



# Longevity and Ageing Populations in the GCC



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A young boy with short brown hair, wearing a blue jacket with yellow piping, is kissing an elderly woman on the cheek. The elderly woman is wearing a white headscarf and a dark blue sweater. They are sitting on a brown sofa with a floral pattern. In the background, there is a bookshelf filled with books. The image is a composite of two photographs: the boy and the elderly woman on the right, and a bookshelf on the left.

# An introduction to longevity: concepts and drivers

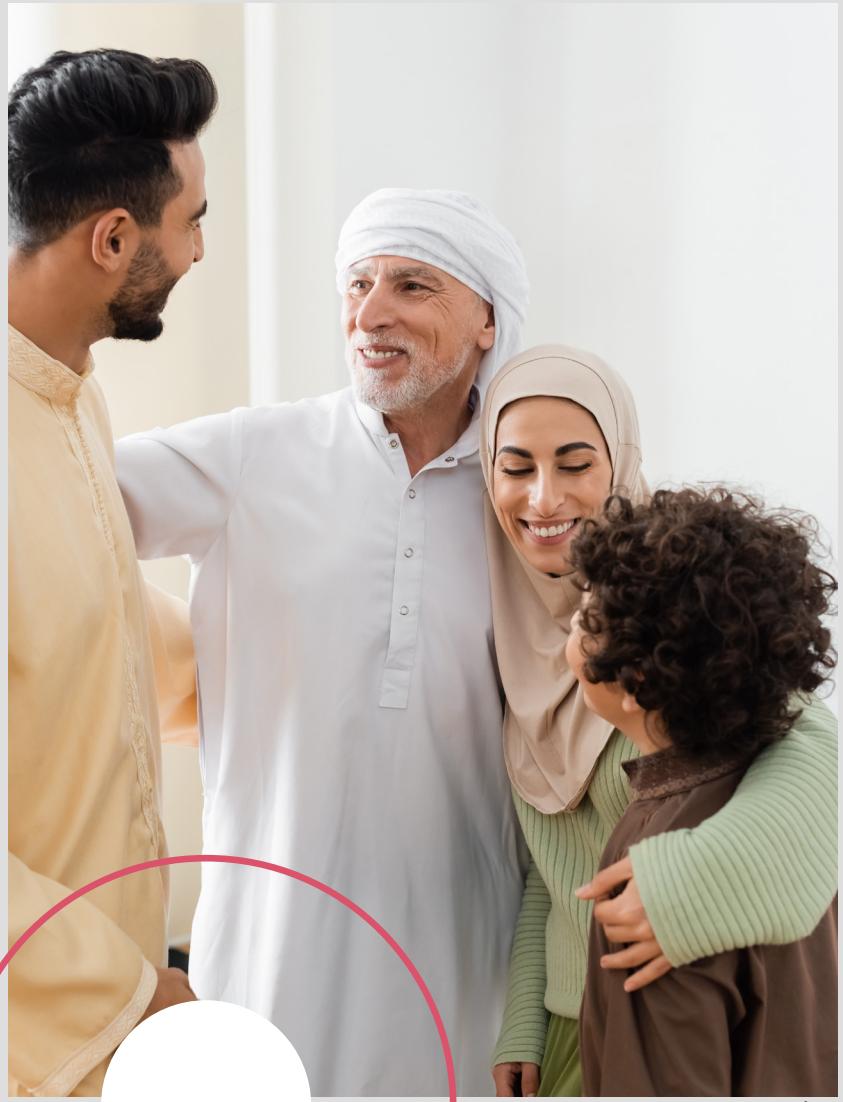
## Defining longevity

According to the World Health Organization (WHO), the global population aged 60 years and above is expected to double by 2050, and triple by 2100.<sup>1</sup> As global life expectancy continues to rise, partly due to advances in medical technology and partly due to improvements in living standards, the concept of longevity is more significant than ever before. While this phenomenon can be celebrated as an indication of improved living conditions, it presents unique challenges for society and healthcare systems.

Life expectancy, lifespan and longevity are often used interchangeably but they refer to a different concepts.<sup>2</sup> Life expectancy is the amount of time a person is expected to live based on the year they were born, their current age and various demographic factors. It is always statistically defined as the average number of years of life remaining at a given age. So, life expectancy is basically the average lifespan of a population.

Longevity, on the other hand, can be considered as the average lifespan under ideal conditions, also described as the ability to live a long life beyond the species-specific average age at death.<sup>3</sup> Whereas some individuals are fortunate enough to enjoy good health and mobility well into their 80s and beyond, others may experience a decline in their physical and cognitive abilities much earlier in life, highlighting the importance of quality-of-life measures. Therefore, successful or healthy ageing has been defined as the absence of physical impairment and chronic diseases, as well as optimal social participation and mental wellbeing.<sup>4</sup>

The WHO considers healthy ageing in a more holistic sense – one that is based on life-course and functional perspectives. It's the process of developing and maintaining the functional ability that enables wellbeing in older age.



## The importance of longevity in the GCC

Globally, many countries are experiencing increases in lifespan that are surpassing birth rates, a factor that is leading to demographic shifts towards older populations. This trend is also being observed in the Gulf Cooperation Council (GCC) countries – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia (KSA), and the United Arab Emirates (UAE) – with significant demographic changes expected. Given the current trends, the elderly (over 50 years of age) will comprise 18.5% of the population by 2025, up from 14.2% in 2020.<sup>5</sup>

Furthermore, the GCC population is also expected to significantly age until the end of this century, with the median age rising from 32 years in 2022 to 51 years in 2100,<sup>6</sup> leading to an overall older population. While this demographic shift can have many positive implications, there are many challenges that may arise, such as a significant increase in the burden of disease for the economy.

Currently, the health expenditure and the cost of healthcare are rising in the GCC. As populations age, there is a prevalence of chronic conditions and diseases associated with ageing, such as cancer, diabetes, Alzheimer's, and osteoporosis, leading to a greater burden on healthcare systems. The region also has limited availability of specialised treatment centres, an insufficient number of local specialist health practitioners and an over-reliance on expatriate labour. All this has lead to a growing burden on the healthcare system and high costs.<sup>7</sup>

But on a positive note, GCC governments still have time to learn from countries with “older” populations, given that their current demographic structures are relatively young compared to the global average. Moreover, the region readily embraces technological innovations that will play a central role in improving the quality of life

and reducing healthcare costs in this ‘older’ future. From advances in regenerative medicine (RM) – many of them enabled by Artificial Intelligence (AI) – to investments in wearable technology that enable mobility and independence, regional governments have prioritised needs of senior citizens as part of their national transformation agendas.

Also, in line with WHO’s worldwide push for Universal Health Coverage (UHC), the GCC nations have underscored their commitment to ensure healthcare access to all residents.<sup>8,9</sup> Collectively, these initiatives and investments have led to a marked improvement in healthcare infrastructure, service quality, and access, with accompanying positive changes in life expectancy rates.



## Our purpose



So, while this report identifies the main challenges confronting GCC governments as they seek to mitigate the costs of an ageing population by creating conditions for healthy, fulfilled lives, it also provides recommendations in that same positive spirit.

Some of the consequences of ageing are unavoidably negative. None of the proposals in this report alter the reality that the GCC citizens, like their peers worldwide, will become economically less productive and need more healthcare as they become older.

Yet there are good reasons why tomorrow's highly digitalised GCC "knowledge economies" can also be societies that value the region's best traditions, ensuring that older citizens lead fulfilling lives to the end of their days.





# Trends and Factors

## contributing to Longevity in GCC Countries

## The GCC demographic profile



Prime determinants contributing to the ageing populations in developed nations include declining birth rates, improved healthcare, and longer life expectancies. Yet the picture is more complex than it seems, presenting an additional challenge to governments and healthcare professionals, because there remains significant variations in individual lifespans, which may be partly due to genetic variants. For example, a study published in 2019 of more than 650,000 people, drawn from the AncestryDNA and UK Biobank databases<sup>10</sup> found that such variants accounted for “up to 8% of the variance in human lifespan”.<sup>11</sup>

From a demographic perspective, the age distribution of GCC countries is relatively young compared to most developed nations. By illustration, in 2023, Japan, Denmark, the United Kingdom (UK), the United States (US) and Switzerland constituted 28% of the population over 60 years of age, whereas in the GCC countries, this average is only 6% (see fig 1).

