Published in final edited form as:

Disabil Health J. 2020 October ; 13(4): 100926. doi:10.1016/j.dhjo.2020.100926.

Wellbeing at older ages: towards an inclusive and multidimensional measure

Sophie Mitra, Ph.D^{*,1}, Debra L. Brucker, PhD², Katie Jajtner, Ph.D³

¹Fordham University

²University of New Hampshire

³University of Wisconsin-Madison

Abstract

Background: With population aging, there is a growing need to measure and monitor the wellbeing of older people, including older people with disabilities.

Objective: To estimate the extent of wellbeing for individuals age 60+ in the U.S. overall and across disability status, this paper develops a measure of wellbeing at older ages that is multidimensional and disability inclusive.

Methods: Rates of multidimensional wellbeing among American older adults overall and among older adults with disabilities were estimated using multivariate regression analysis and data from the Panel Study of Income Dynamics matched with the 2013 Disability and Use of Time Supplement. Multidimensional wellbeing was defined as the simultaneous achievement of outcomes in five dimensions: material wellbeing, health status, personal activities, social connections/relationships, and economic security

Results: Among all older adults, 33% experience multidimensional wellbeing. However, only 4 to 18% of older adults with disabilities experience wellbeing. Wellbeing varies across the dimensions of wellbeing for this subpopulation. Persons with disabilities experience as much wellbeing as persons without disabilities in terms of health insurance status and social connections/relationships. In contrast, for material wellbeing, health status and personal activities, older persons with disabilities less often experience wellbeing.

Discussion: This paper brings to light a disability gap in the experience of wellbeing among older adults in the U.S. There is a need for research which can inform the development of policies and practices that will enhance wellbeing for older people with disabilities, including material wellbeing, health and personal activities.

* corresponding author. mitra@fordham.edu, Fordham University, Department of Economics, 441 East Fordham Road, Dealy Hall, Room E-524, Bronx, New York 10458. Phone: +1 914 960 3851.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The authors declare no conflict of interest.

Keywords

Wellbeing; Successful aging; disability; capability approach; human development model; aging

1. Introduction

One in eight people in the world are aged 60 or over and this share is expected to increase to one in six by 2050.¹ As life expectancies increase, more people will spend part of their adult lives with functional limitations or health conditions.² Yet, very little is known regarding wellbeing among older people with a disability or health condition.³ The objective of this paper is to develop and apply a disability-inclusive multidimensional method to organize and present information that can indicate whether older people experience wellbeing. Ideally, this must be done in a way that allows for comparisons across individuals, groups or countries. The priority is to use a measure that can be used across disability status, where disability is used as an umbrella term for functional limitations, activity of daily living limitations and health conditions.

Wellbeing has rarely been considered for older persons with disabilities as many researchers, starting with Rowe and Kahn^{4, 5}, based their analysis on the notion that wellbeing, or successful aging to use the term of the Rowe and Kahn model, was equated with freedom from disability and the presence of high cognitive, physical and social functioning.⁶ Operational definitions of successful aging have varied widely within the broad framework suggested by Rowe and Kahn: while some assess successful aging using dimensions including cognitive functioning, resilience, social and productive functioning, life satisfaction, and finance^{7,8}, most have included the absence of impairment or functional limitation.⁷ This understanding of successful aging has been influential in research as well as policy. For instance, the United States (U.S.) Federal Interagency Forum on Aging Related Statistics includes disability avoidance as part of its key indicators of wellbeing.⁹

There have been mounting critiques of the “successful aging” model, especially regarding its lack of inclusiveness¹⁰ and its emphasis on individual factors of success, but alternative models and measures remain scarce. This paper develops and applies an alternative multidimensional measure of wellbeing at older ages that is grounded in the human development model of disability, health and wellbeing. It is an application of the capability approach^{11,12}. The capability approach makes it possible to enlarge the successes of interest to *functionings* (achievements) and *capabilities* (practical opportunities) that older people value. The individuals’ *agency*, their power to make choices and pursue valued objectives within their capability set, is central to the capability approach. Using the capability approach, *wellbeing* can therefore be understood as comprised of capabilities and functionings that older people value. Diversity is also central to the approach: it does not exclude anyone from the theory and personal and structural factors shape capabilities, including how resources may be converted into capabilities. There have been recent calls pointing to the capability approach as a useful framework for gerontology research^{13,14,15}. The *World Report on Ageing and Health*¹⁶ defines “healthy aging as the process of

developing and maintaining functional ability that enables wellbeing in older age” and notes that it is consistent with the capability approach (page 27).

As argued in more detail in the companion comment to this paper, the human development model embraces the core of the capability approach and helps move the lens towards a holistic and inclusive understanding of wellbeing at older ages. The human development model considers impairments/health conditions in relation to capabilities and how they interact with personal and structural factors, resources and capabilities. Wellbeing at older ages is not incompatible with having health conditions or impairments: health conditions or impairments that do not restrict capabilities that older people value can coexist with wellbeing. In the human development model, while functional ability may be a functioning that older people value inherently or instrumentally towards capabilities, it is not the central focus or enabler of wellbeing as in WHO 2015’s definition above. It might shape capabilities but at the same time, persons with functional limitations may still be able to achieve the doings and beings they value. It provides a disability inclusive lens to consider wellbeing at older ages.

