

EU Green Paper on Ageing is an attractive wish list, but the European Longevity Initiative is proposing the foundation

Opinion Piece and Detailed Commentary

Drafted by Attila Csordas based on the consensus of the European Longevity Initiative
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By publishing the *Green Paper on Ageing* in January, 2021¹, the EU has launched a 12 week public debate initiative on long-term sustainable policy choices to address the challenges of the changing demographics.

In this Opinion Piece we summarise the position of the *European Longevity Initiative*, *ELI* for short, on the *Green Paper on Ageing* and provide the most important policy changes we think are needed to address the changing demographics that were omitted from the official EU Green Paper.

The *European Longevity Initiative*² is an advocacy group that is promoting legal, budgetary, regulatory and institutional support for science intensive healthy longevity technologies in the European Union. Currently it has representatives from 13 EU countries³ at the time of writing, who are working on an EU Citizen's Initiative proposal aiming to collect 1 million signatures to promote this timely cause.

A good Summary of *Green Paper on Ageing* can be found on the European Parliament portal⁴:

‘The paper highlights the importance of healthy and active ageing and lifelong learning as the two concepts that can enable a thriving ageing society. Active ageing necessitates promoting healthy lifestyles throughout our lives, including consumption and nutrition patterns, as well as encouraging physical and social activity. Lifelong learning means a constantly acquiring and updating of skills helping people to remain employable and succeed in job transitions.’

Active ageing and lifelong learning are important, obvious, and attractive ideas but we would argue that without really addressing the underlying problem of accelerated biological ageing and functional decline giving rise to the fundamental problem related to the demographic challenges promoting these ideas alone and proposing them as the remedy is akin to trying to build a house without a foundation.

¹ https://ec.europa.eu/info/sites/info/files/1_en_act_part1_v8_0.pdf

² <https://longevity.technology/european-longevity-initiative-single-issue-healthy-longevity/>

³ Austria, Belgium, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Netherlands, Slovenia, Spain, Poland, Republic of Ireland

⁴ <https://www.europarl.europa.eu/legislative-train/theme-a-new-push-for-european-democracy/file-green-paper-on-ageing>

The three biggest problems of the current *Green Paper on Ageing* are all rooted in the missed opportunity of learning from and applying the latest biomedical, scientific and technological results. This way the potential effect of this most decisive scientific and technological trend is rendered invisible concerning the changing demographics and hence actually and actively downplaying the role science and technology might play in the long term permanent solution.

Here are the three missing points of particular concern of the current *Green Paper on Ageing*, and these are exactly the three top points emphasised by *ELI*'s own suggestions.⁵

1. The *Green Paper on Ageing* is missing the elephant in the room behind changing demographics affecting Europe (and the world): the real, life-compromising burden of accelerated biological ageing in the second half of life, already in middle age and reaching its climax in older people.

2. The *Green Paper on Ageing* appears oblivious to science's current view on the malleability of the biological ageing process⁶, and the scientifically already mainstream translational geroscience paradigm⁷ that offers an interventionist approach to potentially slow/stop/reverse/rejuvenate these ageing processes in order to significantly increase healthy human lifespan.

3. Due to the previous 2 points the *Green Paper on Ageing* ignores the number #1 long-term policy solution of the demographic challenge: supporting the focused development and equitable access of science-intensive healthy longevity technologies for all EU citizens.

In stark contrast with this the *European Longevity Initiative* operates on these very three principles.

1. **Empathy:** We wish to raise awareness of the actual burden brought about by biological ageing in compromising the life of older and even middle-aged people.
2. **Science (Latest and Applied):** We are crystal clear about the meaning of the new consensus paradigm in ageing research concerning the malleability of the process and the translational geroscience paradigm aiming to act upon it.
3. **Comprehensive Solution:** We know that the only comprehensive and permanent solution sufficient to handle the demographic challenges are science-intensive healthy longevity technologies slowing down biological ageing processes in a combined manner to extend functional, healthy lifespan as much as possible. Only by maximising this trend can we enable and expect healthy and active ageing and lifelong learning.

We stand by these principles as our core group consists of people in the worldwide longevity community from a diversity of backgrounds that matter when it comes about thinking deeply and comprehensively on the problem. We also think that one crucial way to lessen the all-pervasive institutional ageism affecting all parts of the society is to enable greater workforce

⁵ Please read the accompanying *EU Green Paper on Ageing: Detailed commentary by the ELI* that is attached as a pdf for a detailed argumentation on why and how the EU draft has missed recognising the relevance of these points.

⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3836174/>

⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7098696/>

and societal involvement via a scientific-technological action plan leveraging these translational developments and reaping the longevity dividend by harnessing the immense experience and value of older generations' active involvement for everybody

What policies do we suggest?

Four different kinds of policies, with four different corresponding set of actions.

We would like to propose effective legal, budgetary, regulatory and institutional commitments to enable science intensive healthy longevity research and technologies, large scale ageing focused clinical trials and systematic use of "altruist" health databases to increase healthy life expectancy in the European Union.

1. **legal commitment:** acknowledge the malleability of biological ageing & the translational geroscience paradigm as the ultimate enabler of age-neutral human health in the EU's legislative DNA. This specific EU legislation then can be used to justify the other 3 derivative commitments throughout.
2. **budgetary commitment:** A sizeable proportion of the EU R&D budget dedicated specifically for developing science intensive healthy longevity technologies.
3. **regulatory commitment:** Green light for Europe-wide ageing focused geroprotective clinical trials by specific, enabling EMA regulation.
4. **institutional commitment:** setting up a coordinated European Institute for Healthy Longevity research in EU member states, backed by the previous 3 commitments.

An additional and relevant addendum to all three points is that while the *Green Paper* admits, on page 2, that '*the pandemic's disproportionate impact on older people – in terms of hospitalisations and deaths - has highlighted some of the challenges an ageing population poses on health and social care*' it again does not interpret this as a motivation to address the root problem, the compromising damage of biological ageing, behind those COVID related deaths. On the other hand the pandemic efforts yielded several unprecedented biotechnological breakthroughs most importantly related to shortening the life-cycle of vaccine development, clinical trials and scaling up the production and delivery of vaccines, world-wide. It showed what public health can achieve based on the latest scientific trends and with the cooperation of governments and private industry. We interpret these results as another strong and timely reason to promote science-intensive healthy longevity to address the demographic changes.

To highlight the analogy with the current unprecedented pandemic related technological breakthroughs these interventions assessed and offered for their effectiveness of slowing down biological ageing can be considered healthy longevity 'vaccines' to prevent and manage a particular set of accelerated biological ageing processes.

This Opinion Piece and the following Detailed Commentary documents would like to provide further important talking points to the public debate on ageing launched by the EU. We would like to propose foundations for the current wish list.

EU Green Paper on Ageing: Detailed commentary on data, interpretation and semantics

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The argument is along the lines of the three main missing points of the EU draft, that we highlighted in the Opinion Piece.

1. The *Green Paper on Ageing* is missing the elephant in the room behind changing demographics affecting Europe (and the world): the real, life-compromising burden of accelerated biological ageing in the second half of life, already in middle age and reaching its climax in older people.

2. The *Green Paper on Ageing* appears oblivious to science's current view on the malleability of the biological ageing process⁸, and the scientifically already mainstream translational geroscience paradigm⁹ that offers an interventionist approach to potentially slow/stop/reverse/rejuvenate these ageing processes in order to significantly increase healthy human lifespan.

3. Due to the previous 2 points the *Green Paper on Ageing* ignores the number #1 long-term policy solution of the demographic challenge: supporting the focused development and equitable access of science-intensive healthy longevity technologies for all EU citizens.

Particularly, we would like to show that there's three main reasons the EU draft is missing to realise the relevance of Point 1 and Point 2.

The 3 main reasons provide the structure of this document and they are summarised as:

1. **Semantics:** There's no 'healthy ageing' in absolute terms, focusing on this concept in public discourse downplays the burden of biological ageing, it is confusing and showcases an inequalitarian tendency.
2. **Data and Interpretation:** Statistical cherry-picking downplays the burden of biological ageing. 61% of older Europeans have their health compromised.
3. **Science:** Age-associated problems start to accumulate in middle age as latest geroscience results suggest and active geroscientists should be consulted to help update policies in the drafting process.

Semantics: There's no 'healthy ageing' in absolute terms, focusing on this concept in public discourse downplays the burden of biological ageing, it is confusing and showcases an inequalitarian tendency.

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3836174/>

⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7098696/>

The semantical conundrum comes from the choice of the term ‘healthy ageing’, like it is a thing, without restrictions. The current mainstream framing can be captured by the UN declaring the ongoing decade the *UN Decade of Healthy Ageing*¹⁰.

It is important to note that the phrase ‘healthy ageing’ captures a totally understandable and desirable choice for everybody, however, the chance to make such a choice for an individual is severely limited currently. Hence, it is only a wish, but not a choice that can be chosen and stick to it throughout despite the circumstances.