In addition, the median age of the above-mentioned developed countries is 42 years whereas that of GCC countries is 30 years.<sup>12</sup> Interestingly, populations in the GCC countries are ageing at a significantly faster rate than populations in developed countries have in the past, due to rapid changes in fertility rates and lifespan.<sup>13</sup> And changes in social structure increase the demand for professional senior care facilities, as availability or willingness of extended family to provide care decreases as part of the shift towards a more individualistic society.<sup>14</sup>

As an overall result, these GCC countries are beginning to face challenges related to healthcare, pension systems, and social welfare programmes that are designed to support elderly populations.<sup>15</sup>

Oman has the youngest population, with a median age of 28.8 years, followed by Saudi Arabia (29.8 years), Bahrain (32.7 years), UAE (32.8 years), Qatar (33 years) and Kuwait (38.3 years). Conversely, many developed nations have significantly older populations, such as the US (37.7 years), UK (39.6), Denmark (41.3), Switzerland (41.8) and Japan (48.4).<sup>16</sup>

### GCC countries

	Year	+60	+65	+70	+80
Bahrain	2023	7.3	4.0	2.1	0.5
Kuwait	2023	10.1	5.4	2.6	0.5
Oman	2023	4.6	2.8	1.6	0.4
Qatar	2023	3.5	1.6	0.7	0.2
KSA	2023	5.8	3.1	1.5	0.5
UAE	2023	3.6	1.9	1.0	0.4

### Other countries

	Year	+60	+65	+70	+80
Japan	2023	36.1	30.1	24.2	10.8
Switzerland	2023	26.3	19.7	14.3	5.7
Denmark	2023	26.8	20.7	15.2	5.3
UK	2023	25.6	19.5	14.3	5.3
US	2023	23.9	17.6	11.9	4.0

**Fig 1:** Projected average age demographics by country (percentage of total population, both sexes) in 2023. Data obtained from the United Nations World Population Prospects 2022 - Medium Fertility variant

## Innovation and new technologies driving GCC healthy ageing initiatives



The rapidly growing and ageing population in the GCC signals a pressing need to focus on healthy ageing. This has resulted in various initiatives and programmes that are tailored to regional national agendas, along with innovative approaches that leverage the latest advances in medical science, driven by AI-enabled digital technologies.

Moreover public-private partnerships (PPPs) are boosting collaboration between governments, private companies, and academia to address complex scientific and social challenges. In Saudi Arabia, the Quality of Life Programme, as part of the larger Vision 2030 goals, aims to improve the overall quality of life in the Kingdom and increase life expectancy to 80 years by 2030. In the UAE, the National Strategy for Wellbeing 2031 aims to improve the health and wellbeing of citizens, promote healthy eating, physical activity, and improve access to healthcare services for the ageing population.

Similarly the national visions of Qatar, Bahrain, Oman and Kuwait aim to strengthen the healthcare needs of their rapidly growing and ageing populations, reduce the prevalence of chronic diseases, and promote healthy lifestyles.



## Some pioneering initiatives across the region include:

### Saudi Arabia

- **Hevolution Foundation:**<sup>17</sup> Launched in 2021, the not-for-profit foundation provides grants and early-stage investments in healthspan science, an emerging field focused on the biological mechanisms of ageing.<sup>18</sup> The foundation's key goals include using the latest technologies to reduce drug development timelines and broadening access to therapeutics that can help increase healthy lifespans.

### UAE

- **Sharjah Research Technology & Innovation Park (SRTIP) and Deep Knowledge Analytics (DKA) longevity industry mapping partnership:**<sup>19</sup> In 2021, the tech analysis company DKA and SRTIP formed a joint venture to map the UAE's longevity industry, a sector that ranges from biotech and pharma companies to fintechs and insurers. The goal is to provide a reliable, up-to-date database for UAE policymakers and government institutions.
- **Abu Dhabi Stem Cell Center (ADSCC):** Established in March 2019, the ADSCC, owned by UAE's PureHealth. Conducts stem cell research in fields such as tissue regeneration and the rejuvenation of ageing cells, which have the potential to increase longevity, as well as in other areas. The ADSCC is owned by the UAE's PureHealth private sector healthcare network.
- **The Omics Centre of Excellence** - Part of the M42 Group that was launched last year as a result of a merger between the healthcare units of Mubadala and artificial intelligence company G42, the Omics Centre is invested in the accentuated power of genomics that enables healthcare transformation.
- **Other recent developments in the UAE include a biocomputing innovation research laboratory** - a partnership between Abu Dhabi's Mohamed bin Zayed University of Artificial Intelligence and the international AI life science modelling company BioMap.<sup>20</sup> Based in Masdar City, it will focus on age-related illnesses.



## Scientific and medical advancements affecting longevity

Robust policymaking to tackle the challenges of ageing societies demands a sound understanding of how advances in preventive and personalised medicine are transforming approaches to healthcare for older people, especially in the field of genomics. In many cases, these advances are based on AI-enabled therapies and treatments that utilise rapidly evolving digital technologies.

### The appliance of science: how new technologies and research are transforming geriatrics



#### Stem cell research

Ageing is associated with a decline in the regenerative potential of stem cells which, as one recent academic study noted, are the “regenerative building blocks and seeds of life”.<sup>25</sup> In the past decade, major scientific and clinical advances in stem cell research have accelerated the development of highly personalised drugs and therapies using the patient’s own cells to treat inherited diseases, repair damaged tissues, and address other conditions associated with the wear and tear of ageing. A future now beckons where patients can benefit from an ever-widening range of stem cell treatments that can slow or even reverse normal ageing processes.

#### Artificial Intelligence (AI)

AI and machine learning (ML) have dramatically accelerated drug development in recent years. A study in 2021 noted an ever-widening range of areas where ML algorithms have streamlined the R&D pipeline, from toxicity prediction to patient monitoring in clinical trials.<sup>21</sup> Geriatric medicine is at the forefront of AI-driven therapies and treatments – firstly because of the increasing proportion of older people in ageing societies and secondly because, as another recent study noted, “ageing is an almost universal feature possessed by all living organisms, tissues and cells”.<sup>22</sup>

## Biomarkers

Biomarkers are defined characteristics measured as an indicator of normal biological processes, pathogenic processes or responses to an exposure or intervention.

AI biomarkers are essential tools for helping researchers analyse the ageing process in an individual patient in a comprehensive way. As one recent academic review of biomarkers observed, “chronological age poorly reflects internal biological processes and intra-individual variation”.<sup>23</sup> The same study noted that the concept of a biomarker of ageing was first proposed in 1988 by two US gerontologists, George T. Baker and Richard L. Sprott.<sup>24</sup>

In the digital age, a widening range of AI-enabled biomarkers are currently in use by scientists and medical professionals. They include notably omics biomarkers, which track the whole molecular biology of cells, and neural ageing biomarkers using various digital imaging technologies, such as MRI scans to measure age-related brain alterations.



These technological breakthroughs in R&D are helping to drive the rapid expansion of treatments and approaches for chronic, age-related conditions, thereby extending healthy life spans. The following examples illustrate some of the most significant recent developments in the longevity and anti-ageing markets.