This study uses the human development model to address how common wellbeing is at older ages in general, and for older persons with functional limitations or health conditions in particular, using nationally representative U.S. survey data. A priori, the hypotheses are that (1) wellbeing is experienced among persons with disabilities; (2) there is a disability gap in wellbeing at older ages; and, (3) achievements for persons with disabilities vary across dimensions of wellbeing and disability measures, types and degrees.

2. Methods

Data was derived from the Panel Study on Income Dynamics (PSID). The PSID is a household panel survey started in 1968 in the US.¹² The PSID core interview was conducted annually from 1968–1997, and biannually thereafter. Several supplements have been added and conducted recently. In 2013, the Disability and Use of Time (DUST) supplement to the PSID collected several measures of functional and activity limitations and wellbeing. For this study, the wealth of such measures available in DUST¹ was exploited to build a cross-sectional sample of Americans age 60+ who answered DUST in 2013 (N=1,578). All analyses were adjusted for PSID complex survey design using DUST weights, cluster, and strata.

Functional status and health condition measures:

Disability is difficult to measure and it is usually recommended to use several measures, if possible. This analysis used two different measures of functional status and one measure based on health conditions. First, persons with and without limitations were identified using six questions initially developed for the American Community Survey (ACS) and now used broadly within most federally funded national household surveys conducted in the U.S.¹³ In

¹A more recent supplement, the Well Being and Daily Life Supplement (PSID-WB), encompasses a larger sample while also addressing numerous aspects of an individual’s wellbeing; however, notably absent from the PSID-WB are survey questions addressing the individual’s functional limitations.

PSID, the questions are available only in the DUST supplement and measure self-reported limitations in: 1/ hearing, 2/ seeing, 3/ concentrating, remembering, or making decisions, 4/ walking or climbing stairs, 5/ dressing or bathing, and 6/ doing errands alone. Persons answering yes to at least one of these six limitations were considered to have a “functional limitation.”

A second measure of functional status, one based on limitations in performing activities of daily living (ADL) was also used. ADLs include bathing, dressing, eating, using the restroom, getting outside, getting out of bed or a chair, and walking. Persons identified as being limited in any of these activities were considered to have an “ADL limitation.”²

Third, a measure based on health conditions was used. Since 1999, the core PSID captured a great level of detail about health conditions. For this analysis, qualifying health conditions included physician-, or health professional-diagnosed arthritis, asthma, high blood pressure, cancer, diabetes, heart attack, heart disease, chronic lung disease (e.g. bronchitis, emphysema), or stroke as reported by the respondent. Survey respondents also self-reported the degree of limitation experienced due to these conditions. Based on these self-reports, individuals were categorized as having: no health condition, a non-limiting condition, a condition with mild limitations, a moderately-limiting condition, or a severely-limiting condition from 1999–2013.

Wellbeing indicators and measure:

Ideally, a set of functionings or capabilities valued by older people is needed. In this study, as data on capabilities was unavailable, data on functionings collected through the PSID was used.

To select dimensions of wellbeing, one would ideally also need to know the dimensions of wellbeing that are valued by older people in the U.S. This has been done in some countries.¹⁴ For instance, in the United Kingdom, through in-depth interviews with 40 persons age 65+, five capabilities were found to be of primary importance to older people: attachment (love, friendship, affection), role (doing something that is valued), enjoyment (pleasure, joy, satisfaction), security (feeling safe and secure) and control (being able to make own decisions).¹⁵ In the absence of such work in the U.S., dimensions of wellbeing derived through an extended international consultative process towards developing indicators to measure economic and social progress for the general population was used in the present analysis.¹⁶ Stiglitz et al.¹⁶ recommend the following eight dimensions as constitutive parts of wellbeing: material wellbeing (income, consumption and wealth), health, education, personal activities including work, political voice and governance, social connections and relationships, environment (present and future), and insecurity of an economic and physical nature.

²Instrumental activities of daily living (IADLs) are another potential source of identifying functional limitations in the core PSID survey. IADLs however appear in the core survey beginning in 2003, in 2013 two of the six IADLs are asked only of individuals not reporting excellent health, and one of the IADLs (using the telephone) is similar to one of the dependent variable's success indicators (socializing on the telephone).

PSID core and DUST files were reviewed to identify possible indicators for these eight dimensions. Results of the data review, shown in Appendix 1, informed the final selection of dimensions and indicators. Indicators came from validated questions in the PSID core and DUST supplement. Indicators for five of the dimensions listed above were used as presented in Table 1: 1) material wellbeing, 2) health, 3) personal activities, 4) social connectedness and relationships, and, 5) insecurity. Unlike in Stiglitz et al.¹⁶, this analysis did not include education as a wellbeing outcome at older ages. For this sample, final educational attainment was often reported in the individual's 20s and 30s and was often achieved in early adulthood. Therefore this analysis did not consider it a wellbeing indicator at older ages, and instead included education as a covariate. The resulting indicators from this review process bear a striking resemblance to those found to have mattered in the Grewal et al.¹⁵ qualitative study. For this analysis, wellbeing was largely measured at the individual level. The material wellbeing dimension included an individual indicator (satisfaction with financial situation) as well as two indicators at the family level (income, wealth). The other four dimensions included solely individual-level indicators. Health insurance status was used as an indicator for economic security with a person considered deprived if he/she reported being uninsured. Information on physical security, the other dimension of security noted earlier¹⁶, was unavailable which presented a limitation for this study given how frequent abuse is among older people, including physical abuse (page 74)¹⁶.

