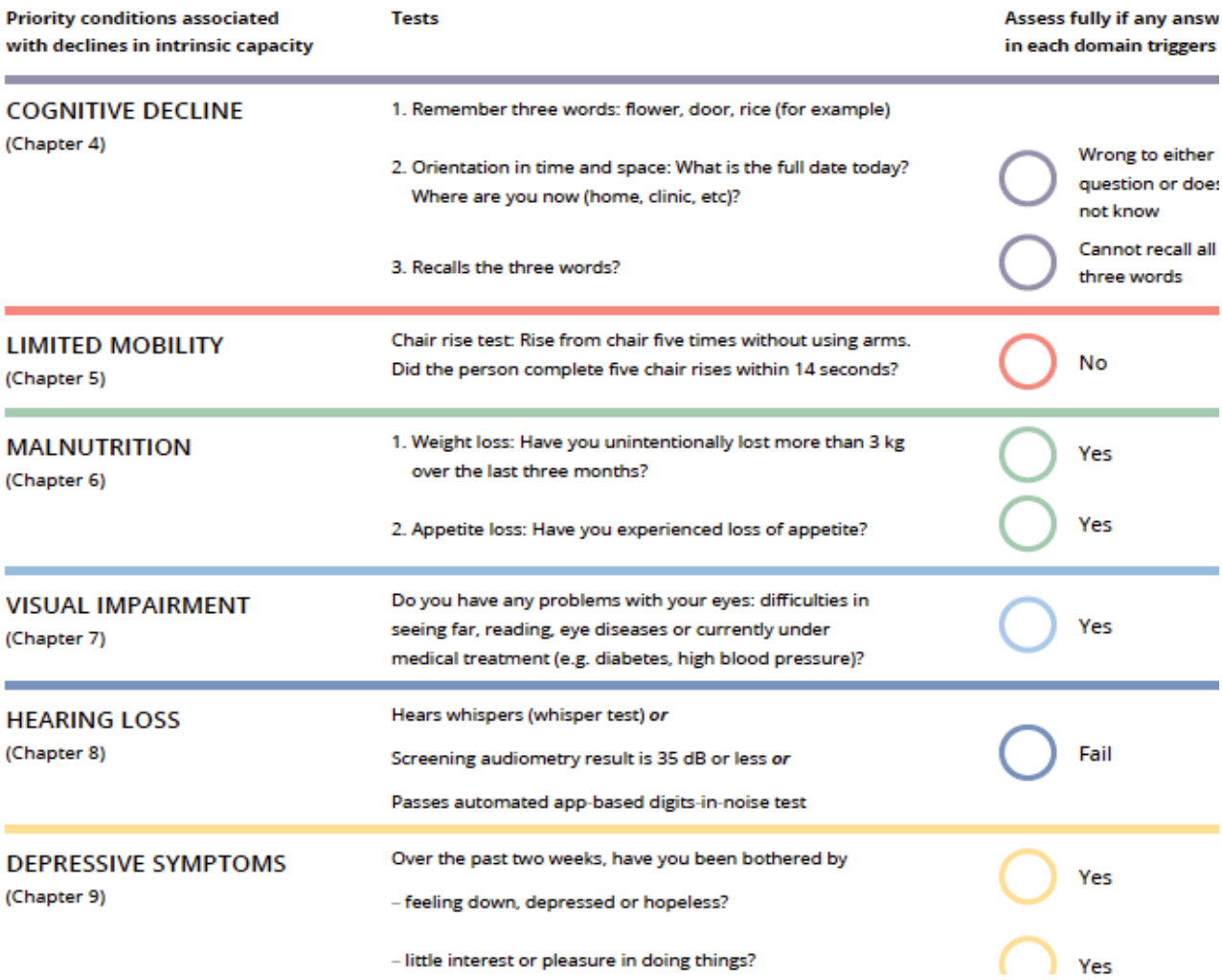
Intervening at an early stage of declining capacity is essential for healthy ageing. In 2019, the WHO released a package of tools that targeted optimising intrinsic capacity and functional ability as a key to healthy ageing. The ICOPE handbook provides practical care pathways to address the priority conditions associated with a decline in capacities, such as mobility limitations, malnutrition, vision and hearing loss, cognitive decline, depressive symptoms, and social care and support. The pathways start with a screening test to identify those already experiencing some decline in their capacity (Figure III.3; World Health Organization, 2019). Individual data collected through the ICOPE screening test (Figure III.4) could be applied to health promotion by aggregating data on a regional basis.