### Senolytic drugs

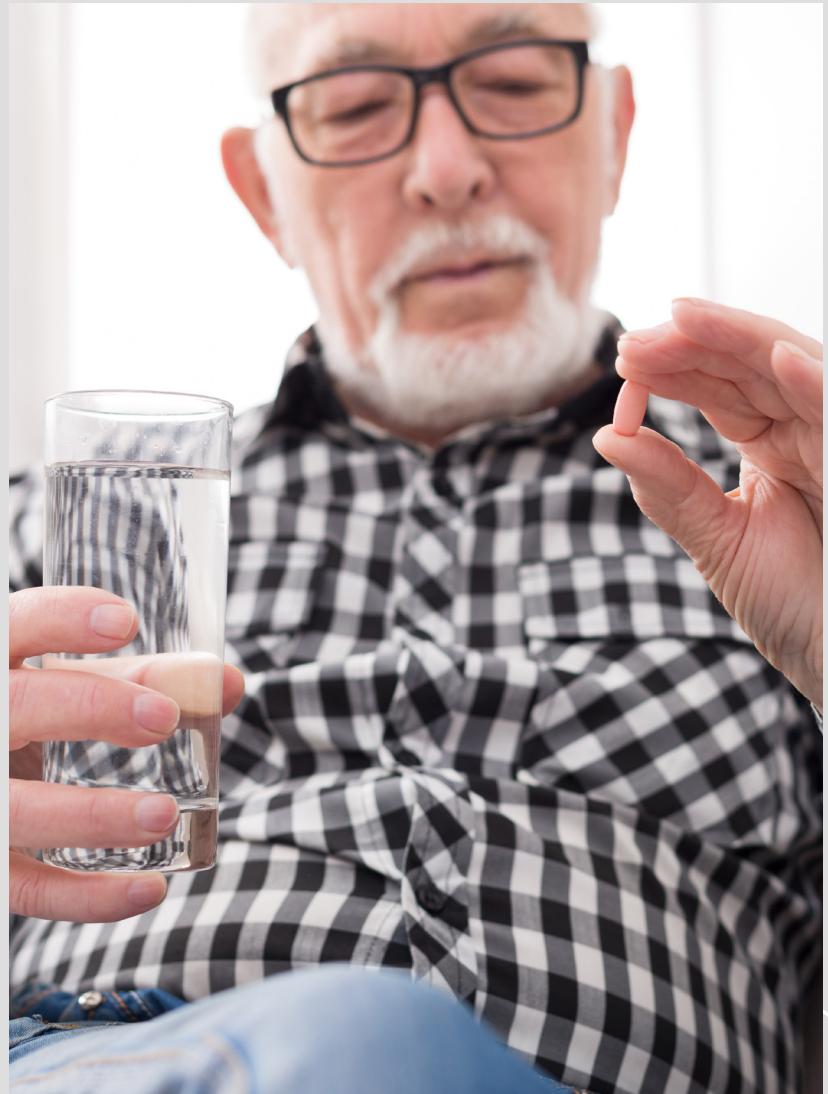


These are drugs that can repair or clear cells that have been subjected to persistent DNA damage, a common feature of the ageing process. As a study in 2018 noted, cellular senescence is “likely owing to ageing of the immune system” with a failure to eliminate such cells potentially “leading to the development and progression of age-related diseases”.<sup>26</sup>

### Metformin



This is a commonly used diabetes hypoglycemic drug that, based on recent research, may have age-retarding potential. According to a 2021 study, there are indications that “metformin regulates ageing-related pathways, possibly delaying the ageing process by modulating these pathways.”<sup>27</sup>



## The impact of lifestyle and behavioural factors on longevity



Longevity and quality of life are affected by many lifestyle and behavioural factors, such as living conditions and socioeconomic status, activity levels, and physiological and psychological stress.<sup>28,29</sup> These factors stretch way beyond the realms of healthcare delivery, as illustrated by the fact that only 10% of undesirable health outcomes are related to suboptimal access to medical care.<sup>30</sup>

Several lifestyle factors have a significant effect on healthy ageing and can be targeted to improve longevity. One lifestyle factor with implications for longevity is diet. As countries become increasingly wealthier and urbanised, the diet of their population shifts towards eating more ultra-processed foods, a phenomenon known as nutrition transition.<sup>31</sup> Along with a higher incidence of nutritional deficiencies, countries undergoing nutrition transition tend to experience increases in heart disease, diabetes, and obesity.<sup>32</sup> It has been observed that countries within the GCC are well into the later phases of the nutritional transition, a shift which has substantial and discernible impacts on public health.<sup>33</sup> For example, obesity rates in the GCC have increased, with national prevalence rates higher than the global average of 13.1%. Additionally, the GCC has relatively high rates of diabetes and hypertension as well.<sup>35,36</sup>

Furthermore, nicotine abuse continues to be a major challenge in the GCC, as well as physical inactivity. The percentage of adults who meet recommended physical activity levels is well below the global activity levels.<sup>37</sup> To address these issues, several GCC countries have introduced initiatives, such as mandating the printing of calories on restaurant menus, increasing taxes on soft drinks and sweetened beverages, and promoting healthy nutritional items in restaurants and retail establishments. Additionally, educational programmes in schools and communities that aim to improve awareness regarding healthy eating and physical activity habits have been introduced.<sup>38</sup>



## GCC countries

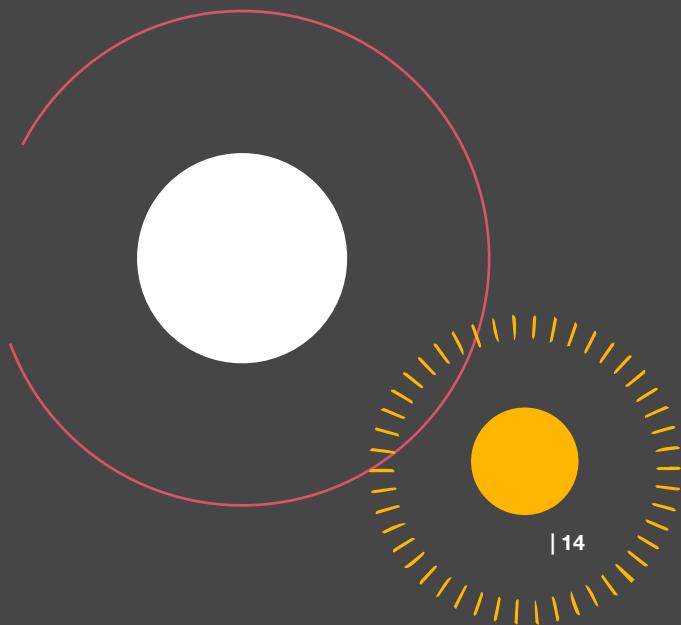
	Estimated adult diabetes population (20-79 y), 1,000s	Adult total population (20-79 y), 1,000s	Diabetes age-adjusted comparative prevalence (20-79 y), %	Cost per person with diabetes (20-79 y), USD	Diabetes-related deaths (20-79 y)	Proportion of undiagnosed diabetes (20-79 y), %
Bahrain	119.8	1,328.4	11.3	1,324.9	536	34.2
Oman	445.6	3,762.3	13.8	845.2	2,100	50.0
KSA	4,274.1	24,194.3	18.7	1,745.3	32,054	43.6
UAE	990.9	8,057.1	16.4	2,109.5	4,343	64.0
Kuwait	803.4	3,152.8	24.9	1,823.6	2,153	37.3
Qatar	394.9	2,406.6	19.5	2,017.2	892	34.2

Fig 2: Prevalence of Diabetes in the GCC

## GCC countries

	Annual increase in child obesity 2035–2020	Annual increase in adult obesity 2035–2020	Overweight impact on National GDP 2035
Bahrain	1.8%	2.5%	43%
Oman	4.3%	3%	52%
KSA	3.6%	2.1%	57%
UAE	3.0%	1.9%	45%
Kuwait	1.9%	1.5%	52%
Qatar	2.3%	1.8%	51%

Fig 3: Projected increases in obesity and its impact in the GCC, 2020-2035



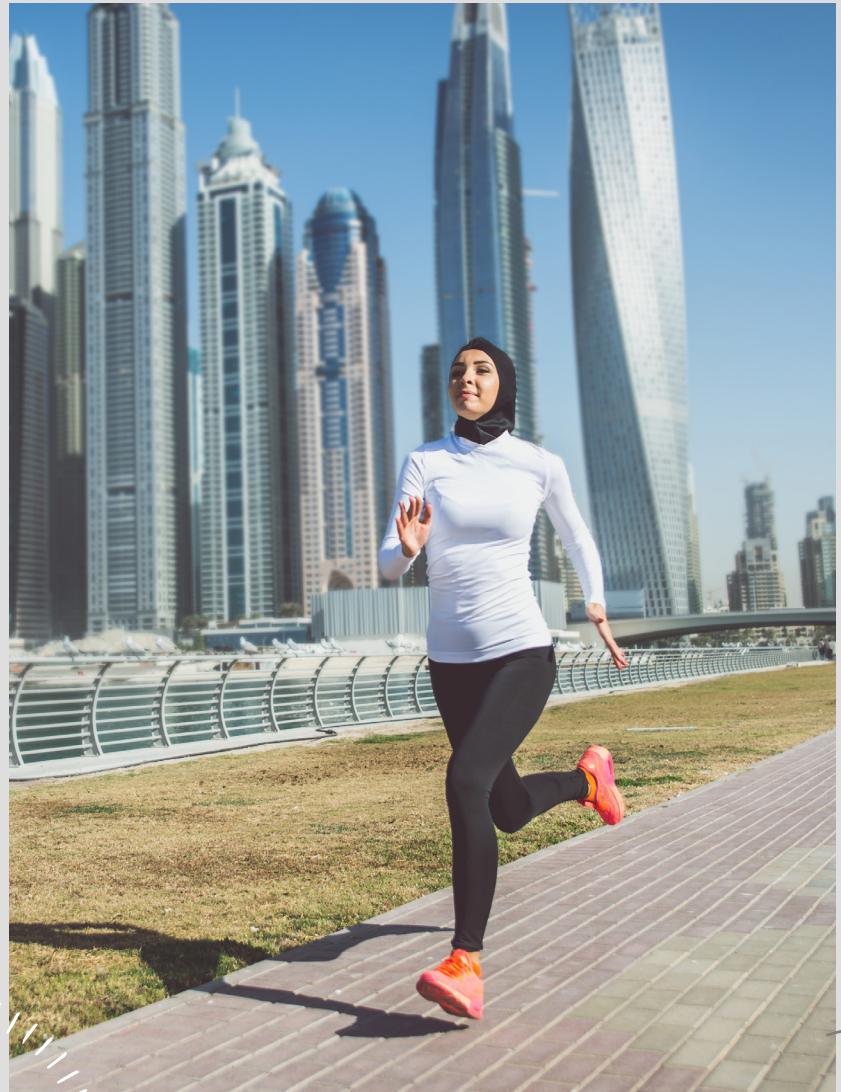
Another lifestyle trend that can affect longevity is urbanisation. Several GCC countries are among the most urbanised in the world.<sup>39</sup> As urbanisation continues to increase in the region, a shift in health and quality of life metrics is expected. On the positive side, urbanisation enables improved accessibility to healthcare services, sanitation, and education.<sup>40,41</sup>