A redundancy analysis as per Alkire et al.²² found limited overlap among indicators (results not shown here), which suggested these indicators did not capture similar information on achievements. Tetrachoric correlations among possible indicators of interest were also examined to exclude redundant ones. This is shown in Appendix 2 for the indicators included in the study.

The specific within-dimension indicator cutoffs are given in Table 1. Common thresholds used in the literature and in policy were selected, for instance Haveman and Wolfe²³ for net wealth, Au and Johnston²⁴ for self-assessed health, and Berchick, Hood and Barnett²⁵ for health insurance.

In addition to an indicator-by-indicator dashboard analysis, this study also estimated a multidimensional measure of wellbeing to investigate the experience of simultaneous achievements following Alkire and Foster.²⁶ This is in line with a multidimensional understanding of wellbeing in the capability approach. In brief, this method counted achievements for a set of dimensions that affect an individual. An individual was considered to experience wellbeing if the number of achievements the individual met or exceeded a set threshold. Details on the calculation of this measure are included below. S gives the percentage of the population who experience wellbeing at older ages. Dimensions are weighted such that w_j is the weight of dimension j . There are different possible methods for setting up weights, for instance, asking people's opinions or using the observed distribution of successes or deprivations²⁷. In this paper, as is often done in multidimensional wellbeing or poverty research²⁶, all dimensions were considered equally important and were given equal weights, and when more than one indicator was used within a dimension, indicators were equally weighted within the dimension.

According to the method laid out in Alkire and Foster²⁶, each individual i has a weighted count of dimensions where that person achieves success (c_j) across all measured dimensions: $0 \leq c_j \leq d$ where d is the number of dimensions; with c_{ij} equal to one if individual i has an achievement in dimension j , and zero otherwise. Let q_i be a binary variable equal to one if the person is identified as achieving, and to zero otherwise. A person is *identified as experiencing multidimensional wellbeing* if the person's count of achievements is greater than some specified cutoff (k): if $c_i \geq k$, then $q_i = 1$; if $c_i < k$, then $q_i = 0$

The *share of older persons experiencing wellbeing* S is then the number of persons with wellbeing ($q = \sum q_i$) divided by the total population (n): $S = q/n$

For this analysis, a threshold of $k = 80\%$ is used. Additionally, a handful of cases were considered as not experiencing wellbeing if individuals reported simultaneously an achievement threshold at or above 80% and a deprivation threshold at or above 20%. Thus, this wellbeing measure included individuals who had achievements in most, but not necessarily all, dimensions. However, this threshold was varied to assess how the wellbeing rate changes as the threshold increases or decreases. This allowed moving beyond the dichotomy of success vs failure.

Multivariate regression analysis was used to identify correlates of wellbeing, following the specification shown below. S_i indicates wellbeing of individual i and is a function of health conditions/impairments (H_i), personal factors (P_i) (age, neuroticism), resources factors (R_i) (educational attainment), structural factors (X_i) (gender, minority, marital status, family size, metropolitan area and number of children) related functionings (F_i) (smoking, drinking) and unobservable factors (e_i) as follows: $S_i = f(H_i; P_i; R_i; X_i; F_i; e_i)$. Under personal factors, age was measured as age group (65–69, 70–74, 75–79, 80 or older), with persons aged 60–64 serving as the reference group. As per Carr et al.²⁸, a scale was used to assess neuroticism, summing responses to three questions that used a four-level Likert scale to assess levels of worrying, getting nervous and handling stress. The neuroticism summation score was normalized by subtracting the minimum and dividing by the range for the sum. Gender and being a minority in terms of race/ethnicity were included under structural factors as they may reflect barriers that individuals face or have faced over the life course. Never smoking/drinking were also controlled for, as these functionings that may be related to some dimensions of wellbeing.

3. Results

Table 2 presents the descriptive statistics of the sample as well as estimates of wellbeing overall and across disability status. As shown in the column labeled “Total”, 48% of adults age 60 and older had a functional limitation, 21% had an ADL limitation and 81% had a health condition in 2013. More than half (53%) of the sample had a health condition with no or mild limitations: 17% and 11% had a health condition with moderate and severe limitations respectively. The analysis found significant differences between persons with and without limitations for personal, structural factors, resources and other functionings. For example, persons with functional limitations, ADL limitations or more severe health conditions tend to be older, have significantly lower percentages of college-educated

individuals and are less likely to be married and are less likely to have never smoked. These individuals were also more likely to be part of a minority race/ethnicity and participate in less alcohol consumption than persons without any limitation or condition.