Here we offer four arguments against using ‘healthy ageing’ unrestrictedly in public policy:

Argument #1: Overwhelming majority of people do not age well, unrestricted ‘healthy ageing’ is an oxymoron

The strongest argument against the use and promotion of the phrase ‘healthy ageing’ comes from a simple assessment of the overwhelming data suggesting otherwise.

The next, second section details data related to this, but by now let’s just mention two data snippets from the reference material put together by Eurostat and used by the authors of the green paper:

‘In 2018, almost three quarters (72.5 %) of very old people (aged 85 years or more) in the EU-27 reported that they had a longstanding illness or health problem’¹¹

And

‘Only one fifth (20.6 %) for very old people (aged 85 years or more).’ perceived their health to be good or very good.¹²

Think about this: if you’d be 85 years or older now, there’s only 1:4 chance that you don’t have a longstanding illness or health problem and only 1:5 odds that you perceive your health to be good at all!

This shows itself that unrestricted ‘healthy ageing’ is simply not a reality for the overwhelming majority of current older cohorts in Europe. There’s no case to be built that ‘healthy ageing’ is simply a matter of lifestyle choices that can be proposed.

Argument #2: Absolute ‘healthy ageing’ is impossible, it only makes sense to talk about ‘healthy ageing’ in relative terms: but using this term is too complicated and confusing

In absolute terms, looking at individual life trajectories, everybody is ageing badly compared to their earlier, healthier selves, their risk to develop numerous age-associated diseases goes up several fold by advancing years and there’s a guaranteed, longer term sensory and cognitive

¹⁰ <https://www.who.int/initiatives/decade-of-healthy-ageing>

¹¹ Page 70, Eurostat’s 2020 edition of *Ageing Europe*

¹² Page 53, Figure 3.4, Eurostat’s 2020 edition of *Ageing Europe*

decline and the chronic multi-morbidity eventually turns into mortality. Truth is, everybody gets worse with time, health-wise and this truism is worth highlighting in this context.

It only makes sense to speak about relative, inter-individual ‘healthy ageing’ where a fraction of the population is ageing relatively healthily compared to others, develops age-associated disease later, experience significant sensory and cognitive decline only in their last decade of their life, et cetera. This is the lucky 20% of 85 years or older perceiving their health to be age-adjusted good or even very good currently. And consider as real outliers those very rare cases of 90+ regular marathon runners, celebrated in the media, with a good reason. Some people are getting worse, less, with time, relative to many others.

The ‘healthy ageing’ slogan can only be applicable in this latter, relative, comparative sense. And even in that case it is only a minority who can claim they are going through ‘healthy ageing’ as a process, in this restricted, relative sense.

So even if it is not a complete oxymoron and Argument #1 is not enough to disqualify it, the term ‘healthy ageing’ has at least two very different interpretations and it can only be used with the relative concept in mind. But this amounts to acknowledging that using this term unambiguously is complicated, and should come with an extra warning and restriction. Without this clarification it is confusing to the general audience and especially in the context of public policy. Still mainstream regulatory and political bodies are opting to use this term without acknowledging this confusing baggage of meanings.

Argument #3: ‘Healthy ageing’ represents wishful thinking and hence it is unhelpful in policy context.

What can be said further, if contrary to the two previous arguments, the official bodies and the public are still embracing the term ‘healthy ageing’?

Now we understand that even if we use ‘healthy ageing’ in relative terms it still be only open for a small minority of older people as a life trajectory in current circumstances.

To evoke the double key concepts and incentives of the *EU Green Paper on Ageing* Draft: ‘healthy and active ageing’ and ‘lifelong learning’ are attractive ideas to imagine and goals to propose. But if ‘healthy’ cannot be added to ‘active ageing’ and ‘lifelong learning’ by the proposed solutions in the draft while staying on the current technological trajectory, then these concepts represent wishful thinking, in which there are irresolvable conflicts between a belief formed based on attractiveness and evidence, or reality. Unfortunately with current tools, technology and insights it is still unlikely that the majority of the population will enjoy relative ‘healthy ageing’, so there’s a big gap between the desire to age healthily for most people and the belief that it is actually achievable for most with current policies. It is not.

Argument #4: Promoting ‘healthy ageing’ when it’s unavailable for most is politically unwise as it demonstrates a deep inegalitarian tendency

Let’s think again of the case of the overwhelming majority for whom ageing is not a particularly successful project health-wise, and the minority who are doing relatively ok, compared to the majority.

