Long and happy lives

The future of wellbeing in an aging society

SHORT REPORT

Happiness Research Institute

"Ultimately, the good life is about something as simple as having someone or something to get up for in the morning. This is true whether we are young or old. We simply need each other."

Vibeke Koushede
Professor and Head of the Department of Psychology
University of Copenhagen

Long and happy lives

FOREWORD

When life lasts longer, happiness should too

We must ensure that longer lives also mean better lives.

Happiness, wellbeing, and quality of life are increasingly becoming priorities for international organizations and governments around the world. In 2012, the United Nations passed a resolution calling on countries to pay closer attention to happiness levels in national decision-making. The OECD has also established the Better Life Index, which is based, among other things, on country rankings of people's satisfaction with life. In the United Kingdom, the Office for National Statistics now conducts quarterly happiness surveys. New Zealand has even adopted a wellbeing budget, where new policy proposals are evaluated in terms of their ability to promote quality of life.

All of these initiatives are based on a growing understanding that wellbeing is the ultimate goal of good government. It is no longer sufficient to measure our ability to create economic prosperity, we must also measure our ability to convert wealth into wellbeing.

All the while, we are living longer than ever before. This is good news, but also presents new challenges.

Can we support increased life expectancy with increased wellbeing, or is loneliness the price we must pay for longer life? What are the primary challenges we face as a society to promote successful aging today, and how will they evolve over the next three decades? Can we even afford to pay the socioeconomic price of unhappiness?

These are issues we try to shed light on in this report. We hope it will spark new ideas and discussions about how to secure quality of life in aging societies.

Life is getting longer – we must work to ensure that happiness does not become short-lived.

Meik Wiking
CEO
The Happiness Research Institute

EXECUTIVE SUMMARY

Globally, average life expectancy is on the rise. The proportion of older adults in almost every country is growing. In Europe, by 2050, the number of people over the age of 80 will be almost double what it is today.[1] While such trends are testaments to continued improvements in standards of living, there is no guarantee that these added life years will necessarily be "good years of life". Wellbeing in later life is already being threatened by increasing rates of loneliness and mental health problems.[2] In order to promote and support healthy and successful aging in the years to come, it is therefore essential to consider not only physical, but also social, mental, and financial dimensions of life. This requires a broader understanding of quality of life than the one offered by standard health-related quality of life metrics. We need a more holistic account of wellbeing in later life.

In this report, we use the Wellbeing Adjusted Life Years (WALY) approach. WALYs are a new welfare tool based on population life satisfaction data, and designed to enable measurements and comparisons of various life circumstances in terms of their impact on subjective wellbeing. WALYs are originally designed by the Happiness Research Institute.[3]

In the full version of this report, our analysis focuses on Danish residents over the age of 50. In this short report, we also consider older adults in 17 other European countries: Austria, Belgium, Croatia, the Czech Republic, Estonia, France, Germany, Greece, Italy, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, and Switzerland. We find that over-50s in these countries lose a substantial amount of WALYs (understood simply as good life years) each year due to a variety of conditions:

5.8 million good life years are lost to moderate loneliness
5.6 million good life years are lost to severe loneliness
6.4 million good life years are lost to depression
6.2 million good life years are lost to financial distress
3 million good life years are lost to physical inactivity
1 million good life years are lost to divorce

Protecting quality of life for older adults is therefore already an urgent need, and one that will only become more urgent in the years to come. In this report, we present a series of projections demonstrating that these already substantial wellbeing burdens are likely to become even greater in the future if we do not sufficiently prepare for the realities of demographic aging. We hope that the results of this report, and the utilization of WALYs as a new measure of social welfare, can help politicians and decision-makers to better navigate a complex future.

This is a short abridged version of the full report. The full report and associated online appendix can be downloaded at **www.happinessresearchinstitute. com/publications**

10 KEY TAKEAWAYS FROM THE REPORT

1   Loneliness is the most burdensome condition for adults over 50 years old.

50+ year-olds experiencing severe loneliness lose 28% of their potential wellbeing in Denmark, and 25% in Europe. On a societal level, moderate and severe loneliness are responsible for more wellbeing lost among older adults than almost any other condition under consideration.

2   Depression also poses a substantial threat to wellbeing in later life.

50+ year-olds with depression lose 17% of their potential wellbeing in Denmark, and 18% in Europe.

3   Experiencing loneliness in childhood increases social and economic risks in adulthood.

Older adults who were lonely in childhood are, for example, more likely to become depressed or get divorced later in life.

(Read more in the full report)

4   Diseases have differential impacts on quality of life.

Some health conditions like high blood pressure and high cholesterol predict relatively small declines in wellbeing, while others like Parkinson's and Alzheimer's have substantial impacts on quality of life.

5   Over time, older adults are able to adapt to some adverse conditions more easily than others.

While losing a spouse or having a heart attack can have substantial short-term impacts on quality of life, many adults are able to adapt in the long-term. However, adaptation to loneliness and depression is much less common.

(Read more in the full report)

6   Individual wellbeing burdens can have substantial spillover impacts on loved ones.

Partners of patients with Alzheimer's disease, for example, often experience even larger declines in wellbeing than patients themselves.

7   Older adults with low life satisfaction are major consumers of healthcare services and public assistance.

In Denmark, 50+ year-olds with below average life satisfaction are 23% more likely to be admitted to a hospital, 58% more likely to experience a health problem limiting their ability to work, and 72% more likely to receive some form of public assistance two years later.

8   Low wellbeing in later life can cost up to 200,000 extra bed days in hospitals per year.

50+ year-olds with below average life satisfaction are more likely to spend extra nights in the hospital two years later. In Denmark, if the proportion of older adults with low life satisfaction remains constant, it could result in 200,000 additional overnight hospital stays per year by 2050.

(Read more in the full report)

9   Population growth is expected to exacerbate wellbeing burdens among older adults.

By 2050, the societal wellbeing burden of depression in Europe is expected to increase by 21%, and the burden of severe loneliness is expected to increase by 40%.

10   By preparing for demographic aging, we can support not only longer, but also better lives.

Longer life can have a number of societal benefits. Older adults can participate in civil society, care for others, and contribute to economic prosperity. Yet if we do not adapt to demographic aging and provide for wellbeing in later life, we may face a much more uncertain future.

Introduction

"The use of subjective wellbeing metrics can help to uncover impacts and burdens that have been traditionally been underestimated or remain completely invisible to us."