The top row of Table 2 shows the percent of the sample that experienced wellbeing, overall and stratified by disability status, confirming the first (“Wellbeing is experienced among persons with disabilities”) and second (“There is a disability gap in wellbeing at older ages.”) hypotheses. According to our results, 33% of all older adults experience wellbeing. Rates of wellbeing vary by disability status, ranging from a low of four percent for those with a severely limiting health condition to a high of 18% for those with an ADL limitation.

Table 3 presents the overall estimate of the percentage of older persons experiencing wellbeing (S) as well as the percentage of older persons experiencing deprivation and achievement by indicator. While 33% of all adults age 60 and older in the U.S. are found to experience multidimensional wellbeing, as noted above, achievements vary substantially from indicator to indicator, confirming the third hypothesis (“Achievements for persons with disabilities vary across dimensions of wellbeing and disability measures, types and degrees.”). On the lower end, 45% of older adults report excellent or very good health status and 46% participate in physical activities. On a positive note, most (87%) report satisfaction with marital or other romantic relationships and 95% have health insurance.

Figure 1 gives the histogram of the weighted count (c_i) of wellbeing for the entire population and by group along with 95% confidence intervals. In the top panel of Figure 1, 12% of the population had a weighted count at .90 or above: in other words, 12% of older Americans have achievements in at least 90% of indicators. This would be the share experiencing wellbeing if a threshold of 90% over all indicators were used. With a threshold of 80%, as noted earlier for Tables 2 and 3, the share rises to 33% for Americans age 60+. Lower panels of Figure 1 show differences in the distributions of the weighted count of achievements by functional limitation or health condition status. With a threshold of 80%, 18% of persons with a functional limitation and 6% of persons with an ADL limitation experience wellbeing. Across health condition status, the share ranges from a low of 4% for persons with a severe health condition to a high of 55% for persons with no health condition. Overall, 4 to 18% of persons with functional limitations, ADL limitations or health conditions experience wellbeing. They are thus less likely to experience wellbeing than persons without any disability.

This result holds in a multivariate regression of the odds of experiencing wellbeing given a functional limitation, ADL limitation, or a health condition (regardless of severity) and controlling for the factors described in Table 2. Persons with functional limitations, ADL limitations or health conditions are significantly less likely to meet our definition of wellbeing than persons without those limitations or conditions (Figure 2 and Appendix 3). For instance, the odds of experiencing wellbeing for persons with a functional limitation are 0.3 those of persons without any limitation (95% confidence interval 0.235–0.441), all else equal. While this finding supports the first hypothesis, that wellbeing is experienced among persons with functional limitations or health conditions, it also highlights the disparities in wellbeing between persons with and without functional limitations or health conditions.

Although persons with a functional limitation are significantly less likely to experience wellbeing overall, the center panel of Figure 2 shows great variation by limitation type. Persons with limitations in hearing or vision do not have odds ratios of wellbeing at older ages that are significantly different than persons without any limitation, while persons with limitations in concentration, walking, dressing, bathing or running errands alone have estimated odds ratios between 0.2 and 0.5. Some variation is also found by health condition severity, but health condition of each severity level is associated with lower odds of experiencing wellbeing compared to persons with no health condition. As shown in the bottom panel of Figure 2, odds ratios range from 0.47 for persons with no or mild health limiting conditions to 0.05 for persons with severely limiting health conditions. Results for other covariates (Appendix 3) are as expected. For instance, consistent with earlier research¹⁶, higher educational attainment is associated with higher odds of wellbeing.

Figure 3 highlights the differences in achievements indicator by indicator across functional limitation, ADL limitation or health condition status. In each spider chart, the dark/light lines connect the achievement rates across indicators for persons with and without disabilities respectively. Older persons with disabilities fare worse than those without disabilities for material wellbeing, general health status and activities. However, there is no significant gap among older persons with and without disabilities for the social connection and health insurance indicators.

While multidimensional measures require assumptions for the selection of dimensions, weights and thresholds, these assumptions can be relaxed in sensitivity analyses. The main results hold when some of these assumptions are changed, in particular when varying the cross-dimension threshold *below or above 80%* and when relaxing some of the within dimension thresholds (e.g. income, wealth, health). Changing the weights of the dimensions has predictable effects.

4. Discussion

This paper makes several contributions to the literature on wellbeing at older ages. First, the paper develops and implements a multidimensional measure of wellbeing at older ages that can be applied to the entire population and to subpopulations with disabilities. Using PSID data covering outcomes in terms of material wellbeing, self-rated overall health, personal activities, social connectedness/relationships and insecurity, 33% of Americans age 60+ are considered to experience wellbeing. Although this analysis uses a fundamentally different measure compared to the literature on successful aging, the result is close to the 35.8% mean proportion found in the systematic review of empirical works in this literature conducted by Depp and Jeste.⁷