Figure III.3. Person-centred assessments and pathways in primary care.



Source: World Health Organization, 2019

Figure III.4. The Integrated Care For Older People (ICOPE) Screening Tool.



Source: World Health Organization, 2019

3) Kihon-check list

The *Kihon-check list* is an assessment to measure older people's capacity and care needs. In 2006, the Japanese government implemented the *Kihon-check list* and aimed to identify frail or semi-frail older people (65 years or older). The local government provided those considered as frail or semi-frail with early preventive care programmes to delay functional decline and dependence on long-term care. The items of the *Kihon-check list* are shown in Table III.2 (as of March 2022).

4) Checklist for strengthening long-term care system

The WHO published a document of the 'framework for countries to achieve an integrated continuum of long-term care' in 2021 (World Health Organization, 2021). It

included a checklist (Table 2) specific to clarify key action points for strengthening long-term care system. The checklist was designed to be used by national and local policymakers to examine their existing systems, identify potential gaps, and plan future steps toward improving long-term care and the health workforce, including carers.

Table III.2. Kihon-check list used in Japan.

Source: Ministry of Health, Labour and Welfare, 2009

No.	Category	Question	Answer
1	Living conditions	**Do you go out by bus or train by yourself?**	**Yes(0)/No(1)**
2		**Do you go shopping to buy daily necessities by yourself?**	**Yes(0)/No(1)**
3		**Do you manage your own deposits and savings at the bank?**	**Yes(0)/No(1)**
4		Do you sometimes visit your friends?	Yes(0)/No(1)
5		Do your family or friends turn to you for advice?	Yes(0)/No(1)
6	Movement	**Do you normally climb stairs without using handrail or wall for support?**	**Yes(0)/No(1)**
7		**Do you normally stand up from a chair without any aids?**	**Yes(0)/No(1)**
8		**Do you normally walk continuously for 15 minutes?**	**Yes(0)/No(1)**
9		**Have you experienced a fall in the past year?**	**Yes(1)/No(0)**
10		**Do you have a fear of falling while walking?**	**Yes(1)/No(0)**
11	Nutritional status	Have you lost 2kg or more in the past 6 months?	Yes(1)/No(0)
12		**BMI (kg/㎡) <18.5**	**Yes(1)/No(0)**
13	Oral function	**Do you have any difficulties eating tough foods compared to 6 months ago?**	**Yes(1)/No(0)**
14		Have you choked on your tea or soup recently?	Yes(1)/No(0)
15		Do you often experience having a dry mouth?	Yes(1)/No(0)
16	Withdrawal	**Do you go out at least once a week?**	**Yes(0)/No(1)**
17		**Do you go out less frequently compared to last year?**	**Yes(1)/No(0)**
18	Cognition	Do your family or your friends point out your memory loss? e.g."You ask the same question over and over again."	Yes(1)/No(0)
19		Do you make a call by looking up phone numbers?	Yes(0)/No(1)
20		Do you find yourself not knowing today's date?	Yes(1)/No(0)
21	Mentality	In the last 2 weeks have you felt a lack of fulfillment in your daily life?	Yes(1)/No(0)
22		In the last 2 weeks have you felt a lack of joy when doing the things you used to enjoy?	Yes(1)/No(0)
23		In the last 2 weeks have you felt difficulty in doing what you could do easily before?	Yes(1)/No(0)
24		In the last 2 weeks have you felt helpless?	Yes(1)/No(0)
25		In the last 2 weeks have you felt tired without a reason?	Yes(1)/No(0)

Note1: The 10 questions highlighted in blue predict the incidence of Needed Support/Long-Term Care among older Japanese people (Tsuji et al., 2017).

Note 2: Under Japan's long-term care insurance system as of February 2022, you are eligible to receive care services under the "Care Prevention Management System" if you meet at least one of the following criteria:

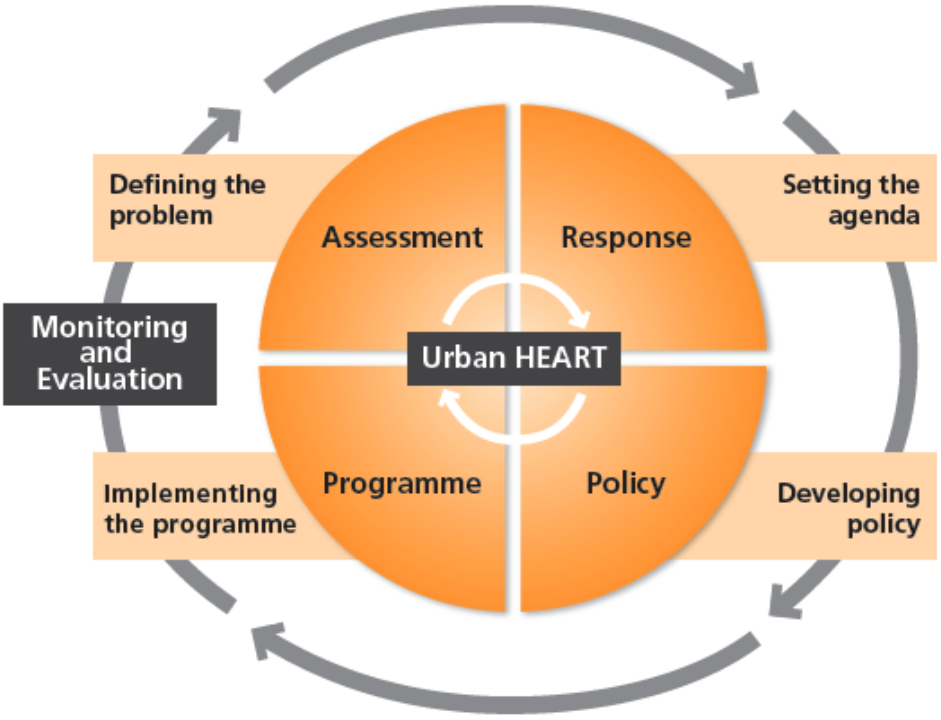
(1) At least 10 points in 20 items from No.1 to 20.
(2) At least 3 points in 5 items from No.6 to 10.
(3) 2 points in 2 items from No.11 and 12.
(4) At least 2 points in 3 items from No.13 to 15.
(5) Answered "No" to No. 16.
(6) At least 1 points in 3 items from No.18 to 20.
(7) At least 2 points in 5 items from No.21 to 25.

5) Urban Health Equity Assessment and Response Tool (Urban HEART)

The Urban Health Equity Assessment and Response Tool (Urban HEART) enables policymakers from different sectors to cooperate in tackling health inequities. Urban

HEART is a tool to gather relevant evidence, use the evidence to identify and prioritise interventions, and plan efficient, appropriate actions to tackle health inequities in urban areas (World Health Organization, 2010). Although its cyclical nature of the planning and implementation is similar to the general health promotion cycle (Figure 5 & Table 3, see also Section Policy options II), the Urban HEART is unique as it incorporates a health equity perspective.

Figure III.5. The Urban HEART integrated into the local planning cycle.



Source: World Health Organization, 2010

Table III.3. Components of the planning cycle of the Urban HEART.	
ASSESSMENT Defining the problem	This is a critical phase as it results in the identification and monitoring of inequities and forms the basis for determining future action. Evidence collected in coordination with multiple sectors and communities will provide support to raise awareness among decision-makers and citizens. This can lead to highlighting and acting upon health equity problems in the city. By nature, the assessment phase also allows the evaluation of the impact of both health-related and non-health-related policies.
RESPONSE Setting the agenda	The identification of responses is probably the most complex and challenging phase, as it involves identifying what actions will be taken, who will be involved, and for what purpose or outcomes. The process to identify and