This minority is experiencing relative ‘healthy ageing’ due to chances and due to choices. Chances are due to the amount of genetic predispositions they have and the sheer luck in living through long decades of life, choices are due to their lifestyles, and in between chances and choices is their access to health care.

This ‘chance’ component makes the usage of the ‘healthy ageing’ concept a restricted and privileged one, since even with implementing all the good lifestyle choices in terms of diet, sleep, exercise and prevention with current medical technology it is only a fraction of the people who get to experience an outstanding, super-healthy late life.

How can we talk about ‘healthy ageing’ then in good conscience, when currently it is denied from the overwhelming majority!?

So even if we ignore that absolute ‘healthy ageing’ is an oxymoron and save this term by interpreting it as relative ‘healthy ageing’ ignoring its overcomplicated and confusing connotation, we still cannot keep it due to political reasons as it has a deep inegalitarian tendency expressed in it. This deep inegalitarian tendency favours the few and disfavors the majority. No political parties should subscribe to this view, let alone official institutions and regulatory bodies.

Instead of using the term ‘healthy ageing’ as the achievable goal we recommend using the alternative concept and term ‘healthy longevity’ in public policy discussion. This concept is devoid of the semantical issues looming over ‘ageing’ and captures the essential ambition of people, living healthier, for longer and living longer, but healthier.

Please also note that dropping the term ‘healthy ageing’ from the policy vocabulary does not assume that biological ageing itself is a disease that should be classified as such. Biological ageing is the biggest risk factor of morbidity and mortality though. This is a complicated issue, that should not concern us here but deserves its own public debate later on adjusted to EU regulatory circumstances.

Data and Interpretation: Statistical cherry-picking downplays the burden of biological ageing

The problem with the *Green Paper on Ageing* is not only a poor, but understandable semantical choice but the highlighting and interpretation of the data it is using to argue for the approach it takes around demographic challenges, not going deep enough to identify the fundamental problem.

The *Green Paper on Ageing* draft is using, as a reference and discussion points data coming from Eurostat’s 2020 edition of *Ageing Europe*¹³, a 184 page long report made by the EU’s home data science department.

¹³ <https://ec.europa.eu/eurostat/documents/3217494/11478057/KS-02-20-655-EN-N.pdf/9b09606c-d4e8-4c33-63d2-3b20d5c19c91?t=1604055531000>

Let's take a look at some data examples, some highlighted by *Green Paper on Ageing* authors and then deeper data present in the *Ageing Europe* report.

First of all, while the draft has 6 sections, the first time we actually read in a focused manner on the health challenges associated with older age¹⁴ is section 5, the last content section before the summary and outlook in section 6.

We think that any policy piece on the changing demographics focusing on ageing should start with a detailed data-driven, infographic-rich exposition of the damage and toll accelerated biological ageing claims on the life of older people. Only then can a foundational approach be suggested.

Without starting with the biological foundations and reality of a societal problem it's hard to understand what's causing the demographic alarm.

Instead, the *Green Paper on Ageing* starts on the upside by stating the truism on page 2: 'never before have so many Europeans enjoyed such long lives'.

If one wishes to look for solutions to the demographic challenges by starting with a something that is easily read as self-gratulation, it's unlikely that the foundational solution will be identified, cause it won't even be actively searched for in the first place. This is not the perspective we need here for a start to acknowledge the real magnitude of the problem.

Finally in Section 5. *Meeting the growing needs of an ageing population* we read:

p14 'Despite improved healthy life expectancy, the older you get the higher the chance of illness or disability. Gradually, many older people become frail and dependent on long-term care.'

And section 5.1. *Meeting the health and long-term care needs of an ageing population* states:

*p15 'As a result of demographic change, there will be more older patients suffering from chronic and, in many cases, multiple diseases. **Almost half of persons 65 years or older are perceived as having a disability or long standing activity limitation.**'*

Think about this: almost half of all the people in the older cohort 'perceived' as having serious health problems. 'Almost half' cannot mean other numerically then close to 50% of the population it is applied to, so something between 40-49% perhaps we would assume. Something that is almost a majority, short of some percentage points.

It might easily make a difference from the point of view of public policy whether to prioritise a chronic health issue, if it affects the majority of the population, so more than 50%.