Kirsten Jensen
Principle Advisor
The Treasury of New Zealand (Te Tai Ōhanga)

In this report, we focus on the link between subjective wellbeing and 26 different life conditions for adults over 50 years old. Our analysis is largely based on survey data from 5,700 respondents in Denmark, and 115,000 respondents in Europe, provided by from the Survey of Health, Aging, and Retirement in Europe (SHARE).[4]

To provide new and unique perspectives on individual and societal welfare, our methodology primarily relies on calculating wellbeing burdens in terms of Wellbeing Adjusted Life Years (WALYs).

Put simply, WALYs are a measure of time, weighted by wellbeing. They are calculated on a 0 to 1 scale, where 1 WALY can be understood as one year lived in full wellbeing, or what we simply refer to as a "good life year."

WALYs are unique from other measures of health-related quality of life such as QALYs or DALYs in that they are rooted in individual life satisfaction data – survey measurements of how satisfied people are with their lives.[5] Life satisfaction scores have been well-established as valid and reliable measurements of subjective wellbeing. They remain stable over time and across populations, suggest national differences that align with objective conditions, predict future behaviours including suicide, and correlate with psychological, genetic, and physiological markers.[6] Today, a number of organizations, including the OECD and United Nations, advocate for life satisfaction to be incorporated into national decision-making alongside other leading measures of progress, such as life expectancy and economic growth.[7]

For the purposes of this report, we are interested not only in the life satisfaction of particular groups of interest – e.g. older adults experiencing loneliness, or those with high blood pressure – but also in the life satisfaction of suitable reference groups. For example, to determine the amount of wellbeing that Parkinson's patients lose to their disease, we also need to estimate the amount of wellbeing experienced by other adults in similar circumstances – e.g. same age, gender, marital status, etc – but who do not have Parkinson's. We consider the life satisfaction of the latter group as the "potential life satisfaction" of the former group – i.e. the level of life satisfaction that Parkinson's patients would be expected to experience if they were healthy.

To convert these two values into wellbeing burdens, we use the following formula: WALYs lost = 1 - (actual life satisfaction / potential life satisfaction). Once again, "actual life satisfaction" is the average life satisfaction of the group in question, and "potential life satisfaction" is the average life satisfaction of the reference group. As a result, when we consider the wellbeing burdens of different diseases and conditions in terms of WALYs lost, they are expressed as a decimal number between 0 and 1. For example, if a patient loses 0.11 WALYs to a given disease, she can be said to lose 11% of the potential wellbeing she could have otherwise experienced. This would be the case if the average life satisfaction of the patient group was, for example, 8 (out of 10 points), and the average life satisfaction of the reference group was 9 (out of 10 points): 1 - (8/9) = 0.11 WALYs lost. In this way, WALYs

can then be used to estimate individual and societal level wellbeing burdens. To make this approach a bit more concrete, consider the following examples.

Individual WALYs lost refer to the annual amount of wellbeing lost by an individual to a given condition.

- **Example:** On average, 50+ year-olds in Denmark with high blood pressure lose 0.006 WALYs per year, corresponding to an annual loss of 0.6% of the wellbeing they could have otherwise experienced. On the other hand, 50+ year-olds in Denmark experiencing severe loneliness lose 0.278, or 27.8% of their potential wellbeing each year.

Societal WALYs lost refer to the annual amount of wellbeing lost to a given condition, aggregated across all affected individuals in a society.

- **Example:** In Denmark, roughly 760,000 adults over the age of 50 have high blood pressure, representing a total wellbeing burden of (0.006 x 760,000) = 4,560 WALYs lost. However, roughly 8,100 patients in Denmark also die from complications associated with the condition each year. Because these individuals lose an entire year of potential wellbeing, the annual wellbeing burden associated with deaths due to high blood pressure is 8,100 WALYs lost.[8] Adding these two figures together produces a total societal wellbeing burden of 12,660 WALYs lost to high blood pressure in Denmark.

It is worth emphasizing that societal burdens may not necessarily be more important to consider than individual burdens. Different normative considerations can make one level of analysis more or less appropriate than the other. As a result, in this report, we consider both perspectives equally. It is also not our intention to present WALYs as the single, or even most important, tool in the policymaker's toolbox in all situations. Rather, our approach is designed to complement existing measurements of social and economic progress to shed light on previously understudied areas of societal interest.

There is much more to be said about our methodology and its implications that has been left out of this brief discussion.[9] Further methodological considerations, additional insights, and more detailed explanations of our results are provided in the full version of the report and associated online appendix at: **www.happinessresearchinstitute.com/ publications**

Wellbeing burdens

In this section, we map individual and societal wellbeing burdens in Denmark and Europe for 26 conditions ranging from Parkinson's disease to loneliness

INDIVIDUAL WELLBEING BURDENS

In Figure 1, we plot individual wellbeing burdens for adults over the age of 50. Bars represent average per person wellbeing burdens in terms of Wellbeing Adjusted Life Years (WALYs) lost. For example, we find that older adults with Parkinson's in Denmark lose 0.158 WALYs, or 15.8% of their potential wellbeing, to the disease each year.

Overall, we observe highly consistent dynamics between Danish and European samples. However,

