

# Is Successful Aging Declining with Age? The Age Profile of Objective, Subjective, and Preference-Based Measures of Successful Aging in Europe

Koen Decancq<sup>1\*</sup>, Veerle Van Loon<sup>2</sup>

<sup>1</sup>Department of Economics, Centre for Social Policy, University of Antwerp, Antwerp, Belgium; <sup>2</sup>Department of Sociology University of Antwerp, Antwerpen, Belgium

## ABSTRACT

This note compares the age profile based on standard objective and subjective measures of successful aging with the age profile based on a novel preference-based measure proposed by Decancq and Michiels (2019). Using data from the Survey of Health, Ageing and Retirement in Europe (SHARE) for 2013, we find that the share of persons between 50 and 90 who are aging successfully in Europe declines with age according to the objective and preference-based measures of successful aging. At any point in the age distribution, the share of older persons who are aging successfully according to the preference-based measure is significantly larger than the share according to the objective measure. The subjective measure of successful aging, however, shows a remarkably stable age profile.

**Keywords:** Age profile; Successful aging; SHARE; Preferences

## INTRODUCTION

The rapid aging of our societies raises several policy challenges. When evaluating the design of aging policies that aim to increase the number of older persons who are aging successfully, policy makers and researchers need an operational yardstick to compare the degree of successful aging across people [1]. Comparing successful aging turns out to be a thorny issue, however [2]. We illustrate this point by comparing age profiles using different approaches to measure successful aging to address the seemingly trivial question if the degree of successful aging was declining with age in 2013 in Europe.

## MEASURES OF SUCCESSFUL AGING

There is currently no consensus on how to define or measure successful aging [3,4]. One of the fundamental questions is who should assess when aging is considered to be successful [5,6]. Is this a matter for policy makers and researchers? Or should it be left to older persons themselves to evaluate whether they are aging successfully? Based on the answer to this question, the standard approaches to measure successful aging can be classified in two groups: objective and subjective measures [7].

Objective measures are based on external views of researchers or policy makers on what they regard to be successful aging. The

biomedical model of Rowe and Kahn offers an example of the objective approach and is probably one of the most influential conceptualization of successful aging to date [8,9]. They consider a person to be aging successfully if she scores better than a threshold value on three criteria: freedom from disease and disability, high cognitive and physical functioning, and active engagement with life.

According to this method, failing to reach the threshold value in one criterion cannot be compensated for by a good performance in another criterion. This non-compensatory perspective may not be shared by all older persons, however.

Subjective measures, on the other hand, rely on the direct judgments of older persons themselves with regards to how successfully they are aging. The pedigree of this approach goes back to the work of Havighurst who defined successful aging as having inner feelings of happiness and satisfaction with one's present and past life [10].

According to this definition, successful aging can be measured on the basis of self-reported life satisfaction such that older persons with a high life satisfaction score are considered to be aging successfully while those with a low life satisfaction score are not. The subjective approach seems appealing because the older persons themselves determine what the relative importance

\*Correspondence to: Dr. Koen Decancq, Department of Economics, Centre for Social Policy, University of Antwerp, Antwerp, Belgium; E-mail: koen.decancq@uantwerpen.be

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of the different aspects of successful aging is and whether there can be compensation between them.

The tension between the objective and subjective approach is more than a mere theoretical concern about who should define successful aging. Strawbridge et al. for example, find great discrepancies in prevalence rates of successful aging when adopting an objective or subjective definition [11]. Decancq and Michiels show how both objective and subjective measures fail to pass a litmus test of respect for older persons' preferences about what matters in their life [2].

In particular, they show that objective – but also subjective – measures may go against a unanimous agreement between two older persons on who of them is aging more successfully. The reason is that objective measures are constructed independently of older persons' preferences and are therefore not necessarily consistent with their opinions. Subjective measures, on the other hand, not only capture the preferences of the older persons, but also other aspects such as their level of adaptation, their expectations, and idiosyncratic personality traits. This is bad news, especially for researchers and policy makers who try to make interpersonal comparisons of successful aging.

Decancq and Michiels propose therefore an alternative preference-based approach to the measurement of successful aging [2]. In the preference-based approach, older persons use their own preferences to compare their life situation to a fixed reference situation. If they consider themselves to be better off than this reference situation, they are considered to be aging successfully. Conversely, if they prefer the threshold vector to their own life situation, they are considered not to be aging successfully.