While it seems probable that the data underlying this highlighted '**Almost half of persons 65 years or older**' statement is coming from the *Ageing Europe* report, but it is not cited explicitly

¹⁴ In section 2.1 introducing the concept of 'Healthy and active ageing' it is mentioned that: Cardiovascular diseases and cancer are the key causes of avoidable deaths for people under 75 years in Europe

in the draft. In fact, we tried to find the location of this data in the report, but could not recover it. So we are not convinced the data was properly cited here and look forward to debate this and learn its source and correct our evaluation, if needed.

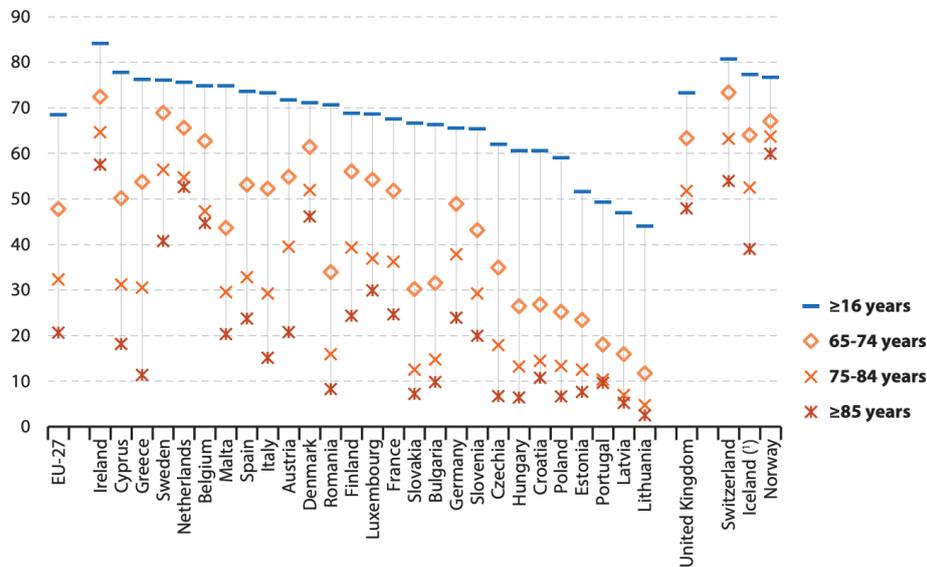
We decided to take a deeper look at Section 3 *Health and disability* of the *Ageing Europe* report where *Green Paper on Ageing* authors must have looked as well when deciding what data to highlight concerning the health issues associated with ageing. This way we hoped to see the reality better.

First, let's see the bigger context of the 2 data points we've already presented above in our Argument #1 on the problematic concept of 'healthy ageing'.

Self-perceived health among older people section of the *Ageing Europe Report*, Figure 3.4 on p53 and this is summarised as:

'Just less than half (47.8 %) of older people (aged 65-74 years) in the EU-27 perceived their health to be good or very good, a share that fell to less than one third (32.3 %) among those aged 75-84 years and to around one fifth (20.6 %) for very old people (aged 85 years or more).''

Figure 3.4: Self-perceived health, by age class, 2018
(% of people perceiving their own health as good or very good)



(1) 2017.

Source: Eurostat (online data code: hlth_silc_01)

This 47.8 % number of older people aged 65-74 looks much like the '**Almost half of persons 65 years or older**' and also it is data related to perception of health status but this cannot be the same as in the case cited by the *Green Paper on Ageing* 'almost half' perceived as 'having a disability or long standing activity limitation', while in the *Ageing Europe Report* case, the almost half 47.8 % is the lucky part 'perceived their health to be good or very good' meaning as devoid of 'disability or long standing activity limitation'. Also it is simply not clear by comparing the two official document sources whether '65 years or older' in *Green Paper on Ageing* means literally everybody over 65 or more like refers to only the 65-74 years old group

as the *Ageing Europe Report* differentiates terminologically clearly between 2 older groups and data wise between 3 older groups actually with dramatically different results, that of ‘older people’ 65-74 years of age, and again ‘older people’ 75-84 years of age, and ‘very old people’ of 85 years old or older.

All the health, disability, activity limitation, fitness numbers and metrics gets progressively worse with increasing age. And so the cumulative aggregate reality is much worse than this *Green Paper on Ageing* highlighted ‘Almost half of persons 65 years or older are perceived as having a disability or long standing activity limitation.’