a number of conditions including financial distress, heart attacks, diabetes, high blood cholesterol, high blood pressure, and physical comorbidities are more burdensome for European adults than they are for Danish adults. On the other hand, moderate loneliness and living alone are slightly more burdensome for Danish adults than for European counterparts.
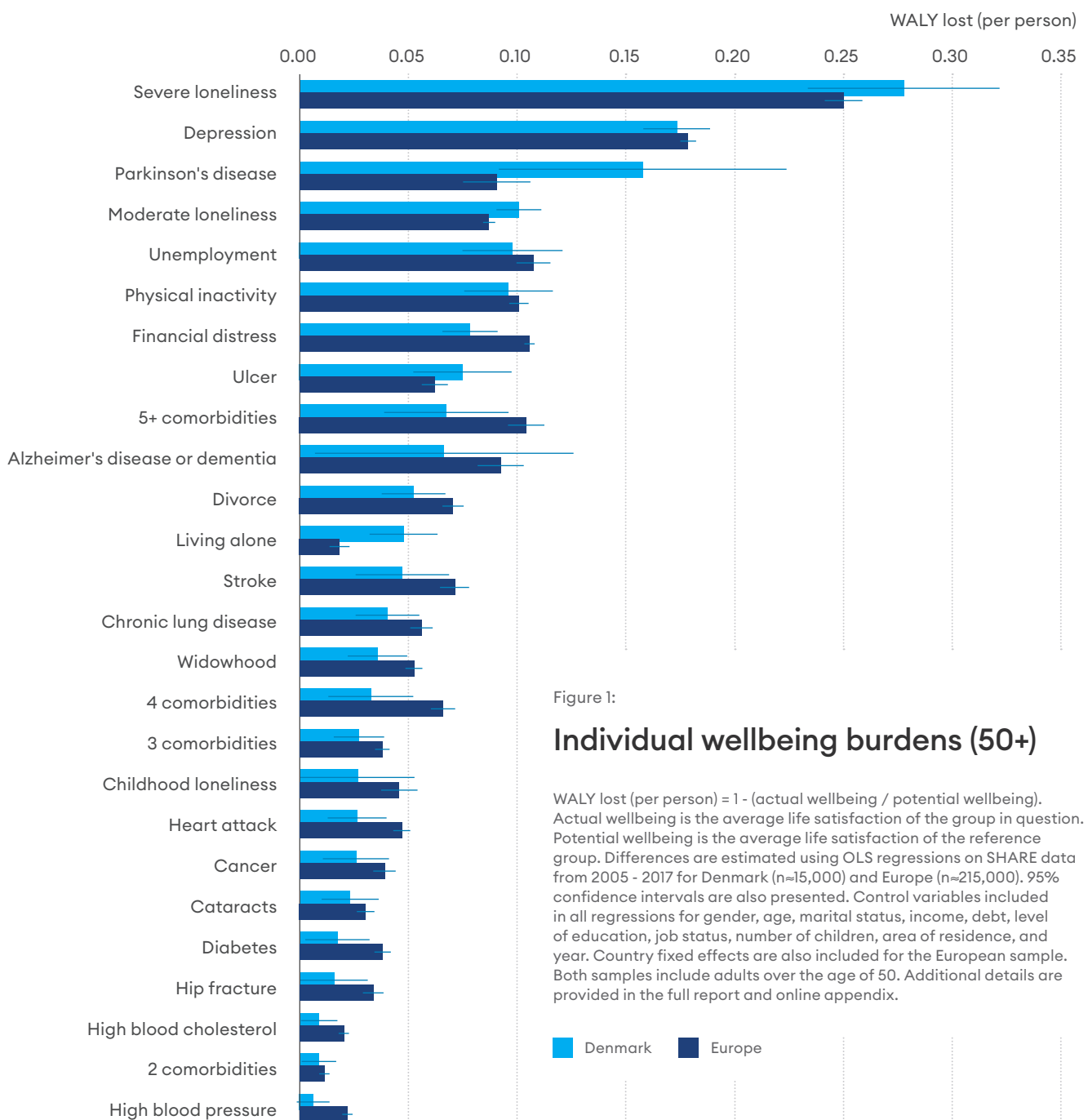

WALY lost (per person)

Figure 1:

Individual wellbeing burdens (50+)

WALY lost (per person) = 1 - (actual wellbeing / potential wellbeing). Actual wellbeing is the average life satisfaction of the group in question. Potential wellbeing is the average life satisfaction of the reference group. Differences are estimated using OLS regressions on SHARE data from 2005 - 2017 for Denmark (n≈15,000) and Europe (n≈215,000). 95% confidence intervals are also presented. Control variables included in all regressions for gender, age, marital status, income, debt, level of education, job status, number of children, area of residence, and year. Country fixed effects are also included for the European sample. Both samples include adults over the age of 50. Additional details are provided in the full report and online appendix.

Denmark   Europe

SOCIETAL WELLBEING BURDENS

In Figure 2, we move from individual to societal-level burdens. In this analysis, we link the results presented in Figure 1 with prevalence and mortality estimates for each condition under consideration.[10]

Viewed from this perspective, an entirely different picture begins to emerge. Conditions like high blood pressure that appear to be relatively minor on an individual level, become substantially burdensome on a societal level because they are more widespread. The opposite is true for Parkinson's disease. Even though it is one of the most burdensome conditions on an individual level, it appears only minorly burdensome on a societal level as it is relatively uncommon.

Once again, we see mostly consistent dynamics between Denmark and Europe, with a few notable exceptions. Severe loneliness and financial distress emerge as relatively more burdensome in Europe than Denmark. While roughly 13% of over-50s are financially distressed and 3% are severely lonely in Denmark, these figures climb to 39% and 11%, respectively, in Europe. Depression also emerges as relatively more burdensome in Europe, as it is almost twice as common.[11] On the other hand, living alone, cancer, and divorce appear to be relatively more burdensome in Denmark than they are in Europe.
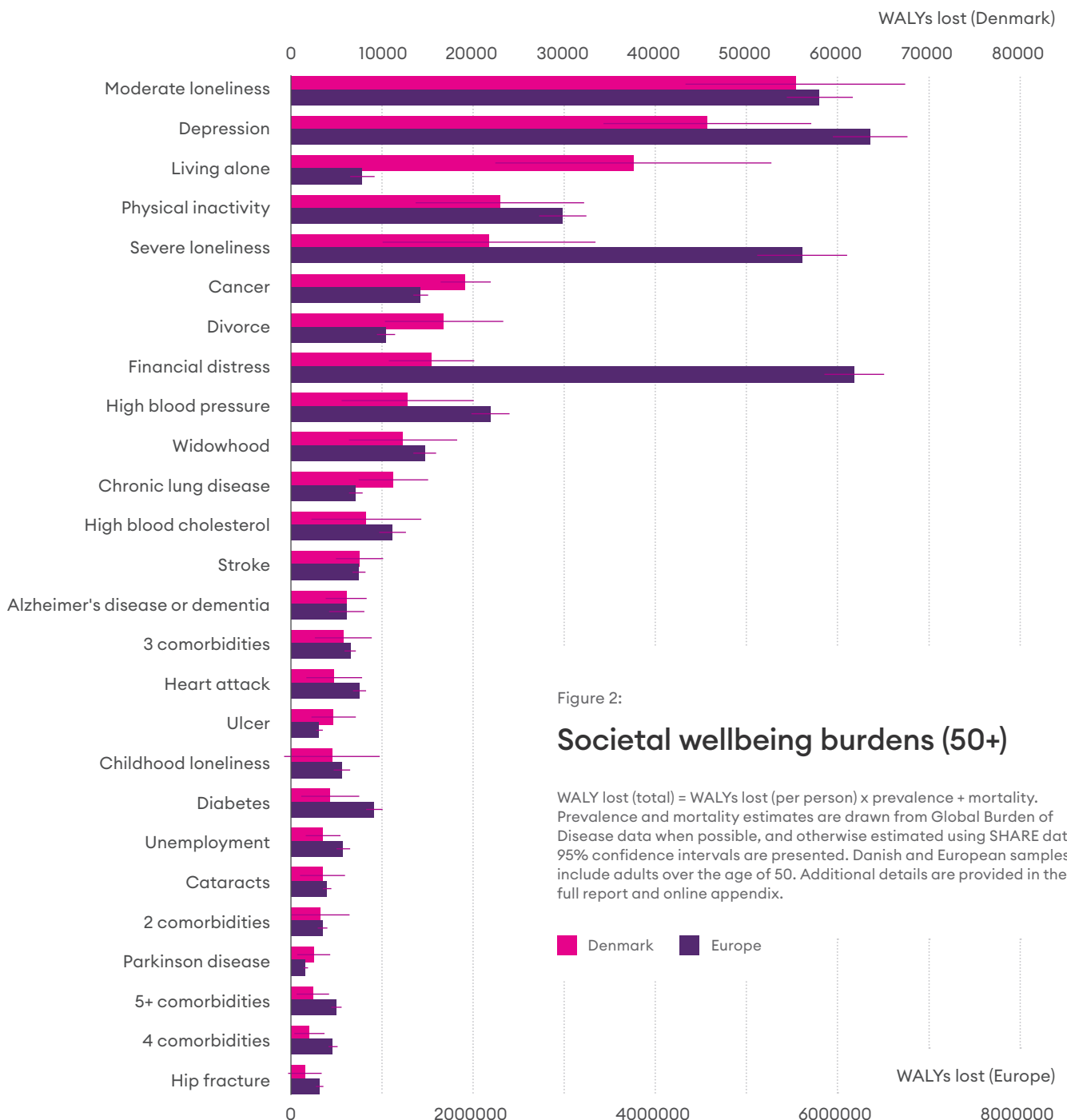
WALYs lost (Denmark)