A preference-based measure of successful aging is consistent with older persons' own idea about the 'good life' and passes the litmus test of respect for preferences in interpersonal comparisons [2]. This last feature is important for researchers who want to compare successful aging across people and for policy makers who want to give special attention to the worst-off older persons when designing and implementing aging policies.

This note illustrates an empirical implication of using different approaches to measure successful aging with respect to the seemingly trivial question whether successful aging declines with age. More precisely, we compare age profiles based on standard objective and subjective measures of successful aging with the age profile based on the novel preference-based measure.

An age profile presents for each age group the share of older people that is aging successfully. As they are constructed with cross-sectional data, age profiles do not allow us to isolate the effect of age from cohort and time effects and, hence, have to be interpreted carefully (see Schilling for a discussion) [12]. Nevertheless, age profiles of successful aging are useful to visualize how successfully different age groups in a population are aging.

## IMPLEMENTATION WITH SHARE

We use data from the fifth wave of the Survey of Health, Ageing and Retirement in Europe (SHARE), which was collected in

2013. We restrict the sample to respondents between 50 and 90 years old who are living in one of the following European countries: Austria, Belgium, Czech Republic, Denmark, France, Germany, Italy, the Netherlands, Spain, Switzerland, and Sweden. Respondents for whom we did not possess all the necessary information to compute the three measures of successful aging, were left out of the sample. This leaves us with a total sample of 48,013 respondents.

The operationalization of the objective, subjective, and preference-based method to measure successful aging is identical to the one of Decancq and Michiels. (all implementation details can be found there) [2]. Following the study by Hank, the authors included five dimensions of successful aging in the objective measure: absence of disease and absence of disability, cognitive and physical functional capacity, and engagement with life [9].

As discussed above, respondents are aging successfully when they score higher than a given threshold value in each of these dimensions. For the subjective approach, we follow Strawbridge et al. [11]. Respondents who report that their life satisfaction is higher or equal than 9 on a 10-point scale, are considered as aging successfully.

The main empirical challenge for the preference-based approach is to obtain information about older person's preferences between the actual life situation and the fixed reference situation. Decancq and Michiels use a statistical regression model to estimate these preferences (see also Clark and Oswald, and Decancq and Schokkaert for a similar approach) [13,14].

The model explains the answers of respondents to a life satisfaction question based on observable characteristics. With this model, the life satisfaction in the actual life situation and the fixed reference situation (that consists of the threshold value in each of the five dimensions of successful aging) can be predicted and compared. This model-based prediction considers only the outcomes in the five dimensions of successful aging and the preferences about their relative importance, but not the adaptation, expectations, and idiosyncratic personality traits of the respondents.

This is the main difference with the subjective approach. According to the preference-based approach, respondents for whom the predicted life satisfaction is higher in the actual life situation compared to the reference life situation are said to consider themselves to be better off than the reference situation, and are considered to be aging successfully.

Table 1 presents the share of the population between 50 and 90 in each country that is considered to be aging successfully according to the three methods. More people are considered to be aging successfully according to the preference-based measure compared to the other measures. Yet, we see considerable heterogeneity across countries and across methods.

When comparing, for instance, France and Denmark, we see that a larger share of the French older persons are aging successfully according to the preference-based measure, while more Danish older persons are aging successfully according to the objective and subjective measures. Especially the subjective

measure of successful aging shows a large difference between both countries with the measure being almost thrice as large in Denmark. These country averages mask considerable heterogeneity across age groups. In the next section, we therefore zoom in on this heterogeneity and consider the age profiles of successful aging according to the three methods.

