Subjective disability-free life expectancy

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Abstract

This study investigates subjective disability-free life expectancy (SDFLE)—the number of years individuals expect to live without health limitations—and compares it to subjective life expectancy (SLE) and their objective counterparts. Using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), we document systematic differences by age, gender, and education.

Both men and women underestimate their remaining lifetime, although the gap between subjective and objective life expectancy narrows with age. In contrast, individuals tend to overestimate the number of years they will live free of disability, and this bias increases with age. Women expect to live slightly longer and healthier than men, but the gender gap remains modest.

These patterns reveal significant misperceptions about longevity and health. Individuals seem to internalize mortality risks more accurately than the risk of dependency, displaying an optimism bias regarding future health. Among men, the more educated show smaller misperceptions, with expectations that align more closely with objective measures. Such inaccuracies matter for long-term planning: people rely on their beliefs about life expectancy and health when making decisions about savings, retirement, and future care. Overestimating the duration of healthy life, while underestimating overall longevity, may lead to insufficient preparation for dependency and greater vulnerability to poverty or unmet care needs at older ages.

By combining subjective and objective indicators, this study highlights how systematic misperceptions of longevity and health shape individuals' expectations and economic behavior, with important implications for ageing and social policy.

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1 Introduction

Individuals make decisions based on how they perceive the likelihood of uncertain outcomes. This observation has led to a growing literature on *subjective longevity* (SLE) —the length of life individuals expect to have (Perozek, 2008; Bissonnette and de Bresser, 2018; Delavande and Rohwedder, 2011; Dormont et al., 2018). This literature shows that subjective longevity is a key determinant of long-term planning (Hudomiet et al., 2023). It serves as a proxy for the number of years individuals expect to finance their consumption, as well as for their perceived risk of dependency, since health deterioration becomes more likely with age. In demographic research, subjective longevity has also been used to construct life tables and project future mortality (Perozek, 2008). The underlying idea is that, if individuals possess accurate knowledge about their own longevity prospects, such information can provide valuable insights for forecasting mortality, potentially improving projections based solely on historical data.

This study extends this framework by exploring *subjective disability-free longevity* (SDFLE)—the expected time individuals anticipate living without health limitations. We decompose expected remaining life into two components: years expected to be lived without limitations and years expected to be lived with limitations. To our knowledge, this decomposition has not yet been examined in the literature. It provides a novel perspective on long-term planning, as the expected duration of life with limitations reflects anticipated health and long-term care needs that may shape saving behavior or, more generally, the way individuals prepare for the future. Following Perozek (2008), such subjective information could also be used to project future population-level care needs, leveraging individuals' own expectations about longevity and health.

We contribute to the literature by answering the following questions. How many remaining years of life do people they have to live? Among these years, how many do they think will be without a disability? Do people perceive well their LE and DFLE on average when comparing with objective measures? Do we find similar patterns by educational level? To our knowledge, the points three last people have not been studied in the literature yet.

2 Data: SHARE France

We use the French sample of the SHARE survey from the waves 8 (2019/2020) and 9 (2022). We focus on the French sample because we combine the main questionnaire of these waves with drop-off questionnaire, a country-specific paper questionnaire given to participants by interviewers at the end of the face-to-face interview. This latter questionnaire gathered information on perceived longevity and future disability.

In the questionnaire, surveyed individuals were first asked about perceived disability with the following question:

> *In your opinion, what is the risk that you will be dependent in 5 years, 10 years, and 20 years (expressed as a percentage, between 0 and 100)?*

They were then given a clarification on the meaning of being dependent:

> *'Dependent' here means having difficulties and needing help with daily tasks such as bathing, cleaning, or shopping. If you already consider yourself dependent at the present time, please answer '100%.'*

We interpret answer to this question as the probability of being disabled, conditional on being alive. Then they are asked about longevity expectations with the following one:

> *In your opinion, what are your chances of still being alive in 5 years, 10 years, and 20 years (expressed as a percentage, between 0 and 100)?*

We use these two question to measure the subjective disability-free life expectancy (SDFLE) and sublective life expectancy (SLE).