Figure 2:

Societal wellbeing burdens (50+)

WALY lost (total) = WALYs lost (per person) x prevalence + mortality. Prevalence and mortality estimates are drawn from Global Burden of Disease data when possible, and otherwise estimated using SHARE data. 95% confidence intervals are presented. Danish and European samples include adults over the age of 50. Additional details are provided in the full report and online appendix.

■ Denmark ■ Europe

WALYs lost (Europe)

LONELINESS IS ONE OF THE GREATEST WELLBEING BURDENS FACING OLDER ADULTS

In both Europe and Denmark, loneliness reduces quality of life among older adults more than any other condition under consideration, on both an individual and societal level.[12]

Severe loneliness represents the largest threat to individual wellbeing in later life. European adults over the age of 50 who experience severe loneliness lose 0.25 WALYs, or 25% of their potential wellbeing. To put this figure into context, it is more than twice as large as the burden of unemployment, and more than 11 times larger than the burden of high blood pressure. In Denmark, these differences become even starker. The wellbeing burden of severe loneliness in Denmark is almost three times larger than unemployment, and 46 times larger than high blood pressure.

While severe loneliness constitutes the greatest wellbeing burden on an individual level, moderate loneliness constitutes an even greater burden for society writ large. On a societal level, approximately 55,000 WALYs are lost to moderate loneliness in Denmark, representing the largest burden out of all conditions considered. In Europe, 5.8 million WALYs are lost to moderate loneliness, the third largest burden behind depression and financial distress, though all differences are within the margin of error. While loneliness has been gaining increased attention from academics and policymakers in recent years, there is often a tendency to focus exclusively on severe loneliness.[13] Yet our analysis indicates that even moderate loneliness can produce substantial wellbeing burdens when considered at a population level because it is so widespread.

That loneliness presents such a sizeable threat to wellbeing in later life may seem surprising. However, an emerging body of research has begun to highlight the dramatic toll that loneliness can take on mental and even physical health. Across a range of studies, loneliness has been linked to increased risks of depression[14], anxiety[15], suicide[16], dementia[17], cardiovascular disease and cancer.[18] Loneliness can also have long-term consequences. A widely cited meta-analysis found that loneliness, social isolation, and living alone increased mortality by 29%, 26%, and 32%, respectively, over a given period of time.[19]

MANY GOOD LIFE YEARS ARE LOST TO DEPRESSION

Older adults with depression in Denmark lose approximately 17% of their potential wellbeing per year.[20] This figure is roughly on par with the European average. In both cases, depression emerges as the second largest wellbeing burden facing older adults on an individual level. On a societal level, depression is responsible for more than 45,000 good life years lost annually in Denmark, and more than 6.4 million good life years lost in Europe.

These figures are also likely to be conservative estimates, as current data do not attribute deaths by suicide or self-harm to depression.[21] Depression can also be life-shortening for other reasons. In Denmark, the life expectancy of people with mental illness is considerably shorter than the general population, by 7 years for women and 10 years for men.[22] When the societal burden of depression in Denmark is adjusted to reflect these mortality estimates, it grows by roughly 12% to 46,000 WALYs lost. If this is taken to be representative of the European context, the burden of depression would also grow from 6.4 to 7.2 million WALYs lost.

Depression is often not only underestimated, but also underdiagnosed and undertreated. Although we are learning more and more about how to prevent, detect, and treat depression, only a minority of those affected receive suitable treatment.[23] According to our analysis, 10-20% of adults over the age of 50 experience depression in European countries, but few are likely to seek medical attention for it, and fewer still are expected to be properly diagnosed.

ECONOMIC HARDSHIP PREDICTS UNHAPPINESS

Although it is often said that money can't buy happiness, the reality is slightly more complicated. A wide body of evidence has demonstrated that low levels of income can lead to dissatisfaction. On the other end of the spectrum, higher levels of income for someone who is already well-off produce diminishing marginal returns.[24]

In this analysis, our sample population only includes adults over the age of 50, many of whom have already stopped working. As a result, income seizes to be a relevant indicator of economic security. Instead, we consider the extent to which older adults report having "difficulty making ends meet" – what

we refer to as financial distress. We find that, for this group, experiencing financial distress predicts a decline in wellbeing of 8% in Denmark and 11% in Europe. On a societal level, this produces an aggregate wellbeing burden of 15,000 WALYs lost in Denmark and 4.6 million WALYs lost in Europe. Relative to other conditions under consideration, the societal wellbeing burden of financial distress is also four times as large in Europe than in Denmark, as it is much more common in the former.[25] This would appear to be testament to Denmark's ability to provide economic security for older adults, and may serve as a benchmark for European policymaking in the future.