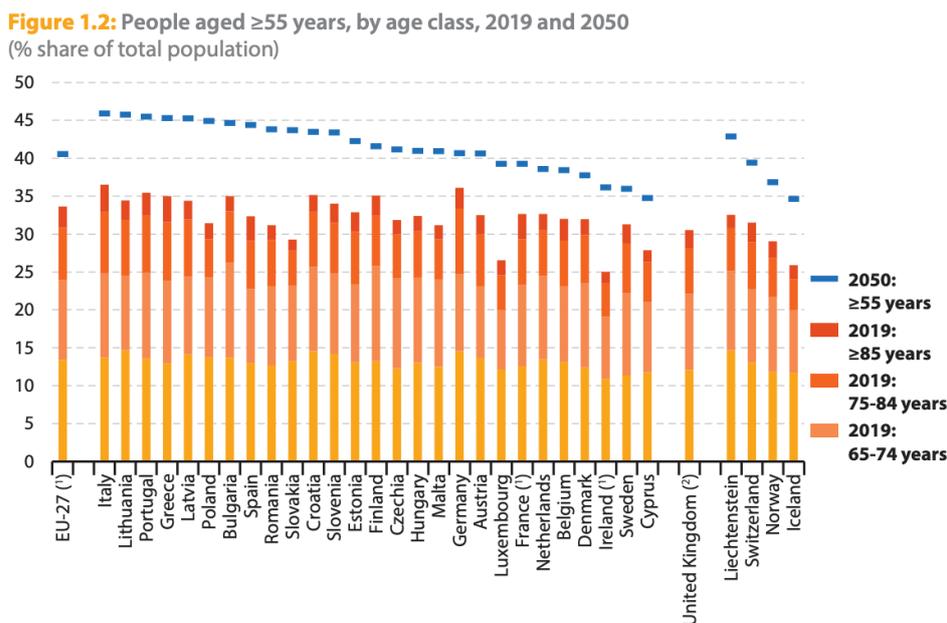
Based on this already cited data on the 3 older age groups from the *Ageing Europe Report* we can calculate the overall ratio of all those over 65 years of age, including the 3 different groups, who perceive their health being compromised already.

So to repeat this data again:

‘Just less than half (47.8 %) of older people (aged 65-74 years) in the EU-27 perceived their health to be good or very good, a share that fell to less than one third (32.3 %) among those aged 75-84 years and to around one fifth (20.6 %) for very old people (aged 85 years or more).’

For this ratio estimation we need one more information and that is the population ratio of the older groups to each other.

On p17 *Figure 1.2: People aged ≥55 years, by age class, 2019 and 2050* provides this information.



Note: all data as of 1 January. Ranked on the projected share of people aged ≥55 years in the total number of inhabitants in 2050 (according to the 2019 projections, baseline variant (EUROPOP2019)).

(1) Estimates and/or provisional.

(2) Population projections for 2050: not available.

Source: Eurostat (online data codes: [demo_pjangroup](#) and [proj_19np](#))

This Figure 1.2 above shows data on percentage share of total population of the different age groups and the data from 2019 shows the following share of the particular age groups of the population:

65-74 10%
75-84 7%
85 >= 2%

19% of the whole population

Now using the numbers of self-perceived health from the *Ageing Europe Report* and decimal numbers instead of percentages gives

$(0.478 * 0.1) + (0.323 * 0.07) + (0.206 * 0.02) = 0.07453$ that is 7.4 % of the whole population reporting 'their health perceived to be good or very good'.

But since 65 years and older group represent 19% of the whole population in total, this 7.4% is $(7.4/19)*100 = 38.9 \sim 39\%$ of the older population.

So only less than 4 out of 10 people 65 year old and older perceive their health to be satisfactory. Which currently leaves us with a solid majority of 61% of older people not feeling so healthy.

Additionally, please consider that in the *Ageing Europe Report* the limitations of this self-perceived health data are explained as the following on page 54.

'Data limitations for analysing self-perceived health

Health status and health services consumption may strongly differ between individuals living in institutions and in private households. It is important to note that the information presented below for self-perceived health conditions is taken from a survey where people living in collective households and institutions are generally excluded from the target population, which may lead to lower incidence of some health issues than might be observed with a complete coverage (considering that many of these conditions are more frequently experienced by older people who are unable to continue living at home).'