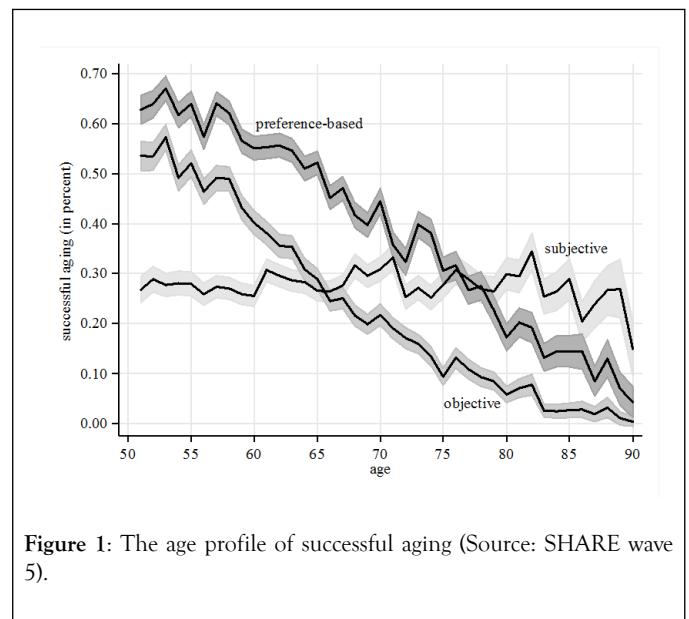
**Table 1:** Successful aging according to three measures in 2013 (Source: SHARE wave 5).

	Objective	Subjective	Preference-based
All Countries	30.7	27.8	46.3
Austria	34.9	42.2	55.3
Germany	30.7	30.4	46.2
Sweden	40.1	45.9	40.3
Netherlands	40.8	25.3	56.2
Spain	24.4	28.5	41
Italy	25.1	24.7	42.6
France	32.4	18.8	47.9
Denmark	43.4	54.8	43.6
Switzerland	49.5	45.3	68.2
Belgium	32.3	24.8	49.5
Czech republic	30.2	24.4	46.1

### THE AGE PROFILE OF SUCCESSFUL AGING

Figure 1 shows the age profile of successful aging according to the objective, subjective, and preference-based measures and the corresponding 95% confidence intervals. We see that the share of people who are aging successfully according to the objective and preference-based measures declines with age. While more than half of the sample is aging successfully at age 50 according to these measures, less than 10% of the sample is doing that at age 90. This finding is intuitive. Note, however, that the preference-based measure is consistently and significantly higher than the objective measure, especially in the age category between 60 and 80.

When looking at the subjective measure, however, we observe a totally different pattern. The subjective measure of successful aging shows a stable pattern that snakes around the level of 29% until the age of 80, after which it becomes less precisely estimated and starts to decline.



**Figure 1:** The age profile of successful aging (Source: SHARE wave 5).

The remarkably stable level of the subjective successful aging measures has previously been referred to as the “satisfaction paradox” in the literature (see Baird et al. for a careful study using longitudinal data and Gana et al. for a discussion of the empirical findings on the satisfaction paradox) [15,16]. Underlying this stable level of successful aging are presumably several countervailing forces at play such as the process of aging itself, adaptation, and shifting expectations [17,18].

### DISCUSSION

This note illustrates how a simple almost trivial question about the age profile of successful aging leads to different empirical results based on the choice of measure of successful aging. When comparing, for example, the group of 82 year old persons in Figure 1 with the group of 60-year old persons, we see that the former, older, group maintains a significantly higher level of subjective successful aging compared to the younger group ( $p$  value of  $t$  test of the difference between the levels of subjective successful aging :  $p < 0.0387$ ), while the share of people in the younger group who consider themselves to be better off than a fixed reference situation (as indicated by the preference-based measure) is about three times as large ( $p$  value of  $t$  test of the difference between levels of preference-based successful aging:  $p < 0.0001$ ).

How to compare the successful aging of both age groups is ultimately a value judgment about the role that adaptation, expectations, and idiosyncratic personality traits should play in these comparisons. While these aspects are deliberately not taken in account in the preference-based approach, they clearly affect the level of successful aging in the subjective approach.

### CONCLUSION

Echoing the conclusion of Decancq and Michiels we argue that policy makers and researchers who want to compare the levels of successful aging across older persons with respect for their preferences should consider using the novel preference-based measure of successful aging.

To be fair, the development of the preference-based approach is still in its infancy. Several avenues for further research are still open. First, the statistical method for estimating preferences should be further refined and improved. Ideally, a tailored and specific survey instrument should be designed that asks older persons to compare their own life situations with the fixed reference situation. Finally, important theoretical questions remain about the identification of the relevant preferences of older persons who suffer from dementia or cognitive decline.

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