Using a disability-inclusive multidimensional measure of wellbeing, a sizeable share of persons with disabilities experience wellbeing: 4 to 18% depending on the functional or health condition measure under use. This supports the first hypothesis: that wellbeing is experienced among persons with disabilities. At the same time, persons with disabilities are significantly less likely to experience wellbeing at older ages than persons without, supporting the second hypothesis of a disability gap in wellbeing at older ages. This

highlights the need for policy and research efforts to enhance wellbeing among older persons with disabilities in the U.S. This should include monitoring the wellbeing of this group as part of wellbeing monitoring efforts, instead of, or in addition to, measuring disability avoidance as a wellbeing indicator for the entire population as is done by the Federal Interagency Forum on Aging-related Statistics.⁹

This paper also finds that wellbeing for older persons varies by disability status as well as across dimensions of wellbeing. There are two dimensions under study where persons with disabilities tend to experience similar, or more, wellbeing as persons without disabilities - health insurance status and social connections/relationships. The finding regarding health insurance is perhaps not surprising for the U.S. given that other research has found high rates of health insurance coverage for people with disabilities in general²³ and that persons who receive Social Security retirement income also receive Medicare coverage. The finding of similar levels of social connections/relationships between older adults with and without disabilities bears further examination. The general population of persons with disabilities has been found to have lower levels of social interaction than others.³⁰⁻³² Future research could perhaps examine whether changes in social connections/relationships as people age perhaps results in reductions in social capital among those without disabilities, bringing their levels more in line with the experiences of those with disabilities.

In contrast, for material wellbeing, health status and activities, older persons with disabilities in the U.S. tend to experience a lower likelihood of achievement. These findings mirror those found for the general population of persons with disabilities, where persons with disabilities have been found to have higher rates of poverty, lower self-reported health and more activity limitations.^{29, 33} That disparities in material wellbeing persist into old age suggests that the combination of public retirement and health insurance programs available to persons with disabilities in the U.S. are not of sufficient strength to bring their material wellbeing into line with that of others as they age.

This paper also highlights a number of areas for future research. A major limitation is that it does not differentiate disabilities by age at onset, which needs further research. In addition, this application of the human development model in this paper was mostly concerned with developing a measure of wellbeing among older people that is multidimensional and that is inclusive of persons with functional limitations and health conditions. Further research could extend this with data that captures capabilities³⁷ and/or functionings that were not included in the PSID (e.g. interpersonal violence) and determinants of wellbeing, especially structural factors that are rarely captured in datasets. For instance, how common are aging stereotypes and how do they impact the wellbeing of older people? What are physical and social characteristics of workplaces and communities that are conducive to wellbeing at older ages in general and for persons with disabilities in particular? How does race/ethnicity and gender interact with other structural factors and resources to impact wellbeing later in life? How are specific indicators impacted by macro-level policies (e.g. pensions) or shocks (e.g. recessions)? Attempts could also be made to prioritize dimensions with lower achievement (material wellbeing, self-rated health and activities) and to assess how the safety net programs that affect older persons with disabilities are performing on these dimensions. Finally, qualitative, mixed methods and participatory studies are required to complement the

quantitative analysis in this paper by listening to the voices of older people. Such participatory work is needed to identify the wellbeing dimensions that matter to the heterogeneous population of older persons in the U.S.

This paper's findings can be used to inform the targeting of resources to enhance wellbeing in the U.S., in general, and for persons with disabilities, in particular. Dashboard results suggest that older people with disabilities fare worse on material wellbeing, general self-rated health status and participation in personal activities, highlighting the need for policy and program interventions in these areas for wellbeing to improve for this population. Wellbeing strategies exist. As Hsu and Chang³⁴ note, examples of personal or policy strategies include preparing mentally for old age³⁵ and increasing financial security.³⁶ Such strategies may need to be modified to become accessible for, and inclusive of, persons with disabilities.

These findings further suggest that multidimensional measures such as the one in this paper are a useful complement to earlier measures of successful aging in the U.S. as it captures the simultaneous experience of different types of wellbeing and different areas of policy focus. It provides a multidimensional assessment of wellbeing that does not exclude persons with disabilities by design. A measure such as this one could be used to monitor wellbeing at older ages in general and across disability status over time. It can estimate cumulative (dis)advantages experienced by older people in a way that is complementary to the dashboard indicator-by-indicator tracking that is already done.⁹ In addition, while it is beyond the scope of this paper to offer an assessment of specific programs or broad policies targeted towards older people, the measure of multidimensional wellbeing that is developed here provides an additional tool to measure their impacts.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This research was supported through a grant of the National Institute on Aging P01 AG029409. Dr. Sophie Mitra was also supported by a faculty fellowship from Fordham University.

The authors are grateful for insightful comments from participants of the 2018 American Public Health Association annual conference.

References

1. United Nations. (2015). World population ageing: Highlights. New York: United Nations Available: http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Highlights.pdf.
2. Tesch-Römer C & Wahl H-W (2017). Toward a more comprehensive concept of successful aging: Disability and care needs. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, Vol. 72, 310–318 doi:10.1093/geronb/gbw162
3. Freedman V (2014). Research gaps in the demography of aging with disability. Disability and Health Journal, 7(1 suppl): S60–S63. [PubMed: 24456687]
4. Rowe JW & Kahn RL (1998). Successful aging. New York, NY: Random House.