3 Methodology

3.1 Subjective disability free longevity

The objective of this paper is to estimate the SDFLE. For an individual i, this can be measured for as the area below the curve that can be expressed as follows:

$$E_i^{\text{DFLE}} = \int_{t=\text{age}_i+1}^{T} P_{it}(\text{Alive} = 1, \text{Able} = 1)\, dt \tag{1}$$

We are also interested in the share of their remaining years live individuals expect to be disability free. To do so, we also compute the SLE as follows:

$$E_i^{\text{LE}} = \int_{t=\text{age}_i+1}^{T} P_{it}(\text{Alive} = 1)\, dt \tag{2}$$

The probabilities in the equations 1 and 2 are obseved for the three time horizons of 5, 10 and 20 years. Using these reported probabilities, we use the non-parametric method developed by Bellemare et al. (2012) and Meyer (2008) to construct, at the individual level, both the subjective survival curve and the subjective disability free survival curve. We adopt this non-parametric technique to avoid any assumption on a given distribution regarding disability free longevity, given that the current demographic literature on this topic is agnostic on its distribution.

3.2 Objective disability free longevity

This paper compares subjective and objective measures. For objectle LE, we use cohort life tables provided by national statistics (Deroyon, 2023). For ojbective DFLE, who use the method developed by Sullivan (1971).

4 Results

Figure 1 displays the mean values of these variables by age, separately for men and women. The means were estimated using kernel regressions to smooth the relationship between age and the subjective measures, and mitigate spikes that arise from small sample sizes at specific ages. Figure 1a shows that the average expected age of death increases with respondents' current age, as older individuals answer conditional on survival. Among men, it rises almost linearly from about 82 at age 60 to 88 at age 75, while for women it increases from around 84 to 88. Women consistently expect to live slightly longer than men, although the gap remains modest, in line with previous findings. Overall, these patterns mirror the age-related decline in subjective life expectancy (SLE) observed elsewhere.

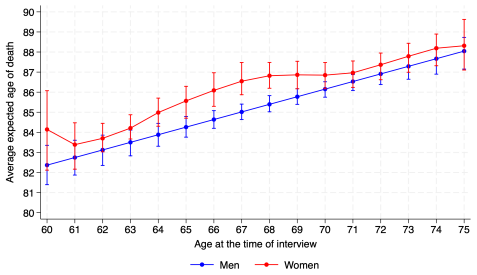
Turning to subjective disability-free longevity (SDFLE), we find clearer and more structured differences by age and gender (Figure 1b). At age 60, both men and women expect to lose autonomy around age 78. Among men, this expected age remains flat until about 63, before increasing steadily to reach 85 at age 75. For women, the increase begins earlier and follows a smoother trajectory, from about 78 at age 60 to 84 at age 75. These results suggest that women adjust their expectations of healthy longevity more gradually as they age, whereas men appear to revise them upward later in life. Between ages 61 and 64, women anticipate losing autonomy slightly later than men, but the two curves converge after age 66.

The ratio of SDFLE to SLE (Figure 1c) further highlights these gender-specific patterns. For men, the share of remaining life expected to be spent without disability remains stable at around 75% across ages, implying that aging does not substantially alter their perception of healthy life expectancy. In contrast, for women this share declines from about 78% at age 60 to 69% at age 75, indicating that they foresee a progressively smaller fraction of their remaining years in good health. This divergence reflects a steeper decline in SDFLE than in SLE among women, suggesting that concerns about disability and dependency become increasingly salient with age.

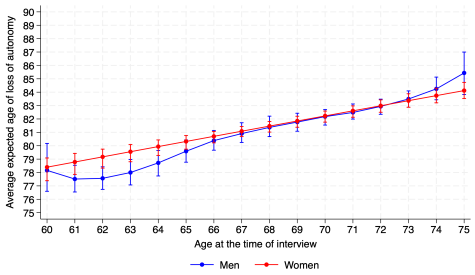
Figure 2a shows that men slightly underestimate their remaining lifetime, with the bias declining from about 2.5 years at age 60 to nearly zero by age 70. Women also underestimate their longevity, but more persistently—by about five years at age 60 and three years thereafter. This gender gap reflects the fact that women live longer but report similar subjective life expectancies, consistent with previous studies (Perozek, 2008; Bissonnette and de Bresser, 2018; Dormont et al., 2018).

