

Precision social prescriptions to promote active ageing in older people

Short title: Precision Social Prescriptions for older people

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'No dying allowed': elderly in Italian medieval village ordered to defy death¹

In 2015 the Mayor of Sellia, a small town in the Calabria Region of Southern Italy, ordered all of its elderly citizens to keep healthy because migrating youth and a lack of jobs saw its population decrease dramatically over the past few years – the elderly citizens were the only thing keeping the village alive!¹

The Mayor's approach is a strategic move in a country which has Europe's largest proportion of over 65 citizens and where an ongoing concern is the issue of "non-self-sufficiency" due to economic and social considerations.²

Population ageing: A demographic and social transformation

Since the early-mid 1950s, the world has seen a dramatic increase in life expectancy – over 10 years in North America, Europe and Oceania, nearly 25 years in Latin America and Caribbean and nearly 30 years in Asia – largely due to improved living standards, lifestyle changes and improved healthcare^{3, 4} In 2017 there were nearly 1 billion people aged 60 years or over and this number is projected to double to approximately 2 billion by 2050.³

Combined with increases in life expectancy, declines in fertility are leading to a global demographic transition which is seeing the emergence of population ageing - an increase in not only the number, but also the proportion of elderly citizens in a population. Projections suggest that in 2050, people aged 60 or over will account for 35% of the population in

Europe, 28% in North America, 25% in Latin America and the Caribbean, 24% in Asia, 23% in Oceania and 9% in Africa.³

Population ageing is expected to be the most important social transformation of the 21st century because it will shape and drive demand and consumption patterns in various aspects of society including: labour and financial markets; the public sector's design and delivery of services including welfare services like health and social care, housing and transportation; and the evolution of new socio-cultural norms and patterns affecting culture, social life and relationships.^{2, 5}

Ageing: A non-linear biological and social process that can decrease autonomy

Ageing is a manifestation of biological and social changes. Biologically, ageing is caused by molecular and cellular damage over time that can lead to decreased resilience (the ability of an individual to cope with changing life circumstances) as well as a variety of clinical conditions individually and in combination including hearing loss, cataracts, respiratory difficulties like chronic obstructive pulmonary disorder, back pain, arthritis, diabetes, heart disease and dementia.⁶

Socially, growing older is a result of life transitions (e.g. retirement) and behaviours (e.g. being sedentary and isolated versus being physically active and socially engaged) as well as personal beliefs and social culture linked to norms and beliefs about the role of older people in society (e.g. older people are assumed to be dependent and a burden to society versus

views of older people being seen as providing support and wisdom to younger generations and society more broadly).^{6, 7}

An infinite combination of biological and social factors at individual and population levels means that chronological age cannot be used to predict a linear ageing process. Some older people will be in great health with an active social life and will need little help while others will have a high degree of dependency. While biology is important, a large part of the heterogeneity we observe in ageing is very context-dependent and results from people's physical and social environments, which manifest themselves in inequities in the later life experiences of people within and between different societies.^{3, 4, 6}

Several multidisciplinary longitudinal studies have been established to understand what influences well-being and quality of life in older age as well as the factors that are associated with and may predispose individuals to dependency in older age. These studies look at multiple dimensions of ageing (demography, economics, epidemiology, gerontology, biology, medicine, psychology, public health, health policy and sociology) in various countries (US, Europe, Japan, China, India, Indonesia, Thailand, Canada, Africa, Costa Rica) with the hope of gaining insights into context-dependent and -independent factors that impact the ageing process.⁸ In addition to the more individual and qualitative assessments of dependency and need, the researchers have also used standardised conceptualisations of need through instruments that assess an individual's comfort with Activities of Daily Living (ADLs), such as bathing or dressing; Instrumental Activities of Daily Living (IADLs), such as managing finances; and mobility-related tasks such as climbing a flight of stairs without resting.⁹

The results of some of these studies is worrying. While the recorded prevalence of disability in people under the age of 18 is 5.8%, disability rises to 44.6% in those aged 65-74 and 84.2% in those aged 85 and over.⁹ If we look more closely at a country like England, recent analyses show that approximately 1.4 million older people have difficulty with ADLs for which they receive no support and the number rises to nearly 1.6 million people if we include IADLs.¹¹