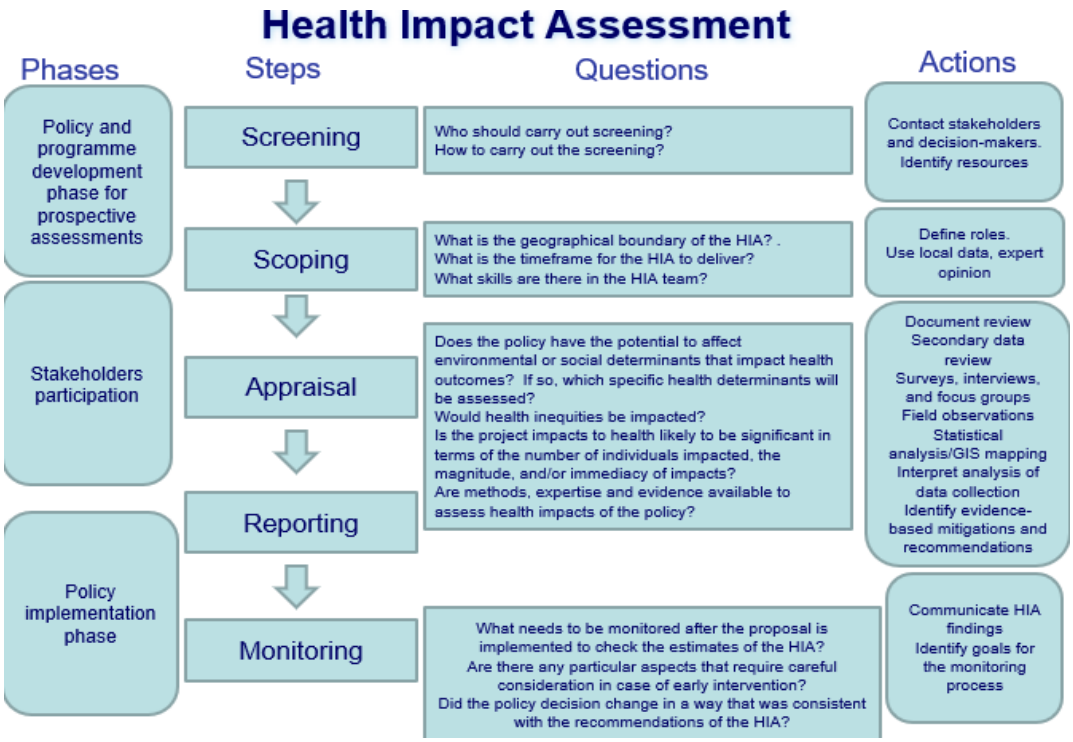
	preselect interventions should be seen as an opportunity to engage all the relevant sectors and communities in the decision-making process. Identifying interventions will set an agenda for tackling health inequities at the local level.
POLICY Developing policy	Selected interventions identified during the previous phase are prioritised and budgeted to ensure their inclusion in the policy-making process at the local government level. It is expected that evidence provided by the assessment of key Urban HEART indicators will be an asset to prioritise the most relevant interventions. The success of this process will be measured through the implemented laws, programmes, and interventions.
PROGRAMME Implementing the programme	Resources allocated by the local government are a marker of political choice. The time frame for allocation depends on the context and should be considered in the planning of the Urban HEART. The health sector will implement and oversee the health policies developed with an equity focus. Non-health sectors may also be allocated resources to develop policies that will impact health equity.

Source: World Health Organization, 2010 (Adapted from Box 2)

6) Health Impact Assessment

The Health Impact Assessment (HIA) is a way to provide policymakers, both inside and outside of health sectors, the opportunity to consider health impacts. The HIA is the process and methodology of optimising policies to promote health and minimise negative impacts on individuals and society by predicting and assessing how a proposed policy will affect health in advance. In addition, the HIA enables diverse stakeholders to bring different perspectives in policymaking. Though there are some differences in the number of stages according to the guidance documents, there are no differences in the methods, which usually includes screening, scoping, appraisal, reporting, and monitoring (Figure III.6) (World Health Organization, n.d.).

Figure III.6. Overall framework of the HIA.



Source: World Health Organization, n.d.

Below is an example of a matrix used for the HIA's appraisal (Table III.4) (Human Impact Partners, 2011). Anticipating health impacts by each determinant, such as lifestyle, physical environment, social, or economic environment, or health care service, can help stakeholders consider and clarify the direction, magnitude, severity, and likelihood of the impacts of the proposal on different population groups (e.g. population groups by income, race/ethnicity, gender, place, etc.).

Table III.4. The HIA impact analysis summary of the findings.

Health Outcome/ Determinant	Direction	Magnitude	Severity	Likelihood	Distribution

Responses to use above:

- Direction of the Impact:
  - Positive = Changes that may improve health

- Negative = Changes that may detract from health
- Uncertain = Unknown how health will be impacted
- No effect = No effect on health

- Magnitude of the Impact:
  - Low = Causes impacts to no or very few people
  - Medium = Causes impacts to wider number of people
  - High = Causes impacts to many people

  Note that this is relative to the population size
- Severity of the Impact:
  - Low = Causes impacts that can be quickly and easily managed or do not require treatment
  - Medium = Causes impacts that necessitate treatment or medical management and are reversible
  - High = Causes impacts that are chronic, irreversible or fatal o Likelihood of Impact:
- Likely = it is likely that impacts will occur as a result of the proposal
  - Possible = it is possible that impacts will occur
  - Unlikely = it is unlikely that impacts will occur
  - Uncertain = it is unclear if impacts will occur
- Distribution of the Impact:

  Name subpopulation impacted more (e.g. 'low-income residents impacted more'; 'Blacks impacted more') or 'equal impacts'

Source: Human Impact Partners, 2011

In the context of older people's health, Schönbach et al. reported that quantitative assessments of the impact of interventions increased physical activity among older people and how this differed by SES (educational attainment), using the HIA (Schönbach et al., 2020).