In contrast, Figure 2b reveals that both men and women overestimate their subjective disability-free life expectancy (SDFLE). Among men, the bias is close to zero before age 65, rises to about one year between ages 66 and 72, and reaches nearly three years at age 75. For women, the increase is more gradual, reaching around two years by age 75. Overall, while individuals tend to underestimate how long they will live, they simultaneously overestimate how long they will remain healthy. This optimism bias—stronger among women—suggests that people internalize mortality risks more accurately than the risk of dependency.

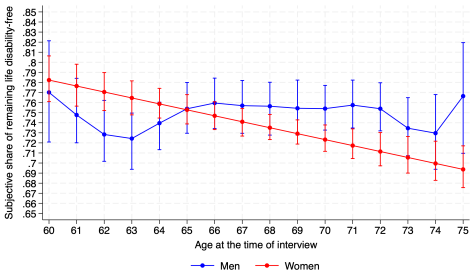
Figure 1: Subjective age of death and loss of autonomy and share of years without a disability



(a) *Expected age of death*



(b) *Expected age of loss of autonomy*



(c) *Share of remaining years alive without a disability*

Note: These graphs show the average subjective age of death (a), average subjective age of loss of autonomy, and average share of remaining years alive as disability-free (c). The curves are obtained using kernel regressions to smooth the relationship between age and the variables of interest.
Source : SHARE, authors' computations.

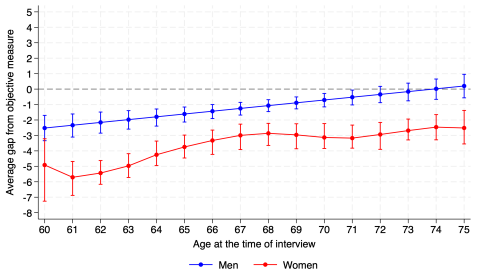
We find educational differences among men: the more educated expect to live longer and healthier, and their expectations align more closely with objective measures.

5 Conclusion

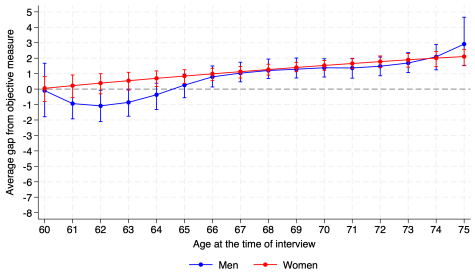
In summary, both men and women underestimate their remaining lifetime, though the gap with objective life expectancy narrows with age. In contrast, they overestimate the time they will remain free of disability, and this bias grows with age. Women expect to live slightly longer and healthier than men, but the differences are small. Overall, these results suggest a general optimism about future health, particularly among women, whose expectations appear more favorable than objective indicators imply.

These findings have important policy implications. Because individuals base key decisions—such as savings and care planning—on their expectations, misperceptions about disability duration may lead to insufficient financial resources to cover future care needs.

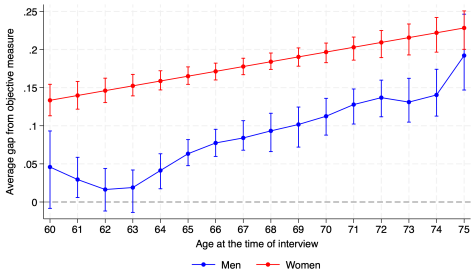
Figure 2: Gap between subjective and objective measures



(a) *Expected age of death*



(b) *Expected age of loss of autonomy*



(c) *Share of remaining years alive without a disability*

Note: These graphs show the average difference between subjective and objective age of death (a), age of loss of autonomy, and share of remaining years alive as disability-free (c). The curves are obtained using kernel regressions to smooth the relationship between age and the variables of interest.
Source : SHARE, authors' computations.

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