Transitioning from dis-ablement to active ageing

There is increasing understanding that the social changes that have taken place in the last seventy years - namely the growth of car ownership, the shift from manual labour to desk work and more recently the internet - have driven socially determined inactivity and disablement. Loss of ability due to loss of fitness, the fitness gap, opens from the age of the first desk job but accelerates after the age of forty and loss of fitness also reduces resilience and autonomy, thus increasing the chances of dependency in older age. The increased incidence of most lifestyle diseases is the result of longer exposure to social or environmental risk factors and it is now appreciated that the onset of disease can often accelerate loss of fitness not only because of the effect of disease but also because of the social impact of diagnosis, which may make the person or their family assume that it is best to not burden them with activities and to do things for them. This leads to a widening of the fitness gap and can be the reason why the person's ability drops below the level required for independent living, therefore precipitating dependency and the need for social care.¹²

Recent research suggests that if we address the issues of socially driven dis-ablement, we could slow the ageing process.⁸ We may not be able increase life expectancy, but we could increase healthy life expectancy, or healthspan, with a decrease in, or compression of, the period of morbidity and dependency if we promote an approach to ageing that keeps people physically, mentally and socially active – i.e. active ageing (Figure 1).

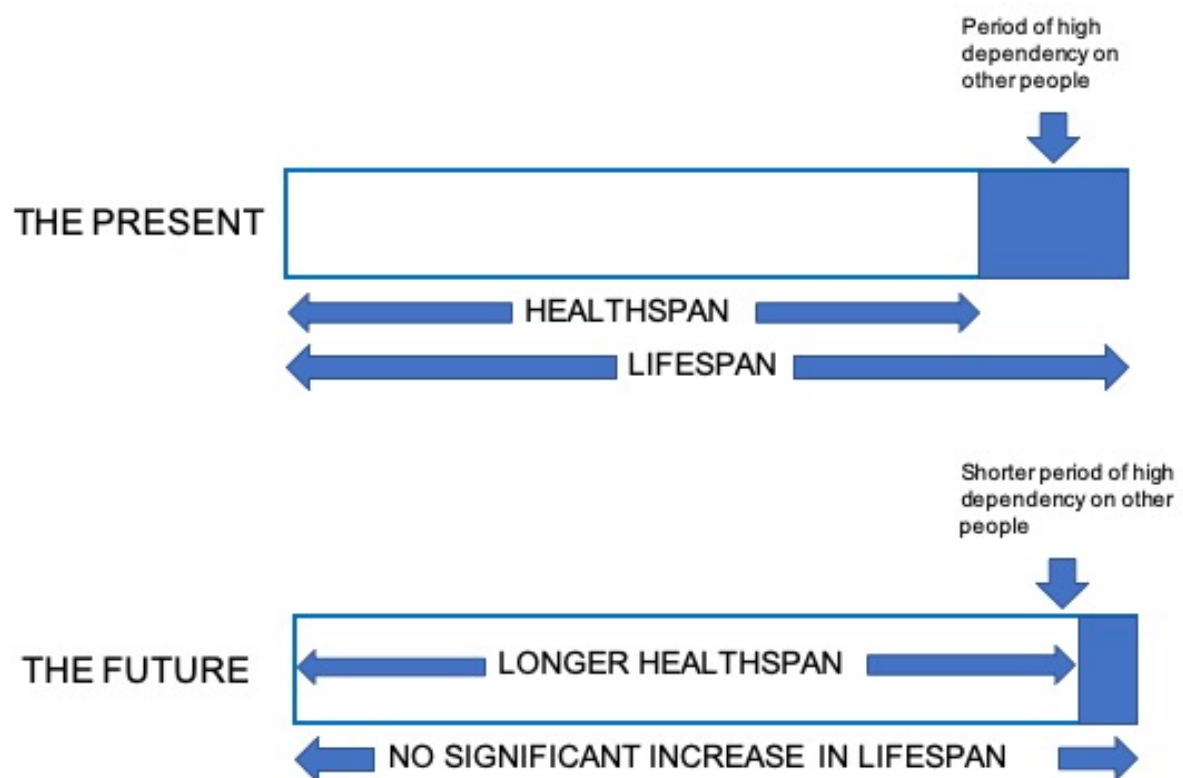


Figure 1: Increasing the healthspan through active ageing

Recent results from the Future Elderly Model (FEM- a model developed to understand the interactions between multiple elements like social policy, social forces and biomedicine), suggest that increasing healthspan through approaches like active ageing could provide economic value equivalent to \$7.1 trillion over 50 years stemming from productivity gains

and less resources being needed to support preventable disability.⁸ These estimates are corroborated by recent data from the English NHS which suggest that delayed discharge from hospital for older patients who have a dependency for ADLs and IADLs, some of which could be preventable, cost the NHS approximately £290 million annually.¹¹