Nonetheless, the downside of urbanisation is associated with increased stress levels, which have shown to be detrimental to mental and physical health.<sup>42</sup> Globally, relationships between mental disorders and urban living have been observed, due to urban features, such as social stress, income inequality and poor infrastructure.<sup>43,44</sup>

The GCC has not been exempt from this trend, as evidenced by the rising prevalence of mental health conditions among the younger generation in countries like Saudi Arabia, which may affect healthy longevity and quality of life as they age.<sup>45,46</sup>

Another particular lifestyle factor that remains to be a significant problem globally, despite significant efforts to control is tobacco use, which takes several forms, such as cigarettes, cigars, water pipes, vapes and chewing tobacco.

The WHO estimates tobacco use in the Eastern Mediterranean region, including GCC countries, to be nearly 3% higher compared to worldwide prevalence.<sup>47</sup> Moreover, the trend of susceptibility to initiating tobacco use among youth, aged 13 years to 15 years, has increased in multiple GCC countries, including Oman, Qatar, KSA, and the UAE, with a growing number of female youths who were willing to initiate tobacco use.<sup>48</sup>



## Addressing the challenge of extending healthy lifespans

As nations across the GCC experience a trend of rising longevity, it's crucial to address the nuanced implications that come along with this demographic shift. A critical distinction to be made is that the challenge lies not in the extension of life per se, but in the potential proliferation of unhealthy ageing patterns. Decreased mortality rates, while seemingly a victory, could inadvertently lead to an uptick in the prevalence of chronic and age-related conditions, such as heart diseases, dementia, and cancer.

Such a development could impose a substantial strain on healthcare systems, particularly those inadequately prepared for the demographic shift and associated increase in disease prevalence. To illustrate, consider the case of the UK – the health of the ageing population is improving, but not at the same rate as life expectancy. This circumstance results in a larger number of older individuals grappling with health issues,<sup>49</sup> culminating in elevated healthcare costs for both the government and individuals. In the GCC nations, data shows that similar demographic transitions are occurring (see fig 4).

	Year	Life expectancy at birth (years)	Healthy life expectancy (HALE)		Year	Life expectancy at birth (years)	Healthy life expectancy (HALE)
Bahrain	2019	75.8	65.9	Qatar	2019	77.2	67.1
	2015	76.5	66.2		2015	76.4	66.4
	2010	74.5	65		2010	74.1	64.7
	2000	70.5	61.9		2000	71.3	62.4
Kuwait	2019	81	70.1	KSA	2019	74.3	64
	2015	81.1	70.2		2015	73.2	63.2
	2010	79.8	69.2		2010	71.8	62.2
	2000	77.9	67.7		2000	70.5	61.2
Oman	2019	73.9	64.7	UAE	2019	76.1	66
	2015	72.5	63.7		2015	75.3	65.4
	2010	70.4	62		2010	74.9	65.1
	2000	69.1	60.9		2000	73.2	63.9

Fig 4: Life expectancy and healthy life expectancy (HALE) in the GCC. Data is for both sexes. Data compiled from the World Health Organisation<sup>50</sup>

The increased longevity also raises certain socio-economic and socio-demographic complexities. These encompass greater labour force participation by informal caregivers, a rise in lone-residency, and a surge in the demand for long-term care. Moreover, the shifting demographic patterns towards an ageing population could have wide-ranging socio-economic repercussions, impacting areas such as economic growth, employment trends, workforce composition, and family dynamics. For instance, the increasing old-age dependency ratio in the GCC region – representing the proportion of older individuals reliant on wage earners – signals an impending economic burden.<sup>52</sup>

Nonetheless, there are silver linings to this scenario. Successful and healthy ageing could motivate individuals to extend their professional careers, potentially augmenting the workforce and invigorating the economy. One such example is the increase in retirement age in the UK in line with increasing life expectancy, with multiple pensions acts increasing the state pensions age from 60 years in 2010 to 67 years between 2026 and 2028.<sup>53</sup> Yet, this positive outcome hinges on maintaining health during ageing and navigating the hurdle of skill obsolescence, a considerable challenge in and of itself.<sup>54</sup>

Elderly individuals indeed command a substantial and disproportionate spending power (half of all global total consumer spending), potentially infusing economies with much-needed vigour.<sup>55</sup> However, it remains to be seen whether the economic dividends from an older population will offset the mounting healthcare costs and increased social security and welfare expenditures triggered by extended longevity. In summary, as we applaud the longer lifespans, it is essential to strategise for the complexities of an ageing population, ensuring sustainable and healthy ageing.



## Blue Zones: A case study in longevity and healthy ageing

Blue Zones are regions in the world that have high longevity and healthy living. They are characterised by the highest percentage of centenarians as compared to the rest of the world. These regions include Icaria in Greece, Ogliastra in Sardinia, Okinawa in Japan, Nicoya Peninsula in Costa Rica, and Loma Linda in California. A team of anthropologists, demographers, epidemiologists, and researchers identified the lifestyle characteristics that might explain longevity in these zones. They found nine common denominators believed to slow the ageing process, which are also known as the Power 9.

By identifying the common factors among blue zones, valuable lessons can be learned and applied to increase longevity and healthy ageing. The commonalities include embracing and maintaining an active lifestyle, participating in cultural practices that alleviate stress, adopting healthy eating habits, such as consuming smaller meals in the late afternoon or early evening and minimising food intake later in the day, following diets rich in plant-based foods and nurturing healthy social connections and practices. All of these have demonstrated benefits in extending longevity.