Policy examples

1) **Incentive system**

Establishing a data system and recognising the problem are often burdens among staff members in the local governments. Since 2018, the government of Japan introduced a system to award municipalities based on whether they actively implemented initiatives to support healthy ageing. Evaluation indicators in 2021 included, 'Are specific efforts being made to develop or disseminate information sharing tools among health and care professionals?', 'Has a system been established to promote care prevention in cooperation with other departments within the administration', and 'Is a database of the health status

among the participants of the day-care facilities kept so that trajectory analysis is possible?'[71]. The system encourages municipalities to collect data routinely and execute actions for improvement and evaluate them.

2) **JAGES Initiative**

The Japan Gerontological Evaluation Study Initiative (JAGES Initiative) is a nationwide action study platform that focuses on partnerships between researchers and local governments across the country. It originates from a study conducted by social epidemiologists and others that began around 2000. The initiative has established a wide range of partnerships with central government agencies and businesses outside the health sector.

The JAGES study team developed the JAGES-HEART (Health Equity Assessment and Response Tool) with the WHO Kobe Center, with reference to the Urban HEART (see Page 109). Its components consisted of the following:

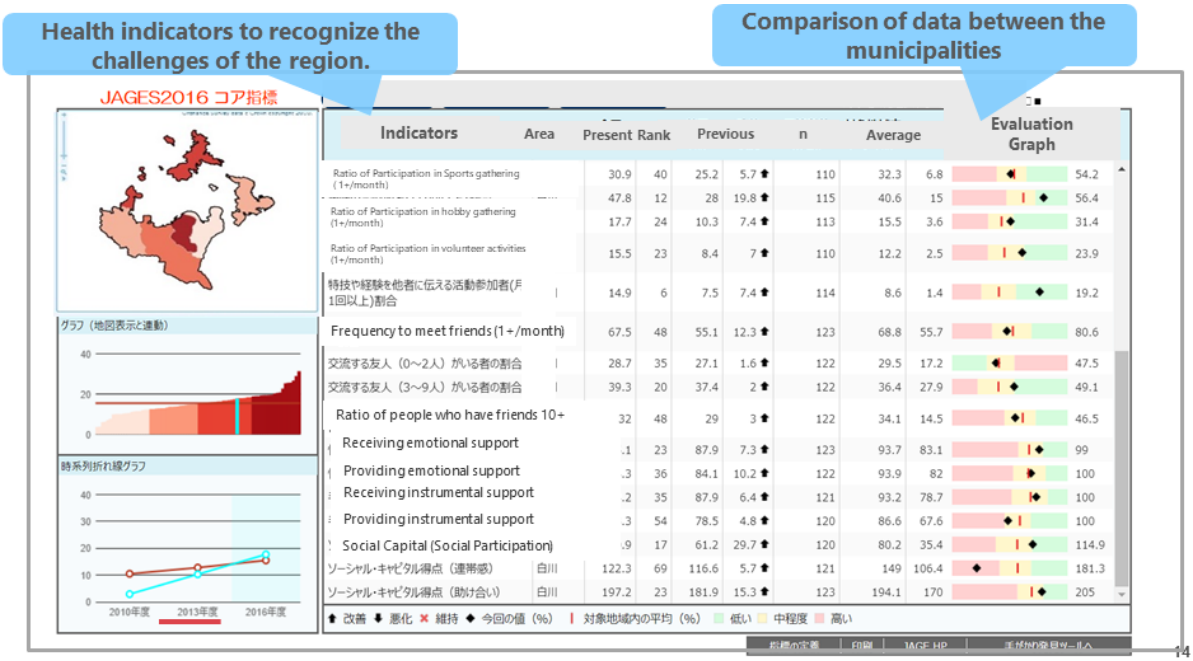
1. Assessment of the current status among older people.
2. Establishment of an agenda by prioritising issues or vulnerable populations.
3. Development of policies.
4. Implementation and evaluation of the effectiveness of the intervention programmes.

The JAGES-HEART was developed with the aim to support municipalities in cycling the local policy-making process and promoting the establishment of a community-based integrated care system (see Section Policy options II).