PHYSICAL INACTIVITY LOWERS QUALITY OF LIFE

Physical inactivity also takes a substantial toll on subjective wellbeing. In Europe, older adults who are physically inactive lose roughly 10% of their potential wellbeing. On a societal level, because it is so widespread, and even potentially deadly, physical inactivity in later life is responsible for 23,000 WALYs lost in Denmark and 2.8 million WALYs lost in Europe each year.[26]

HOW CAN THIS KNOWLEDGE BE USED?

To protect and support wellbeing in later life, it is crucial that decision-makers take stock of the most important wellbeing burdens affecting older adults. Using WALYs to assess and address these challenges can help open the door to new avenues of decision-making and priority setting. Burdens that may have previously been misunderstood or simply ignored can be now be accounted for. As the population of older adults continue to grow, it is highly likely that these burdens will also continues to grow along with them. Beginning to develop solutions to tackle loneliness, depression, financial distress, and other challenges today is therefore likely to produce cascading benefits in the years to come.

What about partners?

In this section, we consider the extent to which wellbeing burdens in later life spillover onto partners and family members

FOR BETTER, FOR WORSE

When evaluating wellbeing burdens in later life, it is important to consider not only those who are directly affected, but also partners and family members. Several studies have shown that adults who take on caregiving roles for loved ones often suffer consequences themselves in terms of reduced mental and physical health, financial strain, lower levels of labour market participation, and less time for leisure and social activities.[27]

In Figure 3, we consider the wellbeing trajectories of older adults experiencing nine adverse conditions, and their partners. Our sample in this case is again drawn from SHARE data and includes adults over the age of 50 in Europe. We consider average changes in life satisfaction every two years for both affected adults and their partners, normalized to a baseline level recorded six years prior (t-6) to the event itself (t=0), and carried through until up to six years later (t+6).[28] Changes are measured using OLS linear regressions controlling for gender, age, marital status, income, debt, level of education, job status, number of children, area of residence, country, and year.

In almost all cases, we find that partners' wellbeing levels fluctuate in tandem with those directly affected. For example, in the year of the event (t=0), the life satisfaction of adults who suffer a heart attack is reduced by an average of 0.312 points on a scale from 0 to 10. At the same time, partners of patients with heart attacks also experience an average decline in life satisfaction of 0.226 points, a drop almost three-fourths as large. These parallel fluctuations are observable for almost every condition under consideration. However, likely due to the small sample sizes required for these analyses, life satisfaction changes for partners of older adults who experience unemployment, stroke, and severe loneliness are statistically insignificant. On the other hand, partners of patients diagnosed with Alzheimer's disease or other forms of dementia actually seem to experience a larger average decline in life satisfaction than the patients themselves. Yet this difference should again be interpreted with some caution as it is within the margin of error. Additional details regarding statistical significance are provided in the online appendix.

"Caregiver burdens continue to be a major theme in debates surrounding health and welfare. Aging populations put increased pressure on public spending, and ultimately may cause that more caregiving responsibilities will fall on partners and family members."

Anu Siren
Senior Researcher
Danish Center for Social Science Research (VIVE)

HOW CAN THIS KNOWLEDGE BE USED?

While it may be unsurprising that older adults experience declines in wellbeing alongside their partners when faced with challenging life events, these sorts of knock-on effects are often difficult to measure and conceptualize. As a result, they are generally left unaccounted for in medical treatment protocols and political decision-making. One of the most important benefits of adopting a wellbeing approach is that these life satisfaction changes can be converted in WALYs and compared with other life conditions and circumstances. In the full

report, we find, for example, that partners of patients with Alzheimer's and other dementias lose 0.149 WALYs within the first four years of the diagnosis, and partners of patients with depression lose 0.101 WALYs within the same timeframe. Armed with these estimates, policymakers and healthcare practitioners can then quantitively incorporate partner burdens into medical decision-making.

Figure 3:

Wellbeing burdens of selected life conditions for affected adults and their partners

This figure presents changes in life satisfaction associated with adverse life conditions for affected adults and their partners. The marginal effect of each circumstance on life satisfaction (0-10) is given on the y-axis, plotted at regular two year intervals on the x-axis, and normalized to a baseline level six years prior to the event. Effects are calculated using OLS linear regressions controlling for gender, age, marital status, income, debt, level of education, job status, number of children, area of residence, country, and year. Additional controls for partners' social, economic, and health status are included when relevant – e.g. individual loneliness is included as a control when estimating the effect of partner loneliness. Additional details, including confidence intervals and variable descriptions, are provided in the full report and online appendix.

Good lives make good economics

In this section, we focus on economic burdens associated with low levels of wellbeing in later life

CAN WE AFFORD NOT TO BE HAPPY?

Aging increases the likelihood of illness and disability, which in turn increases healthcare costs. As populations get older, healthcare expenditures are therefore expected to get bigger. In Denmark, for example, the oldest segment of the population (over-85s) is expected to spend up to 320,000 nights in the hospital each year by 2050, roughly double the current figure of 126,000.[29] Given these trendlines, it is perhaps no surprise that public spending has become a central feature in discussions surrounding demographic aging. Yet what is often missing from these conversations is the added economic significance of subjective wellbeing.

An emerging body of evidence has begun to demonstrate that healthcare costs are associated not only with old age, but also with unhappiness. Recent studies in Canada have found that people with low life satisfaction are three times more likely to be among the heaviest users of healthcare services[30],

and more likely to be admitted to the hospital than happier counterparts.[31] Yet the relationship between life satisfaction and healthcare consumption is hardly straightforward. The former can influence the latter through a number of different channels. The existing literature points to three primary mechanisms:

- **Risk behaviors:** People with lower quality of life tend to exhibit more risk behaviors including smoking[32], physical inactivity[33], and unsafe driving.[34] This can lead to higher rates of illness and accidents, thereby increasing healthcare expenditures.

- **Prevention:** People with a greater sense of purpose in life are more likely to receive preventative health examinations.[35] This allows for earlier detection of health problems, which can reduce hospitalization rates later on.

- **Genetics:** Biological mechanisms may also play a contributing role. One meta-analysis noted that individuals with greater psychological wellbeing had more favorable lipid profiles – tests that can identify certain genetic diseases and determine risks of cardiovascular disease.[36]

In Figure 3, we assess the link between life satisfaction and economic burdens in terms of (1) doctor visits, (2) hospitalizations, (3) health problems that limit paid work, and (4) public assistance. Using logit regressions, we estimate the extent to which below average levels of life satisfaction among older adults increased the likelihood of each event two years later.