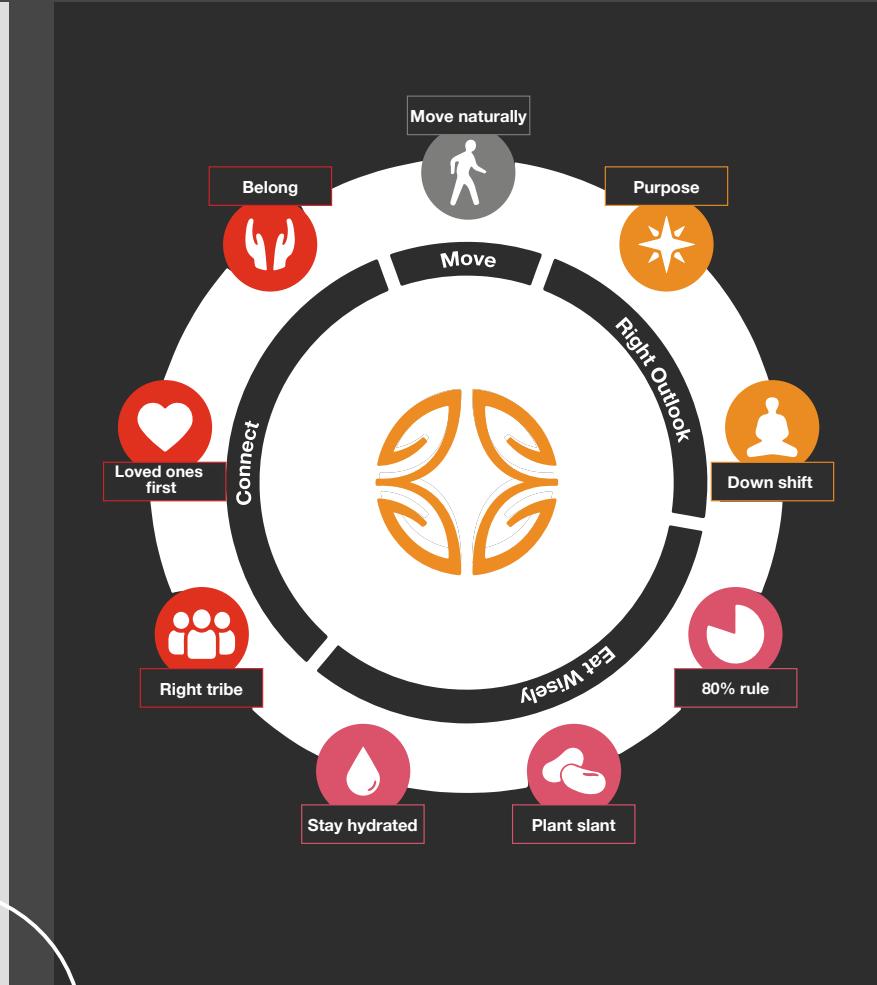


Fig 5: The Blue Zone Power 9 denominators

Worldwide, there is a myriad of initiatives available to aid in integrating ageing and public health plans to create a society where people can age healthy and participate actively.

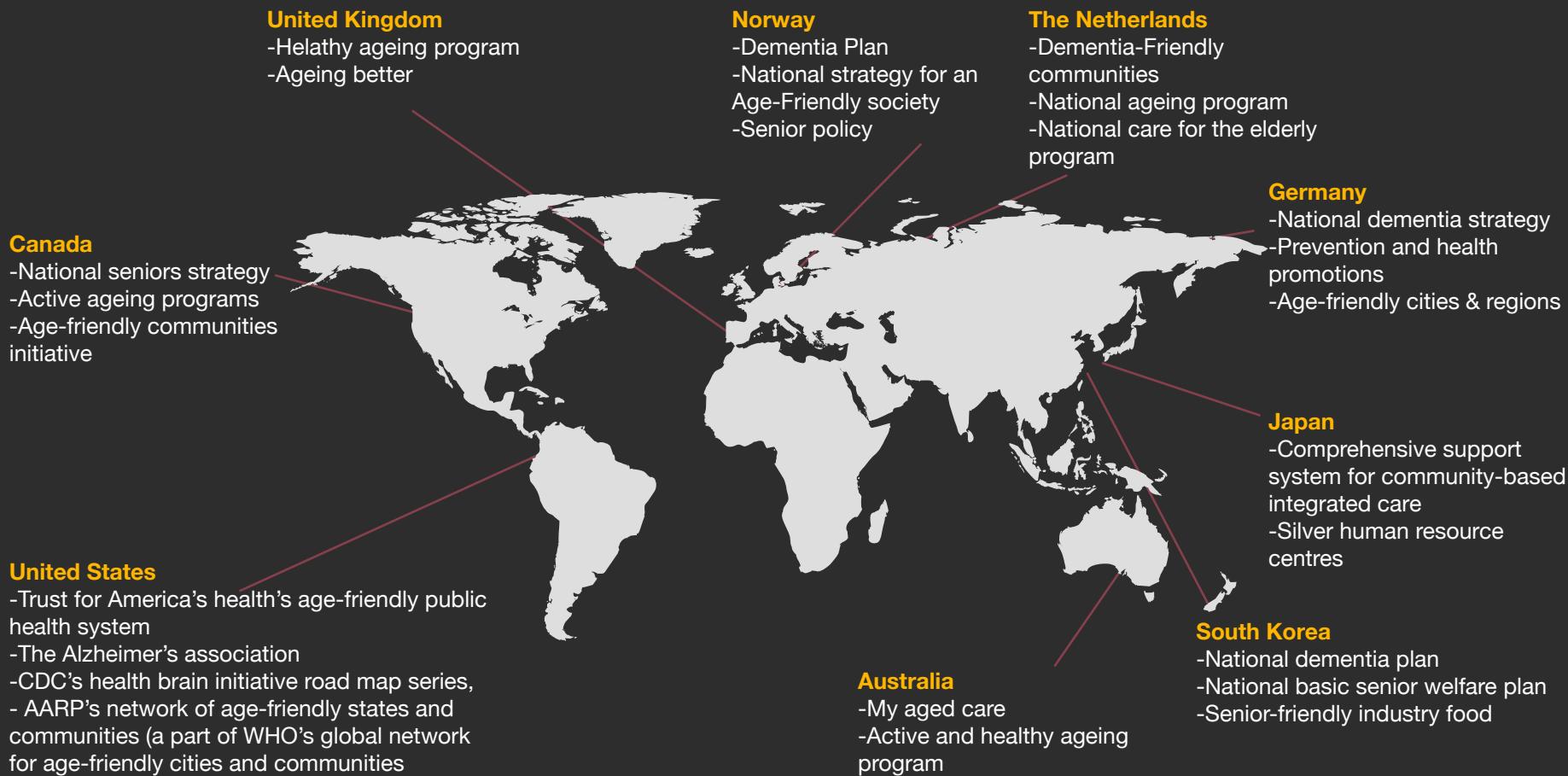


Fig 5: The Blue Zone Power 9 denominators

## Global initiatives: Four country-specific case studies



### **The UK's holistic approach to Healthy ageing and innovation: the government and private sector working together**

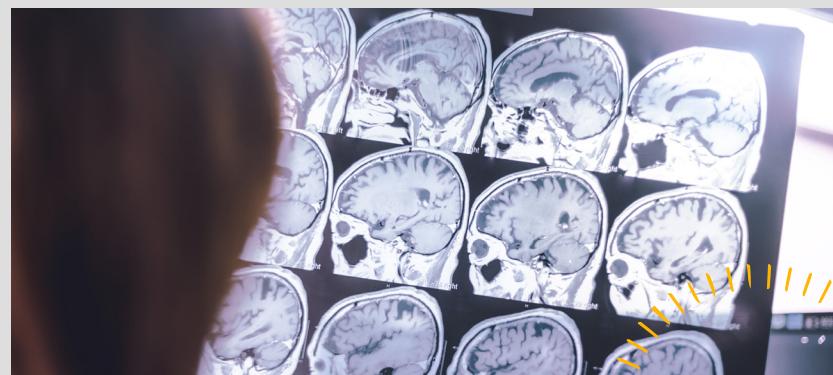
The UK's vision is to be the best place in the world to grow older, giving everyone the opportunities and support they need to lead a healthy and good quality of life in their later years, making the best use of the strengths, skills and experience of older people. They are a prime example of a country that has worked to progress and promote longevity and healthy ageing.

On the governmental side, the UK government has funded programmes, such as the UK Research and Innovation (UKRI) Health Ageing Challenge, a £98-million GBP initiative that aims to provide funding to enable businesses to develop products, services and business models that focus on helping people to remain healthy, active, productive and socially connected as they age.<sup>56</sup>

Another example is the National Innovation Centre for Ageing (NICA), an organisation that was initially supported by Newcastle University and the UK government. NICA conducts research to inform businesses on possible ways to commercialise services and products that focus on longevity and healthy ageing, thus participating in the increasingly expanding longevity economy.<sup>57</sup>

Furthermore, the UK government has funded the Centre for Ageing Better, a non-profit that is focused on advocating for older populations, by battling ageism and focusing on employment and housing opportunities for older populations.<sup>58</sup>

There are also independent, non-governmental entities focused on longevity that contribute to governmental policy discussions. An example of this is the International Longevity Centre UK (ILC-UK), a member of the International Longevity Centre Global Alliance, a multinational consortium that helps societies address longevity and population ageing in positive and productive ways. The ILC-UK is a think tank that works with the government, academia and the private sector to understand and discuss the impacts of longevity on society, and has published more than 275 reports and organised over 350 events focused on longevity.<sup>59</sup>





## Singapore's National University Health System (NUHS) Centre for Healthy Longevity<sup>60</sup>

In a country where both women and men have a life expectancy of up to 86 years and 85 years respectively, the NUHS Centre for Healthy Longevity is conducting experiments to slow down the ageing process. The center's primary goal is to target biological age, which is considered the biggest risk factor for chronic age-related ailments such as Alzheimer's and cancer. By focusing on clinical research, the center aims to ensure that people can live healthy and longer lives, free from the burden of chronic diseases and fiscal costs.