5. Rowe JW, & Kahn RL (2015). Successful Aging 2.0: Conceptual expansions for the 21st century. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 70, 593–596. doi:10.1093/geronb/gbv025
6. National Institute on Aging. (2001). Action plan for aging research. Washington, DC: Department of Health and Human Services.
7. Depp CA & Jeste DV (2006). Definitions and predictors of successful aging: A comprehensive review of larger quantitative studies. *American Journal of Geriatric Psychiatry*, 14, 1, 6–19. [PubMed: 16407577]
8. Cosco TD, Prina AM, Perales J, Stephan BCM, & Brayne C (2014). Operational definitions of successful aging: A systematic review. *International Psychogeriatrics*, 26, 3, 373–381. [PubMed: 24308764]
9. Forum. (2016). Older Americans: key indicators of wellbeing 2016. Federal Interagency forum on aging-related statistics. Available at: <https://agingstats.gov/docs/LatestReport/Older-Americans-2016-Key-Indicators-of-WellBeing.pdf>
10. LaPlante M (2014). Key goals and indicators for successful aging of adults with early-onset disability. *Disability and Health Journal*, 7, S44–S50. [PubMed: 24456685]
11. Sen AK (2009). *The Idea of Justice*. Cambridge, MA: The Belknap Press of Harvard University Press.
12. Robeyns I (2017). *Wellbeing, Freedom and Social Justice: The Capability Approach Re-examined*. Open Book Publishers.
13. Gopinath M (2018). Thinking about later life: Insights from the Capability Approach. *Ageing International* 43: 254–264. [PubMed: 29887653]
14. Stevens C (2017). From success to capability for healthy ageing: shifting the lens to include all older people, *Critical Public Health*, 27:4, 490–498.
15. Ehni H-J, Kadi S, Schermer M, Venkatapuram S (2018). Toward a global geroethics - gerontology and the theory of the good life. *Bioethics*, 32: 261–268. [PubMed: 29676503]
16. WHO (2015). *World Report on Ageing and Health*. World Health Organization: Geneva.
17. Panel Study of Income Dynamics, public use dataset. (2017). Produced and distributed by the Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, MI.
18. Sirken MG (2002). Integrating measurements of disability in federal surveys: Seminar proceedings. *Vital Health Stat*, 4(32).
19. Mitchell PM, Roberts TE, Barton PM & Coast J (2017). Applications of the capability approach in the health field: A literature review. *Social Indicators Research*, 133: 345–371. [PubMed: 28769147]
20. Grewal I, Lewis J, Flynn T, Brown J, Bond J, & Coast J (2006). Developing attributes for a generic quality of life measure for older people: preferences or capabilities? *Social Science and Medicine*, 62:1891–1901. [PubMed: 16168542]
21. Stiglitz JE, Sen AK, & Fitoussi JP (2009). Report by the Commission on the Measurement of Economic Performance and Social Progress. Paris: Commission on the Measurement of Economic Performance and Social Progress Available at www.stiglitz-sen-fitoussi.fr/en/index.htm.
22. Alkire S, Ballon P, Foster J, Roche JM, Santos ME, and Seth S (2015): *Multidimensional Poverty Measurement and Analysis: A Counting Approach*. Oxford University Press (Chapter 7).
23. Haveman R & Wolf B (2004) *The Concept and Measurement of Asset Poverty: Levels, Trends and Composition for the U. S., 1983–2001*.
24. Au N & Johnston DW (2014). Self-assessed health: what does it mean and what does it hide? *Social Science and Medicine*, Vol. 121:21–8. [PubMed: 25306406]
25. Berchick ER, Hood E, & Barnett JC (2018). *Health Insurance Coverage in the United States: 2017*. Current Population Reports P60–264.
26. Alkire S & Foster J (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics* 95(7–8):476–87.
27. Decancq K and Lugo MA (2013). Weights in multidimensional indices of wellbeing: an overview. *Econometric Reviews*, 32, 7–34.

28. Carr D, Cornman J, & Freedman VA (2017). Disability and Activity-related Emotion in Later Life: Are Effects Buffered by Intimate Relationship Support and Strain? ? Journal of Health and Social Behavior. Vol. 58(3) 387–403 [PubMed: 29164961]
29. Lauer EA & Houtenville AJ (2019). Annual Disability Statistics Compendium: 2018. Durham, NH: University of New Hampshire, Institute on Disability.
30. Condeluci A, Ledbetter MG, Ortman D, Fromknecht J, & DeFries M (2008). Social capital: A view from the field. Journal of Vocational Rehabilitation, 29(3), 133–139.
31. Meltzer H, Bebbington P, Dennis MS, Jenkins R, McManus S, & Brugha TS (2013). Feelings of loneliness among adults with mental disorder. Social Psychiatry and Psychiatric Epidemiology, 48(1), 5–13. [PubMed: 22570258]
32. Stancliffe RJ, Lakin KC, Taub S, Chiri G, & Byun SY (2009). Satisfaction and sense of well being among Medicaid ICF/MR and HCBS recipients in six states. Intellectual and Developmental Disabilities, 47(2), 63–83. [PubMed: 19368486]
33. Brucker DL, Mitra S, Chaitoo N, & Mauro J More likely to be poor whatever the measure: Working-age persons with disabilities in the United States. Social Science Quarterly, 96(1), 273–296. DOI: 10.1111/ssqu.12098.
34. Hsu H-C & Chang W-C (2015). Reducing the risks of morbidity, disability and mortality using successful aging strategies. Journal of the American Geriatrics Society, 63, 11, 2426–2428. [PubMed: 26603074]
35. Adams GA & Rau BL (2011). Putting off tomorrow to do what you want today: Planning for retirement. American Psychologist, 66, 180–192. [PubMed: 21341881]
36. Hassan MK, & Lawrence SB (2007). Retirement savings of the hip generation: A study of retirement preparation among individuals in their fifties. Southwestern Economic Review, 34:115–130.
37. Coast J, Flynn T, Natarajan L, Sproston K, Lewis J & Louviere J (2008). Valuing the ICECAP capability index for older people. Social Science and Medicine, 67(5):874–882. [PubMed: 18572295]