"If we make the sorts of investments that improve life satisfaction, this should pay dividends by reducing hospitalizations and healthcare utilization in the long term."

Eric De Prophetis
Analyst
IHPME, University of Toronto

In almost every case, we find significant increases in healthcare use and public spending associated with past period unhappiness. In Denmark, older adults with below average life satisfaction are 34% more likely to visit a doctor, 23% more likely to be hospitalized, 58% more likely to experience a health problem that limits paid work, and 72% more likely to receive public assistance, two years later. These trends are mostly representative of the broader European context. However, unhappy older adults in Denmark are more likely to visit doctors and receive public assistance two years later than European counterparts. While we cannot be sure of the precise mechanisms underlying these differences, examining the relationship between wellbeing levels and future public expenditures can provide rich opportunities for further research.

These sorts of elevated risks, coupled with demographic aging, can translate into substantial additional burdens on the healthcare system. In the full report, we find that in keeping current trends constant, unhappiness levels among Danish older adults could lead to roughly 200,000 additional overnight hospital stays per year by 2050.
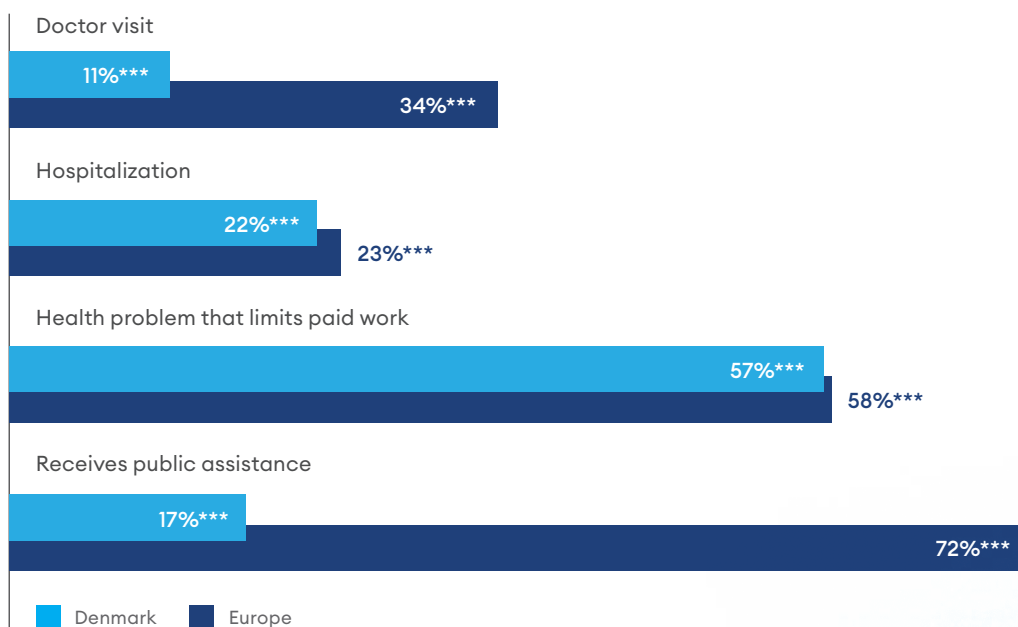
HOW CAN THIS KNOWLEDGE BE USED?

One of the most frequently cited concerns regarding demographic aging is the added pressure older populations are expected to place on public spending programs. In this section, we have attempted to bring a new perspective into the equation, one that sheds light on the importance of subjective wellbeing in evaluating and reducing economic burdens associated with later life.

Our analysis suggests at least two avenues by which subjective wellbeing could be incorporated into decision-making to help reduce spending. First, investing directly in solutions to raise wellbeing levels of older populations may not only produce higher levels of happiness, but also lower healthcare expenditures down the line. Second, incorporating life satisfaction and other subjective wellbeing measures into regular healthcare screening protocols may help to enable early detection of health risks, and provide opportunities to interrupt causal pathways that lead from unhappiness to healthcare consumption.

Figure 4:

Increased health and economic risks given low life satisfaction two years prior

Doctor visit
- Denmark: 11%***
- Europe: 34%***

Hospitalization
- Denmark: 22%***
- Europe: 23%***

Health problem that limits paid work
- Denmark: 57%***
- Europe: 58%***

Receives public assistance
- Denmark: 17%***
- Europe: 72%***

Denmark   Europe

** $p < 0.05$, *** $p < 0.01$. Bars represent the increased probability of each event, based on below average life satisfaction (<7.5 on a scale from 0 to 10) two years earlier. Probabilities estimated using logit regressions controlling for gender, age, marital status, income, debt, level of education, job status, number of children, area of residence, country, and year. When relevant, dummy variables for past period doctor visits, hospitalizations, health problems, and public assistance are also included. Additional details are provided in the full report and online appendix.

Future wellbeing burdens

In this section, we consider the potential evolution of wellbeing burdens among older adults in Europe from 2020 to 2050

POPULATION GROWTH GIVES AND TAKES GOOD LIFE YEARS

What will life be like for older adults in 2050? Any answer to this question will of course require a number of assumptions. Yet one thing is certain, there will be more over-50s in 30 years than there are today. In Europe, according to recent projections, the number of older adults will grow by almost 15% from 16.6 million today to 18.8 million in 2050. This growth will be especially pronounced among the oldest adults; the number of over-85s is expected to increase by more than 200%.[37]

Given these projections, we consider the potential evolution of societal wellbeing burdens in Europe in Figure 5.[38] Here, we keep current trends and proportions constant for all life circumstances under consideration, and factor in differential rates of population growth for different age groups – e.g. the percentage of over-85s is expected to grow faster the percentage of 50 to 59-year-olds.

In almost all categories, we anticipate an increase in societal wellbeing burdens. Because there will be more adults living longer than ever before, more of them are also expected to experience adverse life conditions. Put simply, population growth creates more good life years, and at the same time takes them away.

Some burdens are also expected to rise faster than others. Given different growth rates for different age groups, conditions that affect the oldest adults – e.g. high blood pressure, physical inactivity, and severe loneliness – are likely to grow faster than those affecting predominantly younger cohorts – e.g. unemployment.

Perhaps the most obvious and important takeaway from Figure 4 is that loneliness, depression, and financial distress will likely continue to be the predominant wellbeing burdens facing older adults over the next thirty years. Assessed on the basis of population growth alone, by 2050, the societal burden of severe loneliness is expected to grow by 40%, moderate loneliness and depression by 21%, and financial distress by 16%.

HOW CAN THIS KNOWLEDGE BE USED?