## Japan's Community-based Integrated Care System (CbICS)<sup>61</sup>

Japan faces the challenges of an ageing population, with the proportion of people over 65 rising to 28.4% in 2019 and expected to reach 35.3% in 2040. To address social isolation and loneliness among older adults, the Community-based Integrated Care System (CbICS) was introduced in 2005.

CbICS provides support services for seniors in their communities, including healthcare, nursing care, and social participation. The programme has several key components, such as medical care that includes integrated medical and nursing services, with home healthcare and short-term residential care; preventive care that emphasises health-promoting activities and early intervention; housing care that supports the development of age-friendly housing options, such as community-based group homes to enable older adults to live safely in their communities.<sup>62</sup>

The implementation of CbICS is expected to be completed by 2025. While the programme is still ongoing, it has the potential to improve access to healthcare and support for older adults, and to alleviate some pressure from family caregivers.



## The United States' Buck Institute for Research of Aging

The Buck Institute is the world's first independent biomedical research institute focused solely on ageing. It aims to end the threat of age-related diseases for present and future generations and is committed to helping people live better longer.

The GCC has been promoting a healthy and active lifestyle for all residents through the Abu Dhabi 360 and the Dubai 30x30 programmes that aim to improve physical, social and mental wellbeing. The UAE's homecare programme or Weleef is designed for senior citizens and offers a range of social cognitive, rehabilitative services to enhance the quality of life and alleviate loneliness and isolation. In KSA, the King Abdullah University of Science and Technology (KAUST) offers a smart-health initiative, while the Hevolution Foundation is catalysing the shift from lifespan to healthspan by supporting innovation in life sciences.

# Conclusion



## Recommended actions to support longevity in the GCC



As the GCC gets more serious about its longevity sector, there are some areas where further actions can be taken to better support the senior population. This is especially important, given the current and potential challenges that may arise. It's worth noting that while the recommendations provided here are applicable to all populations, some of them may require further refinement to cater to the large number of expatriates in the GCC region. For instance, recommendations related to social security and retirement schemes may need to be adjusted accordingly.



### Government

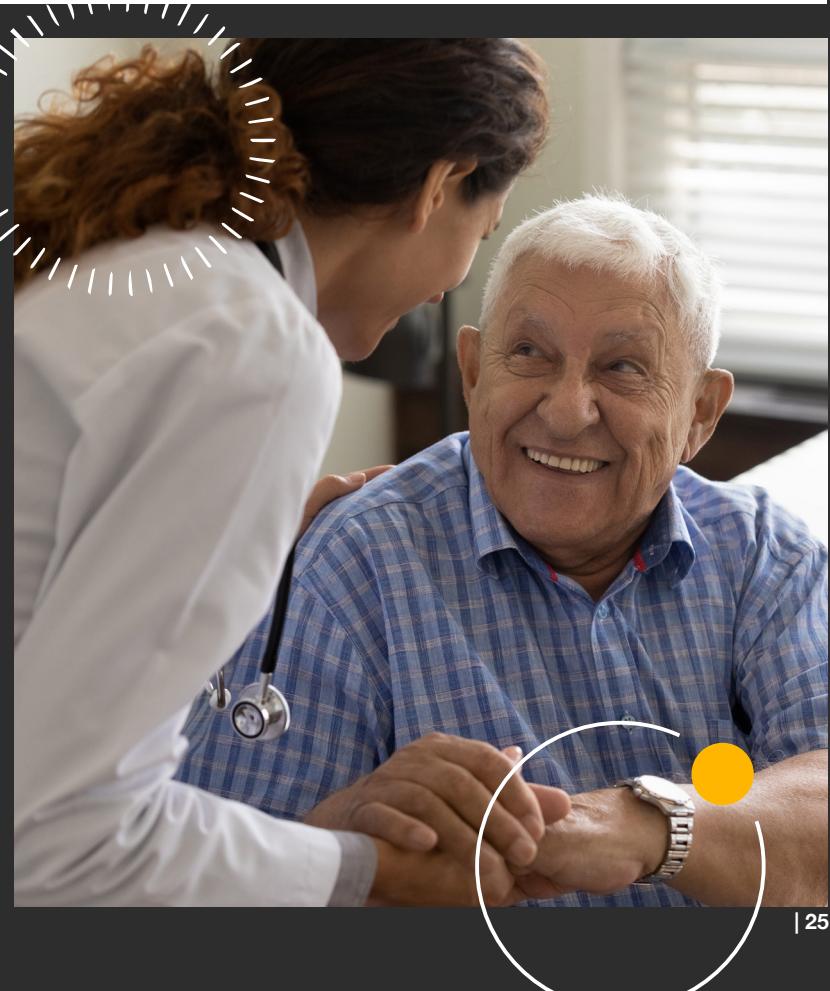
As governments across the GCC pursue ambitious transformation agendas with initiatives that need to be strategised, organised and regulated, our region is well positioned to become a global innovator for developing policy and solutions to address the rapid change in the demographics.

- 01.** Increased funding, grants, partnerships and other forms of stimulation will enable research, support development of new technologies and medications in longevity and healthy ageing.
- 02.** Developing policies and initiatives to support informal caregivers, such as promoting flexible working arrangements and working on care training programmes.
- 03.** Supporting entrepreneurship and continued learning to avoid skill obsolescence. This may also reduce overall spending on social security and welfare. Additionally, introduce new legislation that encourages retired individuals to possibly continue working without losing on their retirement benefits.
- 04.** Developing national policies that prioritise healthy lifestyles and ageing, including increasing healthcare access and regulating unhealthy practices, such as smoking and poor nutrition. One promising initiative is to further invest in maternal and newborn care by ensuring adequate healthcare education as the first 1,000 days play a crucial role in the prevention of adult diseases.
- 05.** Increasing quality of life in urban environments by developing pedestrian-friendly communities, improving public transportation and increasing green spaces, thereby prioritising public health in urban planning.
- 06.** Subsidising evidence-based longevity treatments so that such offerings are not only limited to longevity clinics/wellness centres that consider cash payment and are mainly used by VIPs and high-net worth individuals. This will ensure that this type of care is sustainable and equitable (note that this recommendation is related to equality in treatment options and does not claim that these treatments are efficacious).
- 07.** Introducing awareness campaigns on healthy ageing that outline the goals of healthy ageing and how to ensure quality of life and longevity.
- 08.** Addressing increased prevalence of solitary living among older adults by launching initiatives that promote community engagement and social connections. Additionally, enhancing healthcare accessibility for older individuals living alone, as lone-residency may pose potential challenges in the future.

## Healthcare providers

The numerous enhancements by healthcare providers and their key roles in improving the lives of beneficiaries make it an essential catalyst for promoting longevity and healthy ageing.

01. Implement model-of-care paradigms that prioritise preventive healthcare and holistic care, including social and mental health considerations. These can include coordinating care across healthcare sectors, identifying at-risk individuals for chronic diseases and treating them early, and incorporating social welfare workers into interdisciplinary healthcare teams. This must be facilitated by government buy-in and mandates.
02. Invest in healthcare infrastructure, particularly in digital health and virtual care, to support healthy ageing, such as increasing access to telemedicine, home healthcare, rehabilitation, and specialised treatment facilities.
03. Develop patient-centric training programmes that focus on healthy ageing and longevity, including training in social isolation and loneliness.
04. Establish partnerships with academia to gather useful insights from clinical trials on longevity treatments and use this knowledge in medical practice.
05. Utilise population health management techniques by using patient data to analyse main risk factors and develop customised and personalised programmes.



## Insurance providers

With regards to healthy ageing, insurance providers can cater to the needs of an important, rapidly increasing market segment.

01. Develop programmes that incentivise healthy lifestyles and healthy ageing, such as subsidising access to gyms and wellness centres and rewarding individuals who meet healthy targets with reduced insurance premiums.
02. Amend insurance policies to cover and incentivise preventive care, such as routine check-ups and screenings.

## Research and academia

The integration of academic knowledge with real-world experiences is essential for gaining insights relating to healthy ageing and its consequences.