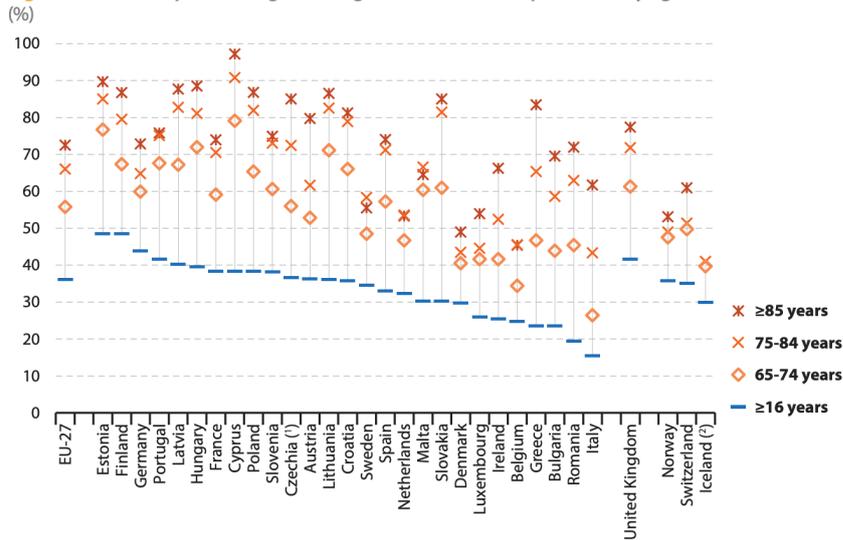
This means that the number and percentage of self-reported and self-perceived healthy older people are actually less than the 39% calculated just above, so the situation is even worse in reality and much worse than the *Green Paper on Ageing* highlighted and let us know!

Let us now see the other critical piece of health information that was left out of the draft by EU officials and already cited by us without bigger context in section 1.

On p70 *Figure 3.19: Self-reported long-standing illnesses or health problems, by age class, 2018* we read:

'In 2018, almost three quarters (72.5 %) of very old people (aged 85 years or more) in the EU-27 reported that they had a longstanding illness or health problem. This share fell as a function of age: approximately two thirds (66.0 %) of people aged 75-84 years, were affected by a longstanding illness or health problem, while the corresponding share for people aged 65-74 years was lower still (55.8 %).'

Figure 3.19: Self-reported long-standing illnesses or health problems, by age class, 2018



(1) Low reliability.

(2) 2017. People aged ≥85 years: not available.

Source: Eurostat (online data code: hlth_silic_04)

Repeating our calculation above to estimate the aggregate percentage of self-reported long-standing illnesses or health problems in older people.

$(0.558 * 0.1) + (0.66 * 0.07) + (0.725 * 0.02) = 0.1165$ in percentage that is 11.65 % of the whole population reporting 'long-standing illnesses or health problems'.

But since 65 years and older group represent 19% of the whole population, this 11.65% is $(11.65/19)*100 = 61.3157894737 \sim 61\%$ of the older population.

We arrived at the same percentage number in both health metrics based on surveys asking different questions: 61% of 65 years old or older people in Europe are perceiving their health to be not good and report long standing illnesses or health problems. As the *Ageing Europe Report puts it on p70*, these two reports really complement each other

'insofar as people who assess their own health as good or very good are unlikely to report that they suffer from chronic morbidity — a long-standing illness or health problem that has lasted for at least six months — while the reverse is also true.'

This 61% is the number that should have been highlighted by the *Green Paper on Ageing* draft when talking about age-associated health issues to show the seriousness of the demographic problem. 6 out of 10 older people in Europe have their life compromised one way or another by their declining health. This means the ageing process they are experiencing currently is everything, but 'healthy'.

Instead of learning about this bad situation in depth in the *Green Paper on Ageing* draft we learn in Section 4 called *New opportunities and challenges in retirement* that

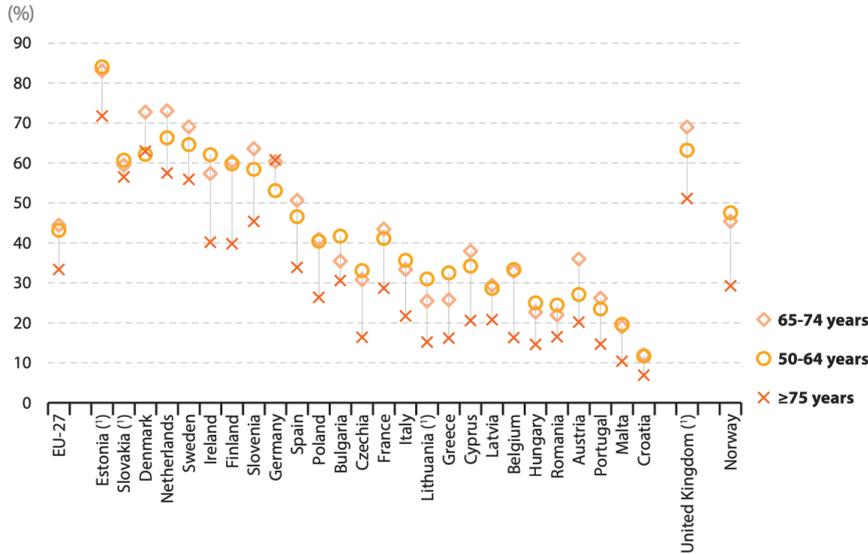
'Thanks to healthier lifestyles and medical progress (improved prevention, diagnosis and treatment of disease), most retirees are fit and can choose how to spend their time'.