Figure 1:

Achievement rates overall, by functional limitation, ADL limitation and health condition status

Source: Authors' calculations using PSID core and DUST supplement data.

Note: 2013 Cross section estimates adjusted using DUST survey design.

Figure 2:

Odds ratio of functional limitation in logistic regression of experiencing wellbeing

Source: Authors' calculations using PSID core and DUST supplement data.

Note: 2013 Cross section estimates adjusted using DUST survey design.

Figure 3:

Rates of achievement indicator-by-indicator: by functional limitation, ADL and health condition status

Source: Authors' calculations using PSID core and DUST supplement data.

Notes: 2013 Cross section estimates adjusted using DUST survey design. Confidence intervals are not included, but are available from the authors upon request.

1-Family income 2-Wealth 3-Financial satisfaction

4-General health status

5-Physical activities 6-Activities for enjoyment 7-Daily activities satisfaction (non-work)

8-Productive activities (work, volunteer, care)

9-Marital satisfaction 10-Talking on the phone with friends or family 11-Socializing in person with friends or family 12-Family relationships

13-Health insurance

Table 1:

Dimensions of wellbeing, indicators, thresholds, and weights

Dimensions and Indicators	Threshold: Deprivation if...	Threshold: Achievement if...	Weight Dimension	Indicator
<u>Material wellbeing</u>			1/5	
Family income in past year	Below the official poverty line	Above 300% of official poverty line		1/15
Net wealth covers	Less than 1/6 annual income poverty threshold	At least 1/2 of annual income poverty threshold		1/15
Satisfaction with current financial situation [†]	0 (Not at all satisfied) or 1	5 and 6 (Very satisfied)		1/15
<u>Health</u>			1/5	
Self assessed health status ^{††}	Individual reports poor health	Individual reports excellent, very good health		1/5
<u>Personal activities</u>			1/5	
Worked, volunteered or cared for someone outside household	None in past week	At least one day in past week		1/20
Satisfaction with daily activities (other than work) [†]	0 (Not at all satisfied) or 1	5 and 6 (Very satisfied)		1/20
Physical activities	None in past week	At least three days in past week		1/20
Activities for enjoyment	None in past week	At least once in past week		1/20
<u>Social connections and relationships</u>			1/5	
Satisfaction with marital/relationship satisfaction ^{†‡}	0 (Not at all satisfied) or 1	5 and 6 (Very satisfied)		1/20
Family relationship	Does not feel appreciated by family or a little	Feels appreciated a lot by family ^{†‡}		1/20
Talking on the phone with friends or family	None in past week	At least three days in past week		1/20
Socializing in person with friends or family	None in past week	At least three days in past week		1/20
<u>Insecurity</u>			1/5	
Health insurance	Individual does not have health insurance	Individual does have health insurance		1/5

[†]The answer scale for the satisfaction questions are from 1 Not all satisfied to 6 Very satisfied^{††}Self assessed health status is on a scale of 1 to 5: 1 Excellent 2 Very good 3 Good 4 Fair 5 Poor^{†‡}For persons who are not married nor in a relationship, weights within this dimension were 0 for marital/relationship satisfaction and 1/15 for all others^{‡‡}The answer scale for the family appreciation question is 1. Not at all 2. A little 3. Some 4. A lot

Table 2:

Descriptive statistics for the 2013 DUST sample

	Functional limitation		ADL limitation		No condition	Health Conditions		
	Total	No	Yes	No		Non limiting/ mild	Moderate	Severe
% Experiencing wellbeing	0.327	0.464	0.177**	0.398	0.0615**	0.554	0.364**	0.150**
<u>Health conditions and impairments</u>								
Any functional limitation	0.475	0	1	0.369	0.876	0.255	0.402**	0.690**
-Hearing	0.200	0	0.422**	0.173	0.305**	0.115	0.187**	0.263**
-Seeing	0.122	0	0.257**	0.0945	0.226**	0.0674	0.0803	0.186**
-Walking	0.289	0	0.609**	0.165	0.758**	0.107	0.189**	0.511**
-Concentration/remembers	0.0942	0	0.198**	0.0713	0.181**	0.0642	0.0718	0.141*
-Dressing/bathing	0.0578	0	0.122**	0.0101	0.239**	0.0097	0.0211	0.0571*
-Doing errands alone	0.0991	0	0.209**	0.0462	0.299**	0.057	0.0571	0.124*
Any ADL limitation	0.209	0.0495	0.385**	0	1	0.047	0.0858*	0.398**
Any Health Condition	0.813	0.734	0.899**	0.774	0.958**	0	1	1
-No/mild limit	0.533	0.608	0.451**	0.616	0.219**	0	1	0
-Moderate limit	0.166	0.0977	0.241**	0.126	0.316**	0	0	1
-Severe limit	0.114	0.0291	0.207**	0.032	0.423**	0	0	1
<u>Personal factors</u>								
Age 60-64	0.285	0.336	0.229**	0.301	0.226*	0.398	0.280**	0.211**
Age 65-69	0.275	0.332	0.213**	0.292	0.213**	0.303	0.282	0.254
Age 70-74	0.156	0.143	0.170	0.155	0.158	0.132	0.162	0.156
Age 75-79	0.123	0.0904	0.158**	0.117	0.142	0.0723	0.125*	0.153*
Age 80+	0.161	0.0991	0.230**	0.135	0.261**	0.0944	0.152*	0.227**
Neuroticism score	0.506	0.486	0.528**	0.490	0.566**	0.486	0.494	0.522*
<u>Resource factors</u>								
HS/GED/or less	0.358	0.273	0.451**	0.338	0.432**	0.334	0.319	0.428*
Some college	0.263	0.256	0.271	0.256	0.289	0.24	0.263	0.275

	Functional limitation			ADL limitation			Health Conditions		
	Total	No	Yes	No	Yes	No condition	Non limiting/ mild	Moderate	Severe
4+ years postsecondary	0.379	0.471	0.279**	0.406	0.279**	0.426	0.418	0.297*	0.242**
<u>Structural factors</u>									
Female	0.568	0.551	0.588	0.552	0.628*	0.582	0.533	0.654	0.587
Minority	0.143	0.129	0.158	0.130	0.192*	0.0857	0.141*	0.149*	0.235**
Married	0.647	0.697	0.591**	0.688	0.489**	0.761	0.643**	0.616**	0.516**
Metropolitan area	0.607	0.622	0.591	0.608	0.603	0.622	0.61	0.592	0.593
Number of children	2.369	2.291	2.456*	2.344	2.463	2.26	2.289	2.612*	2.574
<u>Related functionings</u>									
Never Smoked	0.424	0.454	0.391*	0.449	0.330**	0.509	0.442	0.376*	0.272**
Former Smoker	0.492	0.476	0.510	0.473	0.564**	0.427	0.48	0.533	0.597**
Current Smoker	0.0833	0.0692	0.0990	0.0772	0.106	0.064	0.0775	0.0909	0.131*
No alcohol consumption	0.423	0.335	0.520**	0.383	0.575**	0.342	0.391	0.510**	0.579**
Light/Moderate alcohol consumption	0.514	0.593	0.427**	0.552	0.373**	0.591	0.544	0.423**	0.379**
3+ alcoholic drinks/occasion	0.0628	0.0719	0.0528	0.0658	0.0516	0.0663	0.0649	0.0665	0.0422
Observations	1578	812	766	1223	355	286	813	268	211

Source: Authors' calculations using PSID core and DUST supplement data.

Notes: Estimates are weighted using 2013 DUST weights and adjusted for survey design.

** p<0.01,

* p<0.05 using adjusted Wald test for the difference between estimated means of limited and non-limited groups.

Table 3:

Deprivation and achievement rates by indicator

	Deprivation rate	Achievement rate
<u>Material wellbeing</u>		
-Family income in past year	0.04	0.65
-Net wealth covers	0.12	0.84
-Satisfaction with current financial situation	0.03	0.64
<u>Health</u>		
-General health status	0.07	0.45
<u>Personal activities</u>		
-Physical activities	0.34	0.46
-Activities for enjoyment	0.31	0.69
-Satisfaction with daily activities (other than work)	0.02	0.67
-Worked/volunteered/cared for someone outside household	0.44	0.56
<u>Social connections and relationships</u>		
-Marital/relationship satisfaction	0.01	0.87
-Talking on the phone with friends or family	0.06	0.74
-Socializing in person with friends or family	0.15	0.51
-Feelings of family appreciation	0.07	0.63
<u>Insecurity</u>		
-Health insurance	0.05	0.95
Weighted count	0.11	0.68
Standard error	0	0.01
Share of older persons experiencing wellbeing (Weight count 80%+)		0.33
Standard error		0.02

Source: Authors' calculations using PSID core and DUST supplement data.

Notes: Estimates are weighted using 2013 DUST weights and adjusted for survey design. The weighted count of deprivations or achievements is the weighted sum of deprivations using the indicator weights of Table 1. N = 1578 for all indicators except marital/relationship satisfaction (N=1142).