01. Increase internal academic funding and foster opportunities for research dedicated to healthy ageing and longevity.
02. Develop national and international research partnerships between private and public research organisations, in order to share resources and increase actionable scientific output.
03. Develop and invest in academic programmes and degrees that focus on longevity and healthy ageing.
04. Increase awareness and research opportunities by developing and participating in regional and global conferences and symposiums that are focused on longevity.



## Private sector

**The private sector's contributions can drive focus on healthy ageing through strategic investments in key areas that promote wellbeing in the ageing population.**

- 01.** Increase investment in sectors that focus on longevity, such as healthy food products, fitness and wellness-focused businesses, and health-related technologies.
- 02.** Encourage incubators for local and global start-ups that are focused on longevity treatments and healthy ageing, which may also have positive economic impacts by increasing medical tourism in the region.
- 03.** Incubate local and global start-ups, such as biotechnology companies with a strong focus on longevity treatments, to expedite precision medicine and next-generation gene therapies.
- 04.** Collaborate with the aforementioned stakeholders to promote and support healthy ageing and longevity-related initiatives, policies, and research. This includes active participation in PPPs that are focused on longevity.
- 05.** Promote workplace wellness programmes and initiatives, particularly those related to mental health and a healthy work-life balance.
- 06.** Improve working arrangements by implementing policies related to increasing opportunities for remote work and flexible working hours. This will allow for better work-life balance, leading to reduced work-related stress and allowing for a healthier lifestyle. This also allows for greater participation of older individuals in the workforce.



## References



## References

01. Aging and Health. (2022, October 1). World Health Organization (WHO). Retrieved February 2023 ,21, from <https://www.who.int/news-room/fact-sheets/detail/aging-and-health>
02. International Encyclopedia of Public Health. (2016). Cockerham, W. C., & Quah, S. R. (Eds.). Elsevier Science. <https://shop.elsevier.com/books/international-encyclopedia-of-public-health/quah/5-803678-12-0-978>
03. Max Planck, Retrieved February 21,2023, from <https://www.age.mpg.de/what-do-the-terms-life-expectancy-lifespan-longevity-and-health-span-mean>
04. Human aging: usual and successful. (1987). Kahn, R., & Rowe, J. *Science*, 10.1126 .149 ,(4811)237/science.3299702 <https://pubmed.ncbi.nlm.nih.gov/3299702/>
05. GCC Healthcare Industry. (2020). Alpen Capital. <https://alpencapital.com/research/2020/GCC-Healthcare-Report-November2020-.php>
06. GCC Healthcare Industry. (2020). Alpen Capital. <https://alpencapital.com/research/2020/GCC-Healthcare-Report-November2020-.php>
07. GCC Population Will Be Lesser and Older by the End of this Century. (2022, June 21). Marmore MENA Intelligence. Retrieved February 2023 ,21, from <https://www.marmoremena.com/en/insights/gcc-population-will-be-lesser-and-older-by-the-end-of-this-century/>
08. Universal health coverage. (2023). WHO. [https://www.who.int/health-topics/universal-health-coverage#tab=tab\\_1](https://www.who.int/health-topics/universal-health-coverage#tab=tab_1)
09. Financial hardship on the path to Universal Health Coverage in the Gulf States. (2017). Alshamsan, R. et al. *Health Policy*. <https://www.sciencedirect.com/science/article/abs/pii/S0168851017300052?via3%Dihub#preview-section-references>
10. <https://www.ancestry.com/dna/>; <https://www.ukbiobank.ac.uk/>
11. Wright, K, et.al. "A Prospective Analysis of Genetic Variants Associated with Human Lifespan." *Genes. Genomes. Genetics.*, (Aug 2019 ,26), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6723124/>
12. Standard Projections (Estimates and Projection scenarios). (2022). Department of Economic and Social Affairs Population Division. <https://population.un.org/wpp/Download/Standard/Population/>
13. An aging world: 2001) .2001). Kinsella, K., & Victoria, A. U.S. Census Bureau. [https://www.nia.nih.gov/sites/default/files/08-2017/AgingWorld0\\_2001.pdf](https://www.nia.nih.gov/sites/default/files/08-2017/AgingWorld0_2001.pdf)
14. Nexus Between Demographic Change and Elderly Care Need in the Gulf Cooperation Council (GCC) Countries: Some Policy Implications. (2017, August 24). Khan, HTA, et al. *Aging International*. Retrieved March 2023 ,8 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5702386/>
15. Population aging in the Middle East and North Africa: Research and Policy Implications. (2021). Formosa, M., & Abyad, A. <https://www.um.edu.mt/library/oar/bitstream/20%-20%202021%-20%8/1/101561/123456789Population20%aging20%in20%the20%Middle20%East20%and20%North20%Africa.pdf>
16. Standard Projections (Estimates and Projection scenarios). (2022). Department of Economic and Social Affairs Population Division.

17. <https://hevolution.com/about>
18. See, for instance, Kaeberlein, M. "How healthy is the healthspan concept?" *Geroscience* (Aug 2018 ,6), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6136295/>
19. Human aging: usual and successful. (1987). Kahn, R., & Rowe, J. *Science*, 10.1126 .149 ,(4811)237/science.3299702 <https://pubmed.ncbi.nlm.nih.gov/3299702/>
20. <https://www.dka.global/strip-dka-press-release>
21. <https://www.biomap.com/en/>
22. Gupta, R, et.al. "Artificial intelligence to deep learning: machine intelligence approach for drug discovery." *Molecular Diversity* (April 2021 ,12), [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8040371/pdf/2021\\_11030\\_Article\\_10217.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8040371/pdf/2021_11030_Article_10217.pdf)
23. Zhavoronkov, A, et.al. "Artificial intelligence for aging and longevity research: Recent advances and perspectives." *Ageing Research Reviews*, (Nov 2018 ,22), <https://pubmed.ncbi.nlm.nih.gov/30472217/>
24. Chen, R, et.al. "Biomarkers of ageing: Current state-of-art, challenges, and opportunities." *Future Medicine*, (June 2023 ,18), <https://onlinelibrary.wiley.com/doi/full/10.1002/mef2.50>
25. Baker, G., Sprott, R, "Biomarkers of aging." *Experimental Gerontology*, (1988, Vol.23), <https://www.sciencedirect.com/science/article/abs/pii/0531556588900253?via3%Dihub>
26. Ullah I, Subbarao RB, Rho GJ. Human mesenchymal stem cells—current trends and future prospective. *Biosci Rep.* 2)35;2015). doi: <https://doi.org/10.1042/BSR20150025>.
27. Burton, D, and Stolzing, A. "Cellular senescence: Immunosurveillance and future immunotherapy." *Ageing Research Reviews*, (May 2018) <https://www.sciencedirect.com/science/article/abs/pii/S1568163718300114?via3%Dihub>
28. Hu, D, et.al. "Metformin: A Potential Candidate for Targeting Aging Mechanisms." *Aging and Disease*, (April 2021 ,1), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7990352/>
29. Behavioral Lifestyles and Survival: A Meta-Analysis. (2022, February 4). Fernandez-Ballesteros, et al. *Frontiers in Psychology*. Retrieved March 2023 ,8, from <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.786491/full>
30. MADRID90+ study on factors associated with longevity: Study design and preliminary data. (2021, May 17) Fernández-Blázquez MA, Del Ser T, Frades-Payo B, Ávila-Villanueva M, Valentí-Soler M, Benítez-Robredo MT, Bermejo-Aguña A, Pedrero-Pérez EJ, Quilis-Sancho J, Pastor AB, Fernández-Garrido C, Morales-Alonso S, Diaz-Olalla JM, Santos NC, Maestú F, Gómez-Ramírez J. *PLoS One*. <https://pubmed.ncbi.nlm.nih.gov/33999936/>
31. Contributions of Health Care to Longevity: A Review of 4 Estimation Methods. (2019). Kaplan, R. M., & Milstein, A. (2019). *Annals of Family Medicine*, 272–267 ,(3)17. <https://doi.org/10.1370/afm.2362e>. Retrieved May 2023 ,3 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8128242/>
32. The nutrition transition to a stage of high obesity and noncommunicable disease prevalence dominated by ultra-processed foods is not inevitable. (2021, October 10). Popkin, B and Ng, SW. *Obesity Reviews*. Retrieved March 2023 ,8, from <https://onlinelibrary.wiley.com/doi/full/10.1111/obr.13366>
33. GCC Healthcare Industry. (2020). Alpen Capital. <https://alpencapital.com/research/2020/GCC-Healthcare-Report-November2020-.php>