The JAGES research team constructed the JAGES-HEART using data from a large-scale epidemiological survey on community-dwelling older adults conducted once every three years. After every survey, the JAGES researchers create community assessment sheets for each municipality. They provide between- and within-municipality comparisons on the health statuses and a wide range of social determinants of health among older residents. Health status for specific subpopulations, such as age groups, gender, and income levels, have also been compiled to identify populations more likely to accrue risks for health problems and assess any differences in the effects of the intervention measures. The researchers validated the indicators used in the JAGES-HEART based on survey data. Data has been visualised using graphs and maps, which enables municipality staff members to conduct community health assessment intuitively, even for those in the field

who often lack time and skills (Figure III.7). Once a year, the JAGES research team holds a session with municipality staff members and run workshops to demonstrate how to use the JAGES-HEART and emphasise the importance of the social determinants of health. In addition, in some municipalities, researchers provide intensive support for utilising the JAGES-HEART for developing policies and proceeding with intersectoral collaboration with municipality staff members (see following cases).

Figure III.7. Sample of a community assessment sheet based on the JAGES-HEART.



Using the JAGES-HEART as a prototype, the Japanese Ministry of Health, Labour and Welfare developed a community-based integrated care 'visualization' system in all the municipalities nationwide. Japanese public health officials hold regular training for local government staff to support their efforts to utilise the system for healthy ageing. The research team keeps updating the JAGES-HEART that can be used to assess and plan older people's health and other side of their lives, such as disaster prevention.

The following cases describe how the JAGES-HEART was used to measure and understand problems and assess the impact of the actions in two different local governments.

Case A: data-driven community empowerment in Mifune Town

Mifune town in Kumamoto prefecture has a population of approximately 17,000 people,

with an aging rate of 34.7% (as of December 2020). Mifune town has ten localities divided into a flat area with concentrated public facilities, medical institutions, or stores and a mountainous area with significant depopulation.

Since the proportion of long-term care certifications has risen over the years, Mifune town has participated in the JAGES since 2013 to assess the present state of the residing older adults. After participation, they began holding regular meetings aimed at intersectoral collaboration based on advice from the researchers. During the meeting, multiple sectors can share the issues by utilising community assessment data based on the JAGES-HEART. Mifune town had a higher proportion of people who were homebound (not going out frequently) than other municipalities. Furthermore, there were significant area-based inequalities in the proportion of homebound people: mid-mountainous (11.1%) vs flat (6.1%) (Figure III.8 and Table III.5). Hence, municipality staff members decided to incorporate the numerical target of the area-based inequality into their policy plan and prioritise a countermeasure for homebound people in a specific locality in the mountainous area.

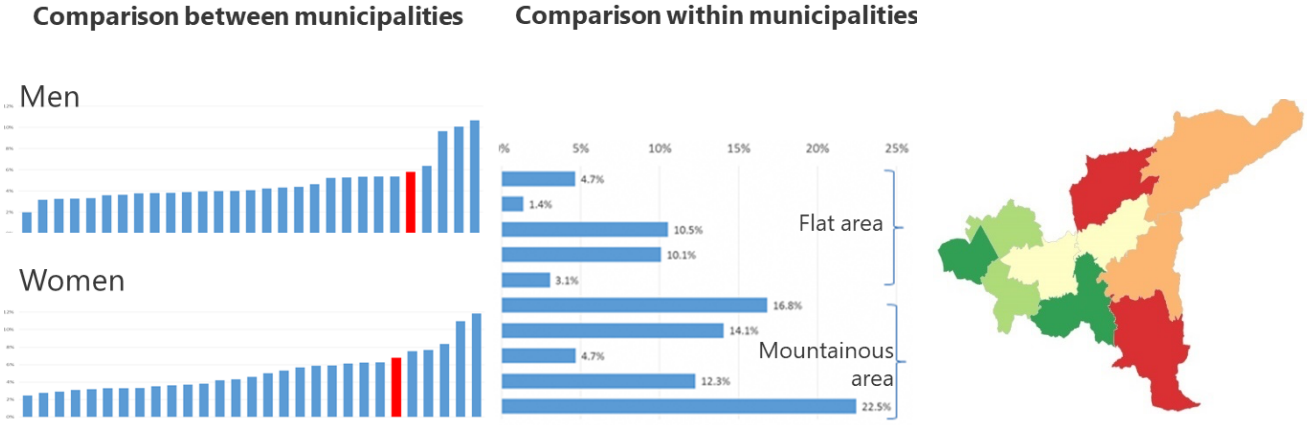


Figure III.8. Proportion of homebound older residents in Mifune town in 2013.