This time the draft explicitly cites the *Ageing Europe Report* as source in a footnote but is not providing the exact location of that data in it.

Now the term ‘fitness’ does usually refer to physical activity in terms of sports and on this the *Ageing Europe Report* has the following data to offer on page 143

In Figure 6.1: People aged ≥ 50 years spending at least three hours per week on physical activity outside of work, by age class, 2017

Figure 6.1: People aged ≥ 50 years spending at least three hours per week on physical activity outside of work, by age class, 2017



Note: the figure is ranked on the share of the adult population (aged ≥ 16 years) spending at least three hours per week on physical activity outside of work. Luxembourg: not available.

(†) Low reliability.

Source: Eurostat (online data code: ilc_hch07)

The data on the figure is summarised in text on page 142:

‘It is interesting to note that a somewhat higher proportion of people aged 65-74 years spent at least three hours per week on physical activity (44.5 %) – perhaps reflecting the additional free time that is available to pensioners – but then tailed off as people became older, falling to 33.4 % for those aged 75 years or more.’

Now we think that the term ‘most retirees are fit’ could be straightforwardly interpreted as more than 50% of the retirees, that is 65 years old or older, ‘spent at least three hours per week on physical activity’ as this is the metric used in the report. But this is obviously not the case, since the best data that can be offered here is the 44.5% for the 65-74 years of age youngest older group and this only gets worse as we go to older age groups. So we are puzzled by what the *Green Paper on Ageing* drafters might have meant by ‘most retirees are fit’.

Science: Age-associated problems start to accumulate in middle age as latest geroscience results suggest and active geroscientists should be consulted to help update policies in the drafting process

The debate around intergenerational justice is usually focusing on and partly triggered by the young/old binary opposition. But a policy approach considering the lifelong trajectories of human individuals should go beyond this discrete binary and at least make active use of what's in between early and late life, that is middle age, ranging between 35-65 years of age according to different classifications.

Current geroscience is progressing at a break-neck pace and it started to provide more data recently on how accelerated biological and functional ageing already affects middle-aged people. For instance the ongoing Dunedin Multidisciplinary Health and Development Research Study (often referred to as the Dunedin Study) is a longitudinal cohort study of 1037 people born in 1972-73 in Dunedin, New Zealand. A recent publication in *Nature Aging*¹⁵ using the Dunedin cohort now with data available from 45 years of age is called *Disparities in the pace of biological ageing among midlife adults of the same chronological age have implications for future frailty risk and policy* summarised its result in an abstract as:

'Some humans age faster than others. Variation in biological ageing can be measured in midlife, but the implications of this variation are poorly understood. We tested associations between midlife biological ageing and indicators of future frailty risk in the Dunedin cohort of 1,037 infants born the same year and followed to age 45. Participants' 'Pace of Aging' was quantified by tracking declining function in 19 biomarkers indexing the cardiovascular, metabolic, renal, immune, dental and pulmonary systems across ages 26, 32, 38 and 45 years. At age 45 in 2019, participants with faster Pace of Aging had more cognitive difficulties, signs of advanced brain aging, diminished sensory-motor functions, older appearances and more pessimistic perceptions of aging. People who are aging more rapidly than same-age peers in midlife may prematurely need supports to sustain independence that are usually reserved for older adults. Chronological age does not adequately identify need for such supports.'

These findings suggest midlife as the window of opportunity for interventions to reduce the incidence of age-related diseases in order to improve the quality of life in older adults.

The scientific community and pharmaceutical industry is more and more aware of and build upon the results of geroscientists. With the Opinion Piece and this Detailed Commentary on the *Green Paper on Ageing* the *European Longevity Initiative* hopes to direct the attention of European policy makers to the immense potential of science-intensive healthy longevity technologies to offer a long term solution for the demographic challenges we all face.

¹⁵ <https://www.nature.com/articles/s43587-021-00044-4>