To ensure that we can gain the maximum benefit from the social transformation stemming from population ageing, we need to reimagine the process of ageing and what it means for our society as well as the role older people can and must play in it in an inclusive way. But to do this, we must ensure that we actually design interventions, environments and systems that are sensitive to the needs and preferences of older people where they feel safe and supported for ADL, IADL and mobility needs like transportation, access to healthy food, good housing conditions, etc.:

... social inclusion can be said to exist if people feel valued within the society in which they live, their basic needs are met and their differences, if there are any, are respected. A more proactive version of this same concept sees social inclusion as the actual undertaking of means by which to improve the conditions and the options for participation in society among individuals who may not be fully participating due to any number of reasons. The notion of social inclusion, therefore, reflects both a sense of social solidarity and a feeling of mutual responsibility as well as an active agenda to enhance, enlarge or otherwise augment the involvement of people in their social and inter-personal environments.⁷

Precision Social Prescriptions to promote active ageing

Social prescriptions are “a way of linking patients in primary care with sources of support within the community to help improve their health and well-being” through sports and leisure/art activities as well activities more focused on physical and mental health, education or skill development. Because of their ability to holistically address a person’s clinical and social needs, social prescriptions have the potential to promote social inclusion and active ageing by delivering support in a precise way that takes into account an individual’s ideas, concerns, expectations, preferences and location as well as the personal, lifestyle and environmental factors affecting their healthspan (Table 1).^{13, 14}

| | |
|--------------------|--|
| Personal | <ul style="list-style-type: none"> -Gender -Migrant status -Ethnicity and cultural preferences -Genetics (e.g. memory decline is influenced by multiple genes - e.g. APOE epsilon 4 which predicts cognitive decline and risk of dementia, FASTKD2 which influences memory) -Existing health conditions, some which may be modifiable [cognitive (e.g. dementia), mental health-related (e.g. depression), sensory (hearing and eyesight), mobility-related (arthritis), pain, oral health, chronic conditions (e.g. obesity, heart disease)] |
| Lifestyle | <ul style="list-style-type: none"> -Behaviours (e.g. smoking, drinking, levels of physical/social activity) -Beliefs -Employment status -Socio-economic status (including education and financial wellbeing) -Size and quality of social network |
| Environment | <ul style="list-style-type: none"> -Policies (health and social care, financial including pensions) -Socio-environmental context (including access to, for example, nutritious food, transport, housing, education, jobs, social activities, local services that facilitate ADLs, IADLs and mobility) -Neighbourhood’s social cohesion |

Table 1. Characteristics that can be taken into account when designing and delivering precision social prescriptions^{4, 6, 7, 8}

Precise social prescriptions could address three broad functional categories to promote active ageing^{6, 7, 8, 12}:

- Improving physical health and ability (healthy diet, regular physical activity that increases strength and suppleness, maintaining optimal body weight)
- Improving cognitive reserve (through greater mental stimulation)
- Improving mental health and social wellbeing (engaging with others in social activities)

A given social prescription can often times address several of these functional categories at once. For example, social prescriptions that support singing in groups have been shown to improve physical and mental health (improved breathing, pain reduction, relief from anxiety, mood elevation) while also improving social inclusion¹⁵; participatory arts activities for older age groups have demonstrated their ability to promote social inclusion/engagement and promote cognitive reserve through attention and concentration on the arts-based tasks¹⁶; “museums on prescription”, which give older individuals an opportunity to participate in guided tours of museums and also the ability to handle museum objects, have been shown to deliver several benefits including reducing social isolation, decreasing anxiety and providing cognitive stimulation through the learning of new skills¹⁶; and a variety of physical activity interventions ranging from organised activities like walking groups to guidance on how to increase physical health through everyday activities have been shown to improve physical and mental health while also providing an opportunity for social interactions.^{17, 18, 19}

There have been some clear successes in the realm of precise social prescriptions for older people but it is important to acknowledge that the evidence base is not yet robust across the various social prescriptions available because of small sample sizes and poor study design. More work must be done to establish the evidence base and one idea the current authors have proposed is to establish a social prescriptions formulary that leverages pragmatic trials, real world evidence and technology so that social prescribing can be rationalised in the same way that pharmaceutical prescriptions have been.²⁰

Despite the challenges, precise social prescriptions are a very promising approach whose inherent flexibility means that they can be adapted and personalised approach to active ageing, thus providing a promising mechanism to meet one of the WHO's most important recommendations related to ageing:

*it is important not just to consider approaches that ameliorate the losses associated with older age, but also those that may reinforce recovery, adaptation and psychosocial growth.*⁶

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