34. Life Evaluations in the GCC: Subjective well-being and health. (2014). Abu Dhabi Gallup Center. Retrieved March 2023 ,8, from <https://news.gallup.com/poll/157064/life-evaluations-gcc-subjective-wellbeing-health.aspx>

35. The case for investing in the prevention and control of non-communicable diseases in the six countries of the Gulf Cooperation Council: an economic evaluation. (2022). Elmusharaf et al. *BMJ Global Health*. Retrieved October 2023 ,22 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9161070/>

36. GCC Healthcare Industry. (2020). Alpen Capital. <https://alpencapital.com/research/2020/GCC-Healthcare-Report-November2020-.php>

37. Prevalences of overweight, obesity, hyperglycaemia, hypertension and dyslipidaemia in the Gulf: systematic review. (2011, July). Alhyas et al. *Journal of the Royal Society of Medicine Short Reports*. Retrieved March 2023 ,8, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3147233/>

38. Physical Activity Research in the Gulf Cooperation Council Countries: Progress Made but Work Still to Do. (2022, October 12). Hazzaa M. Al-Hazzaa. *Journal of Physical Activity and Health*. Retrieved March 2023 ,8, from <https://journals.humankinetics.com/view/journals/jpah/11/19/article-p769.xml>

39. RASHAKA Program: A collaborative initiative between Ministry of Health and Ministry of Education to control childhood obesity in Saudi Arabia. (2017). Al Eid AJ, Alahmed, ZA, Al-Omary, SA, Alharbi, SM. *Saudi Journal of Obesity*. Retrieved May 2023 ,3 from <https://www.saudijobesity.com/article.asp?issn=2618-2347;year=2017;volume=5;issue=1;spage=22;epage=27;aulast=Al>

40. Middle East Megatrends: Transforming our region. (2016). PricewaterhouseCoopers. Retrieved March 2023 ,8, from <https://www.pwc.com/m1/en/publications/megatrends/pdf/megatrends-in-me-rapid-urbanisation.pdf>

41. Urbanisation can boost economies and living standard in the developing world, says world academies' network. (2022, October 5). Press Release, The Interacademy Partnership (IAP). Retrieved May 2023 ,3 from <https://www.interacademies.org/news/urbanisation-can-boost-economies-and-living-standard-developing-world-says-world-academies>

42. Advantage or Paradox? The challenge for children and young people of growing up urban. (2018). UNICEF. <https://data.unicef.org/resources/urban-paradox-report/>

43. The Effect of Urbanization on Health Care Expenditure: Evidence From China. (2022). Shao Q, Tao R, Luca MM.. *Front. Public Health*. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8885621/>

44. Urbanization and Mental Health. (Jul-Dec 2009). Kalpana Srivastava. *Industrial Psychiatry Journal*. Retrieved March 2023 ,8, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2996208/>

45. Cities and Mental Health. (2017, February 24) Gruebner O, Rapp MA, Adli M, Kluge U, Galea S, Heinz A. *Dtsch Arztebl Int*. Retrieved May 2023 ,3 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5374256/>

46. Population aging in the Middle East and North Africa: Research and Policy Implications. (2021). Formosa, M., & Abyad, A. <https://www.um.edu.mt/library/oar/bitstream/20%-20%202021%-20%8/1/101561/123456789Population20%aging20%in20%the20%Middle20%East20%and20%North20%Africa.pdf>

47. Saudi National Mental Health Survey Technical Report. (2019). AlTwaijri, Y et al. King Salman Center for Disability Research. Retrieved March 2023 ,8, from <http://www.healthandstress.org.sa/Results/Saudi20%National20%Mental20%Health20%Survey20%-20%Technical20%Report.pdf>

48. Making mental wellbeing a national priority: Actions to build resilience.(2022). PricewaterhouseCoopers. <https://www.pwc.com/m1/en/wgs/knowledge-partners-wgs2022-/making-mental-wellbeing-national-priority.html>

49. World Health Statistics 2016 [OP]: Monitoring Health for the Sustainable Development Goals (SDGs). (2016). WHO. <https://www.who.int/publications/item/9789241565264>

50. Implementation of tobacco control measures in the Gulf Cooperation Council countries, 2021 .2020–2008). Monshi, S. S., & Ibrahim, J. *Substance Abuse Treatment, Prevention, and Policy*, 10-1 ,16. <https://pubmed.ncbi.nlm.nih.gov/34217327/>

51. The longevity society. (2021, December). Scott, AJ. *Lancet Healthy Longevity*. Retrieved March 2023 ,8, from [https://www.thelancet.com/journals/lanhl/article/PIIS6-00247\(21\)7568-2666/fulltext](https://www.thelancet.com/journals/lanhl/article/PIIS6-00247(21)7568-2666/fulltext)

52. <https://hevolution.com/documents/0/20121/Enabling+A+Healthy+Lifespan+for+Saudi+Arabia.pdf>, <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/gho-ghe-hale-healthy-life-expectancy-at-birth> & [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-birth-\(years\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-birth-(years))

53. Nexus Between Demographic Change and Elderly Care Need in the Gulf Cooperation Council (GCC) Countries: Some Policy Implications. (2017, August 24). Khan, HTA, et al. *Aging International*. Retrieved March 2023 ,8 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5702386/>

54. Nexus Between Demographic Change and Elderly Care Need in the Gulf Cooperation Council (GCC) Countries: Some Policy Implications. (2017, August 24). Khan, HTA, et al. *Aging International*. Retrieved March 2023 ,8 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5702386/>

55. State Pension age Review 2023 .(2023). Department for Work & Pensions Policy Paper. (<https://www.gov.uk/government/publications/state-pension-age-review-2023-government-report/state-pension-age-review#2023-:~:text=The20%Pensions20%Act20%202014%brought,20%68between20%202044%and202046%>.)

56. The longevity society. (2021, December). Scott, AJ. *Lancet Healthy Longevity*. Retrieved March 2023 ,8, from [https://www.thelancet.com/journals/lanhl/article/PIIS6-00247\(21\)7568-2666/fulltext](https://www.thelancet.com/journals/lanhl/article/PIIS6-00247(21)7568-2666/fulltext)

57. The Global Longevity Economy® Outlook: People Age 50 and Older are Making Unprecedented Economic Contributions and Creating Opportunity for Every Generation. (2022, November). Accius, Jean, Justin Ladner, and Staci Alexander. AARP Thought Leadership, Retrieved March 2023 ,8 from [https://www.aarp.org/content/dam/aarp/research/surveys\\_statistics/econ/2022/global-longevity-economy-report.doi.2-10.26419Fint.00052.001.pdf](https://www.aarp.org/content/dam/aarp/research/surveys_statistics/econ/2022/global-longevity-economy-report.doi.2-10.26419Fint.00052.001.pdf)

58. Healthy ageing. UK Research and Innovation. (2023, April 13). <https://www.ukri.org/what-we-offer/browse-our-areas-of-investment-and-support/healthy-ageing/>

59. National Innovation Centre Ageing. <https://uknica.co.uk/>

60. Centre for Ageing Better. <https://ageing-better.org.uk/>

61. International Longevity Centre. <https://ilcuk.org.uk/>

61. <https://coe.nuhs.edu.sg/Centre-for-Healthy-Longevity/Pages/About-Us.aspx>

62. Ageing in Place? The Community-Based Integrated Care System in Japan. (2021, May). Costantini, Hiroko. *Gerontologie Et Societe*. Retrieved May 2023 ,3 from [https://www.cairn-int.info/article.php?ID\\_ARTICLE=E\\_GS0205\\_165\\_1](https://www.cairn-int.info/article.php?ID_ARTICLE=E_GS0205_165_1)

63. Japan's healthcare policy for the elderly through the concepts of self-help (Ji-jo), mutual aid (Go-jo), social solidarity care (Kyo-jo), and governmental care (Ko-jo). (2018, February) Sudo K, Kobayashi J, Noda S, Fukuda Y, Takahashi, K. *BioScience Trends*. Retrieved May 2023 ,3 from [https://www.jstage.jst.go.jp/article/bst/2017.01271\\_12/1/12/\\_article](https://www.jstage.jst.go.jp/article/bst/2017.01271_12/1/12/_article)

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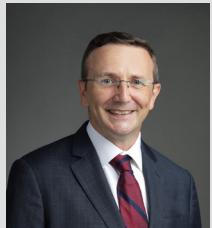
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