Looking forward, societal wellbeing burdens are expected to grow alongside demographic growth. Loneliness and depression in particular are likely to remain central threats to wellbeing in later life. While this account is obviously preliminary, further investigation into the interacting dynamics of wellbeing burdens and population growth may help decision-makers to lay the groundwork for stronger and more resilient societies in the future.

"To ensure that fewer people languish, mental health and loneliness should be given as much priority and attention as physical health problems have historically been given."
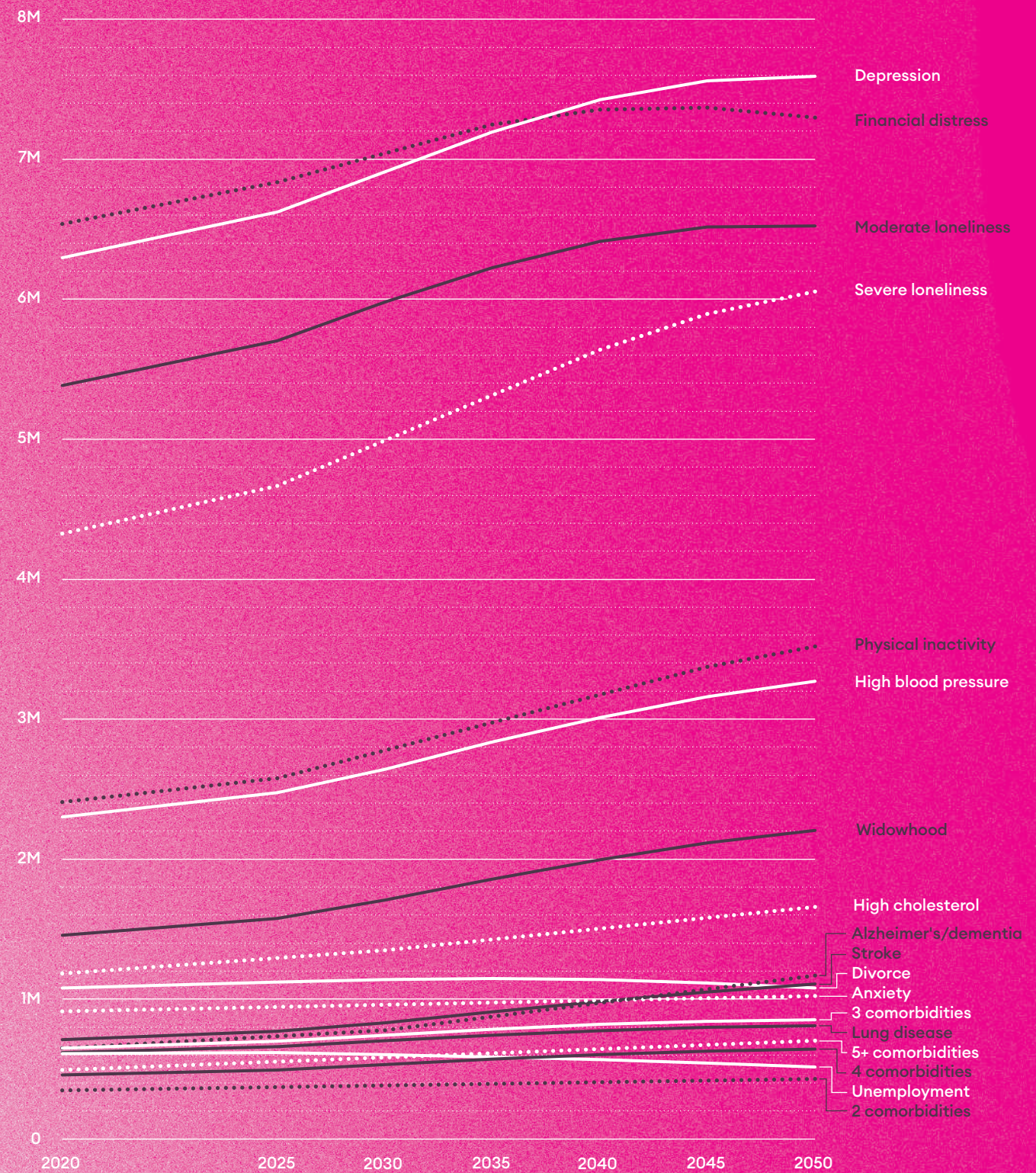
Vibeke Koushede
Professor and Head of the Department of Psychology
University of Copenhagen

Depression

Financial distress

Moderate loneliness

Severe loneliness

Physical inactivity

High blood pressure

Widowhood

High cholesterol

Alzheimer's/dementia
Stroke
Divorce
Anxiety
3 comorbidities
Lung disease
5+ comorbidities
4 comorbidities
Unemployment
2 comorbidities

This figure plots the expected number of WALYs lost on a societal level in Europe from 2020 to 2050, based solely on population growth. Current prevalences of all conditions are held constant. WALY lost (total) = WALYs lost (per person) x prevalence + mortality. Prevalence and mortality estimates are drawn from Global Burden of Disease data when possible, and otherwise estimated using SHARE data. Demographic growth estimates are drawn from the United Nations, and differential growth rates for different age groups are taken into account. Sample is representative of European adults over the age of 50.

Conclusion

Recommendations for future resilience in aging societies

FOSTERING FUTURE WELLBEING

In this report, we find that adults over the age of 50 in European societies lose good life years to a variety of factors, loneliness and depression most of all. As societies around the world continue to get older, these challenges are poised to become even greater in the years to come.

However, our analysis also contains an optimistic message: it may be possible to revert some of these trends by investing in solutions to promote quality of life. This will require additional research into experimental and holistic solutions. In this final section, we therefore offer five recommendations for researchers and policymakers to begin focusing on in an effort to build future societies conducive to wellbeing.

RECOMMENDATIONS

1 Invest to combat loneliness and depression, the greatest threats to wellbeing in later life

In many European countries, physical health conditions like strokes and cancers have received enormous investments, and for good reason. Yet if we want to foster better lives in the future, these investments should be matched by equivalent investments addressing loneliness and mental health. Our analysis in this report finds that severe loneliness presents the greatest threat to wellbeing in later life on an individual level, while depression presents a greater threat to wellbeing at a population level. These burdens are also likely to become even greater in the years ahead. Investing to address these challenges today is therefore poised to generate substantial social and economic returns down the line.

2 Safeguard the wellbeing of partners and family members in the face of adverse events, not just those directly affected

We rarely face life's greatest challenges alone. Partners and family members often bear the burden alongside us. As caregiving responsibilities increasingly fall on relatives and loved ones, it becomes vital to ensure that their wellbeing is accounted for, prioritized, and protected in public policy and healthcare decision-making.