By sharing the community assessment results with residents, the residents' ideas and opinions led to activities in the locality, such as the establishment of a Kayoi-no-ba or dining service that utilised a dismantled school. Many older people who had not participated previously came to the novel place-to-go. At the three-year assessment, the proportion of homebound older people was 8.3% and 5.7% in the mountainous and flat areas, respectively. This reduced area-based inequality and improved the entire proportion of homebound people far above the original target (Table 5). Mifune town also started

similar activities in other localities, and new intersectoral collaboration and resident activities have begun.

Table III.5. Change over time in the percentage of homebound older people in Mifune Town.

	Mountainous area	Flat area	Proportion Difference	Proportion Ratio
Baseline (FY2013)	11.1%*	6.1%*	5.0% points	1.83
Target (Short term: until 2016)	10.1%	6.0%	4.1% points	1.68
Three years after the baseline (FY2016)	8.3%*	5.7%*	2.6% points	1.45

Note: *Age-adjusted proportion

There were some possible factors of this success. First, multiple sectors in the town worked closely together. Utilising data enabled them to advance the policy effectively and efficiently by sharing the problem and cooperating with each other. Second, they conducted detailed goal-setting and management based on the community health assessment. They executed their activities tactically by prioritising problem and localities rather than the whole town's uniform countermeasure. Researchers helped conduct the effectiveness assessment every three years, and they could circulate a planning cycle for health promotion among older people. Third, they used an approach with a primary health care viewpoint. In the targeted locality, they started activities using local resources consistent with the needs of residents so that everyone could participate. Residents accepted the issues as their affairs and took the initiative in creating a place-to-go.

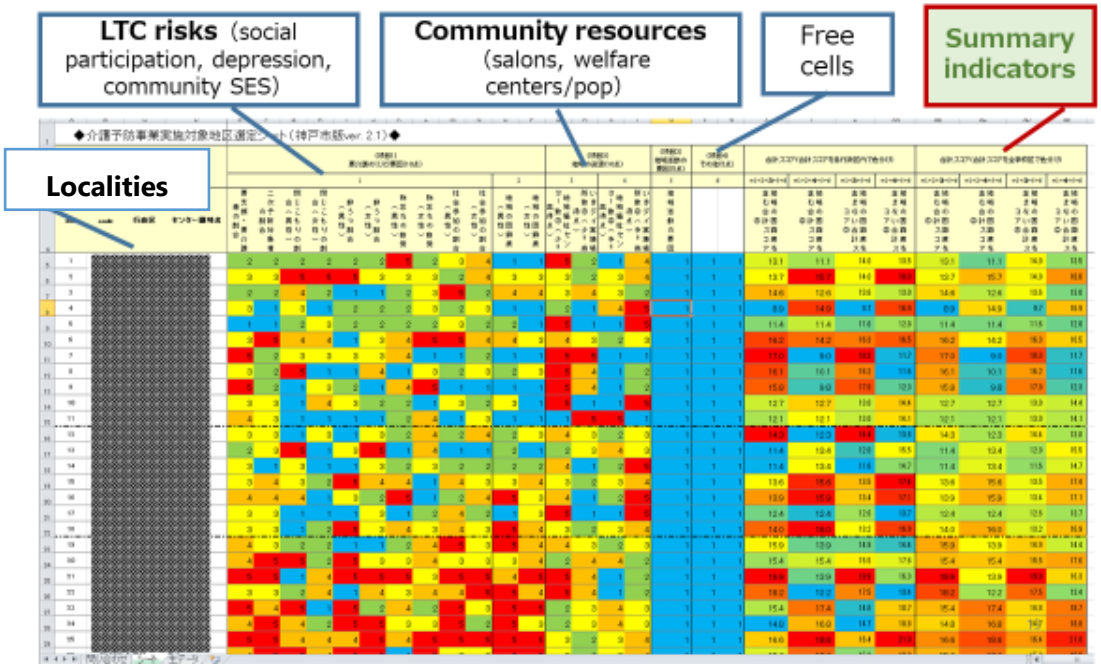
Case B: Kobe City

Kobe City is one of the largest cities in Japan, with a population of approximately 1.5 million and an ageing rate of 28.6% (as of February 2022). There are nine administrative wards and 76 localities. Kobe City has focused on preventive measures for the social isolation of older people as the proportion of older people who living alone is higher than that in the entire country.

Kobe City has participated in the JAGES since 2011 to assess each locality in detail and implement effective measures toward healthy ageing. Due to the size of the city, Kobe City and the researchers developed a heatmap named ‘locality prioritization sheet’ that extended the JAGES-HEART (Figure III.9). They arranged the sheet with health indicators, each color-coded for each level of risk. This visualization enabled them to discover problems accumulating in a locality. The city's staff members, administrative

ward, and locality jointly selected the target locality for the model project for the intensive intervention.

Figure III.9. 'Locality prioritization sheet' developed at Kobe city.



In the targeted localities, municipality staff members shared the survey results with the residents and had regular dialogues. They also supported initiation of residents-led salon activities after they observed a growing momentum in the localities that residents required a place-to-go. In the salon, older people contributed to the activities with consideration toward others so that the burden was not biased toward a particular individual. Hence, the proportion of social participation among older adults in the localities increased, which resulted in a reduction in the locality-based gap within the city. Residents from the neighbouring locality heard the success story and wanted a salon in their locality too. Such resident-led activities have expanded spontaneously, such as voluntarily launching salons and providing health consultations and check-ups at the salon at the participants' request.

A characteristic of the efforts in Kobe City was that they constructed a system that administrative areas could support and managed activities in the localities using the JAGES-HEART. Another characteristic was their advanced partnerships with various stakeholders, which included organisations outside the administrative office. They could incorporate flexible ideas and rich resources of private sectors in the activities for healthy

ageing, such as providing drinks or using novel ICT techniques for place-to-go participants.

References

Anderson, E.T., McFarlane, J.M., 2014. Community as partner : theory and practice in nursing.

Human Impact Partners, 2011. A Health Impact Assessment Toolkit: A Handbook to Conducting HIA, 3rd ed. Human Impact Partners., Oakland, CA.

Institute of Medicine, 2002. The Future of the Public's Health in the 21st Century. Futur. Public's Heal. 21st Century. https://doi.org/10.17226/10548

Institute of Medicine (US) Committee for the Study of the Future of Public Health, 1988. The Future of Public Health. National Academies Press, Washington, D.C. https://doi.org/10.17226/1091

Ministry of Health; Labour and Welfare, 2016. Data visualization system for community-based integrated care (in Japanese) [WWW Document]. URL https://mieruka.mhlw.go.jp/ (accessed 6.26.22).

Public Health Agency of Canada, 2007. Crossing Sectors – Experiences in intersectoral action, public policy and health. Ottawa.

Schönbach, J.K., Bolte, G., Czwikla, G., Manz, K., Mensing, M., Muellmann, S., Voelcker-Rehage, C., Lhachimi, S.K., 2020. Equity impacts of interventions to increase physical activity among older adults: A quantitative health impact assessment. Int. J. Behav. Nutr. Phys. Act. 17. https://doi.org/10.1186/s12966-020-00999-4

Tsuji, T., Kondo, K., Kondo, N., Aida, J., Takagi, D., 2018. Development of a risk assessment scale predicting incident functional disability among older people: Japan Gerontological Evaluation Study. Geriatr. Gerontol. Int. 1433–1438. https://doi.org/10.1111/ggi.13503

Tsuji, T., Takagi, D., Kondo, N., Kondo, K., 2017. Development of risk assessment scales for Needed Support/Long-Term Care certification: A longitudinal study using the Kihon Checklist and medical assessment data. Nihon Koshu Eisei Zasshi 64, 246–257. https://doi.org/10.11236/JPH.64.5_246

White, M., Adams, J., Heywood, P., 2009. How and why do interventions that increase health overall widen inequalities within populations?, in: Babones, S.J. (Ed.), Social Inequality and Public Health. Policy Press, pp. 64–81. https://doi.org/10.1332/POLICYPRESS/9781847423207.003.0005

World Health Organization, 2021. Framework for countries to achieve an Integrated Continuum of Long-Term Care. Geneva.

World Health Organization, 2020. Decade of Healthy Ageing: baseline report. Geneva.
World Health Organization, 2019. Integrated care for older people (ICOPE): guidance for person-centred assessment and pathways in primary care. Geneva.
World Health Organization, 2015. World report on ageing and health. World Health Organization, Geneva.
World Health Organization, 2010. Urban HEART: Urban Health Equity Assessment and Response Tool. World Health Organization, Kobe.
World Health Organization, 2008. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva.
World Health Organization, n.d. Health impact assessments [WWW Document]. URL https://www.who.int/tools/health-impact-assessments (accessed 6.26.22).