3 Identify and address the economic burdens of unhappiness in later life

Our analysis in this report supports a growing body of evidence linking low life satisfaction to increased public spending. Regardless of prior health or employment status, below average life satisfaction predicts increases in doctor visits, hospitalizations, health problems, and public assistance two years later. Further research should be devoted to monitoring and addressing low levels of wellbeing in later life to interrupt these causal pathways.

4 Collect more and better data on quality of life

Most countries around the world maintain meticulous economic and financial records – from stock prices, to unemployment levels, to economic growth rates. Regularly collecting this data is essential to monitor and support economic stability and sustainability. Similar efforts should be made to collect, monitor, and analyze data on population wellbeing. Consistent and reliable measurements of quality of life can create a stronger empirical basis upon which to evaluate social, political, and economic decision-making.

5 Wellbeing evaluations should be made accessible and transparent

Too often, economic cost-benefit analyses and policy evaluations have the character of being a "black box". It can be difficult, if not impossible, to understand how and to what extent competing interests and considerations are factored into the policymaking process. As wellbeing increasingly becomes incorporated into public decision-making, wellbeing evaluations and cost-benefit procedures should be made easily accessible and transparent so that they may be accountable to civil society.

By taking these steps, we can work towards creating future societies that are not only more resilient to the challenges of demographic aging, but can also support better lives for all.

ENDNOTES

1 According to United Nations population projections, there will be 4.68 million over-80s in Europe in 2050, relative to 2.47 million today. For more information, see: www.population.un.org/wpp

2 Courtin & Knapp (2017); Grenade & Boldy (2018); Riedel-Heller et al. (2006); Wittchen et al. (2011); Volkert et al. (2013).

3 Happiness Research Institute & Leaps by Bayer (2020)

4 The Survey of Health, Aging, and Retirement (SHARE) is an international survey of older adults over the age of 50. The surveys have been regularly conducted every two years since 2005 from 27 European countries and Israel. The most recent survey was conducted in 2017. For more information, visit: www.share-project.org. Additional data on prevalence and mortality rates of certain diseases and conditions are drawn from the Global Burden of Disease (GBD) database, maintained by the Institute for Health Metrics and Evaluation and provided by the Global Health Data exchange. The database contains detailed annual statistical information regarding hundreds of diseases and risk factors from 1990 to 2019, broken down by age and gender for more than 190 countries including Denmark and the other European countries under consideration. For more information, visit: www.ghdx.healthdata.org

5 Life satisfaction is generally assessed using variations of the following prompt: "On a scale from 0 to 10, where 0 means that you're re very dissatisfied, and 10 means that you are completely satisfied, how satisfied are you with your life overall?"

6 Diener et al. (2012).

7 OECD (2013); Helliwell et al. (2020).

8 Importantly, this methodology assumes a weighting function of 1 to 1 for wellbeing lost due to death and wellbeing lost while alive. In other words, living one year completely dissatisfied with life (0 out 10 on a life satisfaction scale) is weighted the same wellbeing lost due to death. In both cases, 1 WALY is lost. There are a number of important ethical and normative considerations that could be brought to bear on this relationship, and we do not intend to adjudicate the issue here. Future research may seek to clarify and discuss the philosophical implications of competing approaches.

9 For even more detailed analysis and exploration of the WALY model, see: Happiness Research Institute & Leaps by Bayer (2020).

10 Mortality and prevalence estimates are drawn from GBD estimates and SHARE data.

11 While roughly one out of every ten adults in Denmark are found to be depressed, two out of every ten Europeans are.

12 Loneliness is assessed using the Three-Item Loneliness Scale (T-ILS), consisting of the following three questions: (1) How often do you feel isolated from others? (2) How often do you feel you lack companionship? (3) How often do you feel left out? Answers are recorded on a three-point scale including "hardly ever or never", "sometimes", and "often". These answers are then aggregated on a scale from 3-9, with 7-9 categorized as severe loneliness, and 4-6 as moderate loneliness.

13 Lasgaard & Friis (2015).

14 Cacioppo et al. (2010).

15 Lim et al. (2016).

16 Heinrich & Gullone (2006).

17 Wilson et al. (2007).

18 Malcolm et al. (2019).

19 Holt-Lunstad et al. (2015).

20 Throughout this report, depression is measured using the EURO-D scale, consisting of 12 questions regarding a variety of depressive symptoms. Answers are recorded on a scale from 0 to 1 (yes or no) indicating the presence of each symptom, and then aggregated for a total score between 0 and 12. Following past research, we consider respondents with scores of 5 or higher as cases of depression.

21 Mental health problems, including depression and anxiety, are not associated with mortality rates in the Global Burden of Disease database. Deaths due to suicide and self-harm are classified separately.

22 Plana-Ripoll et al. (2019).

23 Allan et al. (2014).

24 Jebb et al. (2018).

25 Financial distress is the second largest burden in Europe relative to other conditions. In Denmark it is the eighth.

26 Health complications relating to physical activity were responsible for 87,000 deaths in Europe in 2017, and 1,200 deaths in Denmark. For more information, visit: www.ghdx.healthdata.org

27 Pearlin et al. (1990); Kramer, (1997); Schulz, & Beach (1999); Dunn et al. (2001).

28 SHARE surveys are conducted every two years. Due to data limitations, we only have life satisfaction estimates available four years later for cancer, Alzheimer's, stroke, and unemployment. For loneliness variables, we only have estimates available two years later.

29 Estimates drawn from Statistics Denmark estimations. For more information, see: www.statistikbanken.dk/IND03

30 Goel et al. (2018).

31 De Prophetis et al. (2020).

32 Boehm et al. (2018).

33 Baruth et al. (2011); Kim et al. (2017).

34 Goudie et al. (2014).

35 Kim et al. (2014).

36 Soo et al. (2018).

37 Authors' calculations from United Nations population projections. For more information, see: www.population.un.org/wpp

38 There are slight discrepancies in the burden estimates for Denmark and Europe presented in Figure 4 and Figure 2 for two reasons. First, burdens in Figure 2 are calculated using Global Burden of Disease population estimates for 2017, while burdens in Figure 4 are calculated using United Nations population estimates from 2020 onwards. Second, burdens in Figure 4 are age-weighted for five year age groups (50-54, 55-59, etc.), while burdens in Figure 2 are calculated using single averages for older adults over 50 years old.

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Long and happy lives

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